San Francisco Bay Conservation and Development Commission

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September 24, 2019

TO: Commissioners and Alternates

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SUBJECT: **Staff Report and Recommendation for Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies (For Commission consideration on October 3, 2019)**

In order to address the planning, design, and permitting of necessary Bay fill for habitat projects in the San Francisco Bay, and to increase the region's resilience to rising sea level using the best available science, the staff recommends that the Commission adopt the attached Resolution No. 2019-05 (Attachment A) that would:

1. Amend the San Francisco Bay Plan (Bay Plan) Major Conclusions and Policies (staff report pages 6-10);
2. Amend the Bay Plan Fish, Other Aquatic Organisms, and Wildlife findings and policies (staff report pages 11-25);
3. Amend the Bay Plan Tidal Marshes and Tidal Flats findings and policies (staff report pages 25-42);
4. Amend the Bay Plan Subtidal Areas findings and policies (staff report pages 42-52);
5. Amend the Bay Plan Dredging findings and policies (staff report pages 52-62); and
6. Amend the Bay Plan Shoreline Protection findings and policies (staff report pages 63-65)

An affirmative vote of two-thirds of the Commission membership (18 members) is required to amend the Bay Plan.

Background

Recent sea level rise projections estimate that the San Francisco Bay could rise anywhere from 1.2 to 14.2 feet in the next century,[1] with the rate of sea level rise expected to accelerate after mid-century. Continued and/or increased sea level rise will put Bay habitats at increased risk for damage and loss as a result of inundation and deepening waters. Existing and restored tidal marshes, mudflats, and transitional habitat are expected to experience more frequent inundation, and in the absence of intervention, may eventually be submerged permanently. Deeper waters over subtidal habitats could deprive them of the physical conditions that they need to thrive (e.g., lower light availability in deeper water could negatively impact eelgrass beds). Under the right conditions, Bay ecosystems are able to migrate naturally inland and upland. However, this requires adequate sediment supply and adequate space to migrate, both of which are limited for ecosystems in the Bay. Providing more sediment and restoring ecosystem connectivity through habitat restoration, enhancement, or creation may require the use of more Bay fill. However, current Bay Plan policies limit the use of fill for habitat projects by limiting the ability to place fill necessary to sustain coastal ecosystems into the future.

In 2015, recognizing the potential need for projects in the Bay to use more fill for sea level rise adaptation, the San Francisco Bay Conservation and Development Commission (BCDC or Commission) created a Commissioner Working Group called the Bay Fill Policies Working Group (BFWG) with the charge of "making recommendations to the full Commission regarding whether BCDC's law and policies regarding Bay fill need to be amended to adapt to rising sea level, and make the Bay region more resilient and environmentally and economically productive, while ensuring Bay protection and maximum feasible public access to the Bay."[2] A concurrent BCDC planning process titled *Policies for a Rising Bay* (PRB) sought "to evaluate the Commission's laws and policies in light of the novel threats to the Bay presented by sea level rise; and to determine if changes are needed to help facilitate the region to advance appropriate resilience and adaptation actions."[3] Both the BFWG and PRB identified policies in the Bay Plan that could potentially limit the amount of fill that could be used to facilitate sea level rise adaptation of Bay habitats. The Commission further considered the need for policy changes regarding fill for habitat through a series of public workshops on rising sea level in 2016 and 2017, and identified the topic as a top priority for Commission action.

Thus, the Fill for Habitat Bay Plan Amendment (BPA 1-17) was initiated on July 20, 2017 to address the need to place an increasing amount of Bay fill to restore and enhance habitat in light of sea level rise impacts on Bay habitats and related policy issues. Six key policy issues are addressed through the amendment: (1) limitations on the amount of fill allowed for habitat projects in the Bay; (2) limitations on the amount of dredged sediment allowed for habitat projects in the Bay; (3) consideration of regional restoration goals and restoring complete, well-connected ecosystems; (4) addressing uncertainty with increased fill for habitat while

[1] California Ocean Protection Council (2018) State of California Sea-Level Rise Guidance: 2018 Update.
[2] BCDC, May 13, 2016. Summary of Bay Fill Working Group Activities and Considerations on Bay Fill Policies and Habitat Based Projects.
[3] BCDC, November 1, 2016. Policies for a Rising Bay Project Final Report.

encouraging innovation and new approaches in the face of a rising Bay; (5) consideration of the impacts, including potential habitat type conversion, caused by allowing more fill for habitat projects in the Bay; and (6) consideration of more robust policies on natural and nature-based shoreline protection solutions.

Staff identified, reviewed, and examined policy challenges associated with the amendment through several processes. BCDC staff engaged with technical experts and stakeholders by conducting a series of one-on-one interviews, and by attending and/or presenting at workshops, conferences, and coordination meetings. BCDC planning, regulatory, and legal staff discussed associated issues through meetings and one-on-one interviews. Staff met monthly with the BFWG, which provided essential guidance on the scope of the amendment and potential policy issues. Finally, staff held a series of Commission briefings to provide relevant scientific background for the amendment process, and convened a Commissioner Workshop on March 21, 2019. Attendees at the Workshop included BCDC Commissioners, BCDC staff, interested stakeholders, and members of the public. These processes are further described in the Staff Report and Preliminary Recommendation on BPA 1-17, and Appendices A-C of that report.

Feedback from the workshop, additional stakeholder interviews, and staff discussions informed the formulation of amended findings and policies. Background material for the proposed amendment is presented in the staff background report entitled Bay Fill for Habitat Restoration, Enhancement, and Creation in a Changing Bay. The background report provides the scientific foundation for the update of the Bay Plan findings and policies by providing an analysis of the topics listed above.

After the publication of the preliminary recommendation on May 21, 2019, the public had 48 days to comment on the recommendation. During this time, the Commission held a public hearing for the amendment on June 20, 2019. At the hearing, staff gave a presentation summarizing the recommended policy changes, members of the public had an opportunity to provide oral comment, and the Commission discussed the proposed changes and public comment. Altogether, the Commission received 21 written comments from 20 organizations during the public comment period, as well as 11 oral comments received at the hearing.

On June 6, 2019, staff initiated a complementary Bay Plan Amendment, BPA 3-19, to consider adding a Bay Plan Map policy regarding the Middle Harbor Enhancement Area (MHEA). The preliminary recommendation for BPA 1-17 proposed the removal of Dredging Policy 11b, a policy that limited the amount of fill that could be used for pilot projects until the completion of the MHEA project. The MHEA is a subtidal habitat creation project by the United States Army Corps of Engineers and the Port of Oakland that has been significantly delayed. In the absence of Dredging Policy 11b, staff wanted to ensure that the Bay Plan still stated the importance of completing the MHEA, and thus proposed the addition of a policy to the Bay Plan Maps regarding the MHEA project. However, the Bay Plan Maps were not included in the scope of the Fill for Habitat Amendment (BPA 1-17). Rather than change the scope of BPA 1-17 and create further delays for that amendment, staff proposed the initiation of a separate Bay Plan Amendment to consider the addition of a Plan Map policy. The Commission held a public

hearing on BPA 3-19 on September 5, 2019. Staff's final recommendation on BPA 3-19 is provided in a separate staff report and final recommendation, to be mailed on September 27, 2019.

After further discussion with BCDC staff, commenters, and the BFWG, staff revised the proposed changes to the findings and policies, and developed a final recommendation for BPA 1-17, which is presented herein.

Staff Recommendation

Staff recommends that the Commission adopt the attached Resolution No. 2019-05 that would amend the Bay Plan as follows:

1. Proposed Changes to Bay Plan Findings and Policies
   A. Amend the Bay Plan Major Conclusions and Policies to address the benefits of fill for habitat restoration, creation, enhancement, and adaptation.
   B. Amend the Bay Plan Fish, Other Aquatic Organisms, and Wildlife findings and policies to address the following:
      1. Allowing larger amounts of fill for habitat projects in the Bay;
      2. Outdated references to scientific documents;
      3. Consideration of habitat type conversion in determining appropriate volumes of Bay fill for habitat projects; and
      4. Prioritization of sediment placement for habitat projects in the Bay's margins.
   C. Amend the Bay Plan Tidal Marshes and Tidal Flats findings and policies to address the following:
      1. Allowing more fill for habitat projects in the Bay;
      2. Regional integration of monitoring efforts;
      3. Creating habitat connectivity;
      4. Ensuring that habitat projects are sustainable;
      5. Supporting regional restoration goals;
      6. Adaptive management plans for habitat projects;
      7. Importance of considering funding for monitoring and adaptive management;
      8. Design, monitoring, and adaptive management requirements;
      9. Importance of and need for pilot projects; and
      10. The need for research on approaches to habitat restoration, enhancement, and creation.

D. Amend the Bay Plan Subtidal Areas findings and policies to address the following:
   1. Allowing more fill for habitat projects in the Bay;
   2. Regional integration of monitoring efforts;
   3. Creating habitat connectivity;
   4. Ensuring that habitat projects are sustainable;
   5. Supporting regional restoration goals;
   6. Adaptive management plans for habitat projects;
   7. Importance of considering funding for monitoring and adaptive management;
   8. Design, monitoring, and adaptive management requirements; and
   9. Importance of and need for pilot projects.
   10. The need for research on habitat type conversion in subtidal areas

E. Amend the Bay Plan Dredging findings and policies to address the following:
   1. Use of the term dredged sediment instead of dredged material;
   2. Lifting the limitation on beneficial reuse of dredged sediment in the Bay until the completion of the Middle Harbor Enhancement Area project; and
   3. Importance of pilot projects in determining the best approaches and locations for dredged sediment reuse.

F. Amend the Bay Plan Shoreline Protection findings and policies to address the following:
   1. Required consideration and use of natural and nature-based features in shoreline protection projects;
   2. Benefits of natural and nature-based shoreline protection; and
   3. Pilot projects to determine the best approaches and locations for natural and nature-based shoreline protection.

An affirmative vote of two-thirds of the Commission membership (18 members) is required to amend the Bay Plan.

Proposed Additions and Deletions to Bay Plan Findings and Policies

The table below summarizes staff's final recommendations for amending the Bay Plan. Proposed additions in language are shown as <u>underlined</u>, while proposed deletions are shown as ~~struck through~~ in the left-hand column. Any changes from the initial preliminary staff recommendation to the final staff recommendation are reflected in **bold** in the left-hand column. Staff's analysis of its preliminary recommendation is shown in the middle column, which was included in the staff report published on May 21, 2019. An explanation for revisions to the preliminary staff recommendation are included in the right-hand column. Staff's preliminary recommendations are available on the Commission's website at: https://www.bcdc.ca.gov/BPAFHR/BPA1-17StaffReport.pdf

Major Conclusions and Policies. Staff recommends the Commission revise the findings and policies in the "Major Conclusions and Policies" section as shown in the draft language below.

Major Conclusions and Policies		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
4: Justifiable Filling. Some Bay filling may be justified for purposes providing substantial public benefits if these same benefits could not be achieved equally well without filling. Substantial public benefits are provided by: a. Developing adequate port terminals, on a regional basis, to keep San Francisco Bay in the forefront of the world's great harbors during a period of rapid change in shipping technology. b. Developing adequate land for industries that require access to shipping channels for transportation of raw materials or manufactured products. c. Developing new recreational opportunities-shoreline parks, marinas, fishing piers, beaches, hiking and bicycling paths, and scenic drives. d. Developing expanded airport terminals and runways if regional studies demonstrate that there are no feasible sites for major airport development away from the Bay.	The language in this policy reflects an outdated perspective that does not capture the substantial benefits provided by using fill for ecosystem restoration, enhancement, creation projects, or shoreline protection projects.	Other services that are provided by habitat restoration, enhancement, or creation were added to the list in accordance with public comments.

Major Conclusions and Policies		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
e. Developing new freeway routes (with construction on pilings, not solid fill) if thorough study determines that no feasible alternatives are available. f. Developing new public access to the Bay and enhancing shoreline appearance over and above that provided by other Bay Plan policies-through filling limited to Bay-related commercial recreation and public assembly. g. Restoring, enhancing, or creating ecosystems that provide habitat for native fish, other aquatic organisms, or wildlife; enhance coastal resilience; and provide services such as water filtration, ~~**and**~~ carbon sequestration, **protection of shorelines from flooding and erosion, and raising the surface elevation of subsided land**. Fill for these purposes will be especially important to facilitate the adaptation of habitats to rising sea level.		

Major Conclusions and Policies		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
5: Effects of Bay Filling. Bay filling that is ~~should be limited to~~ consistent with the purposes listed above can provide substantial benefits to the Bay. H~~h~~owever, ~~because any~~ filling ~~is~~ can be harmful to the Bay~~, and thus to present and future generations of Bay Area residents~~ and thus there are some tradeoffs when fill is used. ~~All~~ Bay filling can have ~~has~~ one or more of the following ~~**harmful**~~ effects**, which projects must balance to maximize benefits**: a. Filling can negatively affect, and in some cases destroy~~s~~, the habitat of fish, ~~**and**~~ wildlife, and other organisms. ~~**Future F**~~**filling** can **alter** ~~**disrupt**~~ the ecological balance in the Bay, which has already been damaged by past fills, and can endanger the very existence of some species of birds and fish. The Bay, including open water, mudflats, and marshlands, is a complex biological system, in which microorganisms, plants, fish, waterfowl, and shorebirds live in a delicate balance ~~**created by nature,**~~ and in which	The language in this policy reflects an outdated perspective that does not capture today's context of climate change and rising seas. Although fill can be harmful, in some cases tradeoffs that may cause some harm are needed in order to create substantial net habitat benefits. Nonetheless, it is still important to recognize the potential impacts of fill, and to address these issues when assessing fill projects.	The positive effects of filling related to habitat restoration are added to balance the predominantly negative effects that are listed in the existing policy. Other small changes are made to the existing policy language for accuracy in accordance with public comments.

Major Conclusions and Policies		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
seemingly minor changes, such as a new fill or dredging project, may have far-reaching and sometimes highly destructive effects. b. Filling **~~almost always~~ may** increase~~s~~ the danger of water pollution by reducing the ability of the Bay to assimilate the ~~increasing quantity of~~ liquid waste~~s being~~ that is discharged into it. Filling reduces both the surface area of the Bay and the volume of water in the Bay; this reduces the ability of the Bay to maintain adequate levels of oxygen in its waters, and also reduces the strength of the tides necessary to flush wastes from the Bay. c. Filling can reduce~~s~~ the air-conditioning effects of the Bay and increases the danger of air pollution in the Bay Area. Reducing the open water surface over which cool air can move in from the ocean will reduce the amount of this air reaching the Santa Clara Valley and the Carquinez Strait in the summer-and		

Major Conclusions and Policies		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
will increase the frequency and intensity of temperature-inversions, which trap air pollutants and thus cause an increase in smog in the Bay Area. d. Indiscriminate filling will diminish the scenic beauty of the Bay. **e. <u>Filling can restore, enhance, or create valuable habitat for native organisms, which can in turn support healthier populations and communities of fish, other aquatic organisms, and wildlife; increase numbers of protected or endangered species, increase habitat connectivity; increase habitat sustainability; and contribute to regional habitat goals.</u>** **f. <u>Filling can be used to facilitate sea level rise adaptation of Bay habitats that are vulnerable to drowning and erosion.</u>**		

Fish, Other Aquatic Organisms, and Wildlife. Staff recommends the Commission revise the findings and policies in the "Fish, Other Aquatic Organisms, and Wildlife" section as shown in the draft language below.

Fish, Other Aquatic Organisms, and Wildlife		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
a. Over the past 200 years, human actions have had a major effect on the form and natural functions of San Francisco Bay, resulting in a significant decrease in the size of the open waters of the Bay-from about 516,000 acres to 327,000 acres, an approximately 40 percent reduction-and notable changes in ~~populations~~ the types, locations, quality, and quantity of habitat for ~~of~~ **native and commercially important** fish, other aquatic organisms (e.g., crabs, shrimp, zooplankton, ~~and~~ oysters, ~~**plants**~~ **submerged aquatic vegetation,** ~~**and**~~ seaweed**s, and marsh vegetation**) and wildlife ~~habitat types, locations, quality and quantity~~. Loss or degradation of subtidal areas, tidal flats, tidal marshes and adjacent ~~interconnected~~ upland habitats, such as diked baylands, have been key factors in the population decline of many species of fish, other aquatic organisms and wildlife that depend on the Bay ecosystem for their existence.	Language of this finding was modified to clarify the impacts of human actions on Bay species and habitats. Plants and seaweed were added to the list of other aquatic organisms, as they are also Bay organisms in need of protection, thereby clarifying that the use of "other aquatic organisms" throughout the rest of the Bay Plan also includes plants and seaweed.	As this finding first defines "fish, other aquatic organisms, and wildlife" as this term is used throughout the section, it is important to specify that the protections conferred throughout the Bay Plan are referring to native and commercially important organisms, not invasive species. Changes were made to "plants" for clarity.

Fish, Other Aquatic Organisms, and Wildlife		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
d. Conserving fish, other aquatic organisms and wildlife depends, among other things, upon availability of: (1) sufficient oxygen in the Bay waters; (2) adequate amounts of the proper foods; (3) sufficient areas for resting, foraging and breeding; ~~**and**~~ (4) proper fresh water inflows, temperature, salt content, water quality, ~~**sediment concentration,**~~ and velocity of the water**; and (5) sufficient sediment supply**. Requirements vary according to the species of fish, other aquatic organisms and wildlife. Conservation and restoration of ~~these~~ complete habitats ~~components~~ is essential to insure for future generations the benefit of fish, other aquatic organisms and wildlife in the Bay.	Proper suspended sediment concentration is important to the conservation of fish, other aquatic organisms, and wildlife, as discussed in Chapter 7 of the Background Report. Additionally, language is added to note that the components stated above comprise complete habitats. Complete habitats/ecosystems are discussed in more detail in Chapter 6 of the Background Report.	Changes were made to clarify the intent of adding "sediment" to this list of important criteria for the conservation of fish, other aquatic organisms, and wildlife.
f. The wildlife refuges, some of which are shown on the Bay Plan Maps, include national wildlife refuges, state wildlife areas and ecological reserves, as well as other shoreline sites around the Bay whose primary purpose is: (1) the protection of threatened or endangered native plants, wildlife, and aquatic organisms; (2) the preservation and enhancement of unique habitat types or highly significant wildlife habitat; or (3)	The Bay Plan Maps do not actually include all of the wildlife refuges as defined in this policy. To clarify that the Bay Plan Maps are not comprehensive in depicting wildlife refuges, the phrase "some of which are" was added.	No further changes.

Fish, Other Aquatic Organisms, and Wildlife		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
the propagation and feeding of aquatic life and wildlife.		
g. Under the California Endangered Species Act, the Commission must assure that the projects it permits conserve fish, other aquatic organisms, wildlife and plants listed pursuant to the Act and the Commission may not authorize the "taking," as defined in the Act, of certain fish, wildlife or plant species without the authorization of the California Department of Fish and Wildlife ~~Game~~. Further, under the federal Endangered Species Act and Marine Mammal Protection Act the Commission may not authorize a project that would result in the "taking" of fish, other aquatic organisms and wildlife, including marine mammals, identified pursuant to the Acts, without the authorization of the United States Fish and Wildlife Service or the National Marine Fisheries Service.	The California Department of Fish and Game is now called the California Department of Fish and Wildlife.	No further changes.
h. Under the federal Magnuson-Stevens Fisheries Conservation and Management Act and the Endangered Species Act, San Francisco Bay is considered essential fish habitat ~~**or**~~ **and** critical habitat for certain fish species, such as Chinook salmon	Edits were made to improve the consistency of the sentence structure, and to include the complete name of the Magnuson-Stevens Act.	The word “or” is changed to “and” to clarify that the San Francisco Bay is both essential fish habitat and critical habitat, not one or the other. The change is made in accordance with public comment.

Fish, Other Aquatic Organisms, and Wildlife		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
and Delta smelt, by the National Marine Fisheries Service and the United States Fish and Wildlife Service ~~and the National Marine Fisheries Service~~ because the Bay plays an essential role in their life cycles. The Magnuson-Stevens Act requires that the National Marine Fisheries Service provide conservation recommendations to federal and state agencies, such as the Commission, when a proposed project would have adverse impacts on essential fish habitat.		
~~i. The Baylands Ecosystem Habitat Goals provides a regional vision of the types, amounts, and distribution of baylands habitats that are needed to restore and sustain a healthy Bay ecosystem, including the improvement of the well-being of many plant and animal species currently at risk of extinction.~~	This finding was removed and replaced with a finding that addresses additional regional frameworks.	No further changes.
i. Regional frameworks, such as the **~~2010~~ San Francisco Bay** Subtidal Habitat Goals **Project ~~R~~**report **(2010), the USFWS Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California (2013),** the **~~2015~~** Baylands Ecosystem Habitat Goals **ScienceUpdate** report **(2015)**, and the **~~2019~~ San Francisco Bay Shoreline** Adaptation Atlas **(2019)** detail	While **~~BCDC~~ staff** recognizes that staff analyses should always reflect the most up-to-date and best available science, it is important to acknowledge the milestones represented by several key regional strategies for habitat restoration and adaptation. In other findings, the Bay Plan notes that regional restoration goals	The USFWS Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California is added to the list in accordance with public comment. Additionally, the list of regional frameworks was re-ordered chronologically. Additional language changes are made for clarity and conciseness.

Fish, Other Aquatic Organisms, and Wildlife		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
~~**wetlands habitat**~~ restoration goals~~**, subtidal**~~ **for Bay** habitat**s** ~~**restoration goals,**~~ and shoreline adaptation strategies. These frameworks are based on the best available science at ~~**this**~~ **the** time **of publication**, and as ~~**our**~~ knowledge evolves to reflect new data and understanding, new frameworks or updated frameworks may be developed to replace or supplement this work.	have been developed for wetland areas but does not recognize the Subtidal Habitat Restoration Goals Project. These can be an important point of reference for staff even as new science becomes available. More support for this finding can be found in the Background Report Chapter 6. This finding supports Fish, Other Aquatic Organisms, and Wildlife policy 3.	
j. Current models indicate that as sea level rise progresses, many Bay habitats will be degraded or ~~**convert**~~ **will change** to other habitat types. Projects that place fill to **offset habitat loss due to climate change effects and** ensure that fish, other aquatic organisms, wildlife, and plants have habitat into the future may ~~**also**~~ result in the conversion of one type of habitat into another and thus may result in a net loss of some habitat types and associated ecosystem functions. **Habitat loss from project construction may be temporary, and may lead to a long-term net gain that ultimately offsets the loss of habitat to rising**	The allowance of more fill in the Bay may result in habitat type conversion. Restoration projects have resulted in type conversion in the past, typically in restoring diked historic baylands or salt ponds to convert them to tidal waters or marsh. However, the Bay Plan does not explicitly acknowledge habitat type conversion or the associated challenges. More support for this finding can be found in the Background Report Chapter 7. This finding supports Fish, Other Aquatic Organisms, and Wildlife policy **6** ~~**7**~~.	Changes were made to reflect public comment that the finding did not adequately convey the likelihood that habitat type conversion will happen naturally as a result of sea level rise, and that restoration-associated type conversion may offset these expected shifts in habitat.

Fish, Other Aquatic Organisms, and Wildlife		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
seas. However, the impacts of large-scale habitat type conversion are not well-understood, and ~~H~~habitat type conversion could **result in unintended negative impacts on existing habitats and species. Therefore, it is necessary to place fill strategically to minimize near-term habitat loss while protecting Bay habitats over the long-term from the impacts of sea level rise. ~~alter the balance of species or habitats locally, within an embayment, or on a regional scale. Large-scale habitat type conversion could reduce the amount of habitat available to certain species, and the impacts of large-scale habitat type conversion are not well-understood.~~**		
k. Tidal marshes and tidal flats are particularly vulnerable to inundation from sea level rise, **~~reductions~~ changes** in sediment supply, and lack of migration space. Current scientific predictions of sea level rise and declining sediment supply support the likelihood that many marshes and mudflats may not be able to adapt to these changes, and may be **~~inundated~~ lost or degraded** by	The Bay Plan does not currently address the threat of inundation and loss posed to tidal marshes, tidal flats, and shallow subtidal areas by sea level rise and insufficient sediment supply. This finding acknowledges the threats, and the potential need for large volumes of sediment to increase habitat resilience, which would in turn provide	Changes are made to improve clarity and conciseness. Additionally, "inundated" is changed to "lost or degraded" to specify that the end results of loss and degradation are the concern being addressed, not necessarily the mechanism of loss via inundation and other processes.

Fish, Other Aquatic Organisms, and Wildlife		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
the end of the century if they are not able to accrete sediment and/or migrate to higher elevations. Placing sediment in appropriate locations will be **necessary ~~needed~~** to ensure that **~~Bay~~** species **dependent on tidal marshes and tidal flats** have sufficient habitat into the future. Placement of **~~significant volumes of~~** sediment will be particularly important in tidal marshes to build transition zones, increase marsh plain elevation, and create high tide refugia **~~for species~~**. Placement of sediment may also be necessary in shallow intertidal or subtidal areas to increase mudflat elevation or to increase **~~the~~** sediment **~~that can be~~** transport**~~ed by natural processes~~** to adjacent marshes to increase marsh plain elevation. Little is known about how subtidal areas will adapt to sea level rise or the need for sediment in these areas. Limited knowledge about deep water habitats makes it difficult to predict how major changes, including sediment placement, in these areas may adversely affect fish, other aquatic organisms, and wildlife.	habitat for the Bay's fish, other aquatic organisms, and wildlife into the future. It is important to acknowledge this driving force for allowing more fill for habitat projects in the Bay Plan findings. At the same time, there is limited scientific information about deep subtidal habitats and the need for sediment placement there, so caution is recommended in those areas. More support for this finding can be found in the Background Report Chapters 2 and 6. This finding supports Fish, Other Aquatic Organisms, and Wildlife policy **7** **~~8~~**.	

Fish, Other Aquatic Organisms, and Wildlife		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
l. Bay habitats are dynamic, ever-evolving systems that are predicted to change even more with sea level rise. **For projects in which fill is proposed, ~~T~~t**he amount of fill required to ensure the persistence of these habitats into the future will depend on the rate of sea level rise and the time horizon of the project. For example, more fill will likely be required to sustain marsh elevations through the year 2100 than through the year 2050. Placement of large volumes of fill to assist habitats in adapting to long-term sea level rise projections may not be immediately necessary and may result in unnecessary **near-term loss of habitat ~~habitat type conversion~~** and other impacts to the Bay. Placing smaller volumes of fill incrementally could serve the function of facilitating habitat adaptation to sea level rise while also minimizing impacts of fill to fish, other aquatic organisms, and wildlife. Smaller environmental perturbations that are similar in scale to a natural disturbance event**~~s~~**, such as sediment deposition following a flood event, are **often** more likely to allow habitats to adapt	This finding has been added to address an approach for fill for habitat adaptation intended to minimize impacts to the Bay. This will be helpful in guiding appropriate project design and determination of "minimum fill necessary". More support for this finding can be found in the Background Report Chapters 7 and 8. This finding supports Fish, Other Aquatic Organisms, and Wildlife policy 6.	The phrase "for projects in which fill is proposed" is added to clarify that this finding specifically addresses projects in which fill will be used. The finding is not intended to say that fill is required to maintain habitat in all cases, but rather that when fill *is* required to maintain habitat, smaller volumes will often have fewer unintended consequences than larger volumes. Additionally, language is added to reflect that larger, single placements of fill may also be better in some cases.

Fish, Other Aquatic Organisms, and Wildlife		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
and rebound than a major perturbation that could take much longer for habitats and species to recover. **However, in some cases, a larger, single placement of fill may be more feasible or result in fewer impacts to Bay natural resources.**		

Fish, Other Aquatic Organisms, and Wildlife		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
2. ~~Specific habitats that are needed to conserve, increase or prevent the extinction of~~ **any N~~n~~**ative species**,~~;~~** ~~species~~ **including candidate**, threatened**, and ~~or~~** endangered ~~**species,**~~; species that the California Department of Fish and Wildlife ~~Game~~, the National Marine Fisheries Service, and**/or** the U.S. Fish and Wildlife Service have **listed** ~~**has determined are candidates for listing as endangered or threatened**~~ under the California or Federal Endangered Species Act~~,~~; ~~**or**~~ **and** any species that provides substantial public benefits, as well as specific habitats that are needed to conserve, increase, or prevent the extinction of these species, should be protected,	This policy was modified to state that both species and their habitats should be protected. Additionally, a point is added to note that "protection" could include sea level rise adaptation strategies like placement of sediment to augment marsh plain elevation, as habitats may be lost altogether in some cases if these approaches aren't used. Staff corrected California Department of Fish and Wildlife's name and added National Marine Fisheries Service and the U.S. Fish and Wildlife Service to reflect these federal agencies role	Changes are made to improve clarity and conciseness.

Fish, Other Aquatic Organisms, and Wildlife		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
whether in the Bay or behind dikes. Protection of **fish, other aquatic organisms, and wildlife and their** habitats may entail placement of fill to **enhance the Bay's ecological function in the near-term and to** ensure that they persist into the future with sea level rise.	in protecting special status species. More details can be found in the Background Report Chapter 7.	
3. In reviewing or approving habitat restoration projects or programs the Commission should be guided by the best available science, including regional goals, ~~the recommendations in the Baylands Ecosystem Habitat Goals report~~ and should, where appropriate, provide for a diversity of habitats ~~to enhance opportunities~~ for ~~a variety of~~ associated native aquatic and terrestrial plant and animal species.	Review of habitat projects should use the best available science on regional restoration goals, which will change over time **~~and edited the policy for clarity~~**. Support for this policy can be found in the Background Report Chapter 6.	No further changes.
4. The Commission should: a) Consult with the California Department of Fish and Wildlife ~~Game~~, and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, whenever a proposed project may adversely affect an endangered or threatened plant, fish, other aquatic organism or wildlife species;	The policy is edited slightly to update the name of the California Department of Fish and Wildlife, and otherwise improve consistency in capitalization and abbreviation across the policies.	No further changes

Fish, Other Aquatic Organisms, and Wildlife		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
b) Not authorize projects that would result in the "taking" of any plant, fish, other aquatic organism or wildlife species listed as endangered or threatened pursuant to the state or federal Eendangered Sspecies Aacts, or the federal Marine Mammal Protection Act, or species that are candidates for listing under these acts ~~California Endangered Species Act~~, unless the project applicant has obtained the appropriate "take" authorization from the U.S. Fish and Wildlife Service, National Marine Fisheries Service or the California Department of Fish and Wildlife~~Game~~; and c) Give appropriate consideration to the recommendations of the California Department of Fish and Wildlife~~Game~~, the National Marine Fisheries Service or the ~~United States~~ U.S. Fish and Wildlife Service in order to avoid possible adverse effects of a proposed project on fish, other aquatic organisms and wildlife habitat.		

Fish, Other Aquatic Organisms, and Wildlife		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
5. The Commission may permit ~~a minor amount of~~ fill or a minimum amount of dredging **in wildlife refuges**~~, shown on the Plan Maps,~~ necessary to enhance or restore fish, other aquatic organisms and wildlife habitat; **~~or a minor amount of fill that is necessary~~ or** to provide **appropriately located** public facilities for wildlife observation, interpretation and education.	This policy was initially created in 2002 to allow some fill that could be needed for habitat restoration or enhancement in wildlife refuges (defined quite broadly in the Bay Plan as almost any area that provides wildlife habitat) but was intended to still protect these areas by limiting large-scale filling. However, the future need to protect Bay habitats from rising sea level will potentially require substantial volumes of fill placement, so this volume restriction no longer serves its initial intent. Additionally, the McAteer-Petris Act states that all projects must use the minimum amount of fill necessary for the project's purpose, which maintains an important protection to ensure that projects cannot use an excessive amount of fill, and are required to justify the proposed fill. This safeguards against issues with removal of "minor". More information can be found in the Background Report Chapter 5	The phrase "in wildlife refuges", which is in the current Bay Plan policy but was proposed for removal in the preliminary recommendation, is retained in the final recommended language. "Wildlife refuges" are broadly defined in Fish, Other Aquatic Organisms, and Wildlife finding c. Without this phrase, the original intent of the policy—to address fill that is allowed in wildlife refuges—is removed. To retain this intent, it is important to retain this phrase in the policy. Because "minor amount of fill" is removed, larger volumes of fill are allowed in wildlife refuges. The revised language also removes the "minor amount" phrase regarding fill for public facilities for wildlife observation, interpretation, and education allowed in wildlife refuges. All fill in these areas would still be subject to the standards for the Commission to approve fill in Section 66605 of the McAteer-

Fish, Other Aquatic Organisms, and Wildlife		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
		Petris Act, including the requirement that fill is the"minimum amount necessary." This language will remove excessive restrictions on fill for public facilities, but still provides an appropriate limit to prevent unnecessary fill. This change was made in accordance with public comment.
~~**6. Habitat restoration or enhancement projects in the Bay that need fill to adapt to rising seas should plan for repeated placements of fill over time to allow habitat to adapt incrementally to sea level rise projections, reducing the need for large scale habitat loss and conversion prior to the onset of future conditions, unless the Commission finds that fewer, larger placements of fill minimize impacts to Bay organisms or that small, repeated fills are not feasible.**~~	The placement of fill to increase the resilience of Bay habitats, especially techniques such as thin-layer placement to augment marshes, or create transition zones, may be more effective and less harmful when placed incrementally in multiple applications. Therefore, this policy has been added to address an approach for fill for habitat adaptation intended to minimize impacts to the Bay. This will be helpful in guiding appropriate project design and determination of "minimum fill necessary". This policy is supported by Chapters 6-8 of the Background Report.	In response to public comment and feedback from the Bay Fill Policies Working Group, this proposed policy was removed, and the concept was combined with the revised Fish, Other Aquatic Organisms, and Wildlife policy 6 (previously policy 7). Staff concluded that the appropriate approach to placement of fill for sea level rise adaptation of habitat should be addressed on a case by case basis, rather than state a preference for more frequent, smaller placements of fill.

Fish, Other Aquatic Organisms, and Wildlife		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
6. ~~7.~~ Allowable fill for habitat projects in the Bay should (a) **minimize near term adverse impacts to and loss of existing Bay habitat and native species ~~not cause substantial negative impacts to existing habitats~~**; **(b) provide substantial net benefits for Bay habitats and native species; and (c)** be scaled appropriately for the project and necessary sea level rise adaptation measures **in accordance with the best available science. The timing, frequency, and volume of fill should be determined in accordance with these criteria. ~~;~~ ~~and (c) not significantly alter the balance of species or habitats within an embayment or on a regional scale, unless the project restores areas that have been lost with rising level.~~**	The placement of larger volumes of fill in the Bay has the potential to negatively impact existing habitats, and to convert existing habitats into other habitat types. Decisions about when and where habitat type conversion are complex, and so are typically made on a case-by-case basis. This policy introduces general guiding principles to consider and weigh when assessing the potential impacts of a fill for habitat project. More support for this policy can be found in Chapters 7-8 of the Background Report.	In response to public comment and feedback from the Bay Fill Policies Working Group, this policy was modified to better reflect the risk of habitat loss from sea level rise, and the need to consider the long-term benefits of fill for sea level rise adaptation of habitat, even if some organisms and habitats may be adversely affected in the short-term. Language regarding the volume, frequency, and timing of fill placement addresses the concept previously conveyed by policy 6 from the preliminary recommendation.
7. ~~8.~~ Sediment placement for habitat adaptation should be prioritized in **(1)** subsided diked baylands, tidal marshes, and tidal flats, as these areas are particularly vulnerable to **~~inundation and~~ loss and degradation** due to sea level rise and lack **of** necessary sediment supply**, and/**or in **(2) intertidal and** shallow subtidal areas to support tidal marsh, tidal flat, and eelgrass bed adaptation. **~~A minor amount of~~ In some cases,**	The Bay Plan does not currently address the threat posed to tidal marshes, tidal flats, and shallow subtidal areas by sea level rise and insufficient sediment supply for all of these areas to keep pace with sea level rise. This policy acknowledges the threats, and the potential need for large volumes of fill to increase habitat resilience	Language is changed to specify that the end results of habitat loss and degradation are the concern being addressed, not necessarily the mechanism of loss via inundation and other processes. Numbers were added for ease of reading.

Fish, Other Aquatic Organisms, and Wildlife		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
sediment placement for a~~ny~~ habitat project in deep subtidal areas may be authorized if **substantial ecological benefits will be provided and the project aligns with current regional sediment availability and needs.** ~~**sediment placement will maximize the habitat restoration or enhancement benefits provided by the project.**~~	in these areas, which would in turn provide habitat for the Bay's fish, other aquatic organisms, and wildlife into the future. It therefore prioritizes projects in these areas. At the same time, we know very little about deep subtidal habitats and the needs for sediment placement there, so caution is recommended for sediment placement in those areas. More support for this policy can be found in the Background Report Chapters 2 and 6.	The proposed changes to Dredging Policy 11b in staff's revised recommendation were redundant with this policy as preliminarily proposed. To account for this overlap, and to avoid using the subjective term "minor", language of the last sentence was changed to better reflect the conditions under which placement of limited sediment in deep subtidal areas may be acceptable.

Tidal Marshes and Tidal Flats. Staff recommends the Commission revise the findings and policies in the "Tidal Marshes and Tidal Flats" section as shown in the draft language below.

Tidal Marshes and Tidal Flats		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
g. The Baylands Ecosystem Habitat Goals Science Update **report** provides a regional vision of the types, amounts, and distribution of baylands habitats that are needed to restore and sustain a healthy Bay ecosystem, including restoration of 65,000 acres of tidal marsh. These recommendations were based on conditions of tidal inundation,	The Baylands Ecosystem Habitat Goals report was written in 1999, and the initial goals and findings of the report were reassessed in 2015 in light of new sea level rise predictions and other environmental changes. To ensure that the Bay Plan reflects the best available science, the	The word "report" is retained for consistency with other findings and policies.

Tidal Marshes and Tidal Flats		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
salinity, and sedimentation in the 2010s~~1990s~~. While achieving the regional vision would help promote a healthy, resilient Bay ecosystem, global climate change and sea level rise are expected to alter ecosystem processes in ways that may require new, regional targets for types, amounts, and distribution of habitats.	reference to this report is updated to reflect the report's most recent version.	
k. Landward marsh migration will ~~may~~ be necessary to sustain marsh acreage around the Bay as sea level rises. As sea level rises, high-energy waves erode ~~inorganic mud~~ sediment from tidal flats and deposit that sediment onto adjacent tidal marshes. Marshes trap sediment and contribute additional material to the marsh plain as decaying plant matter accumulates. Tidal habitats respond to sea level rise by moving landward, a process referred to as transgression or migration. Low sedimentation rates, natural topography, development, and shoreline protection can block wetland migration. Transition zones, depending on the size and slope, provide high tide refugia for organisms as sea level rises, as well as important opportunities for marsh migration upslope and inland as sea level rises, but	This finding is updated to reflect that transition zones will provide high tide refugia and migration space for wetland habitats, but that ultimately even transition zones may not provide the space needed for marshes to persist with sea level rise.	Changes are made for clarity, in accordance with public comment.

Tidal Marshes and Tidal Flats		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
these functions and services are limited in the long-term unless **transition zones are** connected to **uplands with ~~other~~** higher elevation**s ~~areas of land~~**.		
l. Sedimentation is an essential factor in the creation, maintenance and growth of tidal marsh and tidal flat habitat. **~~Scientists studying the Bay have observed that T~~**t**he volume of sediment entering the Bay annually from the Sacramento and San Joaquin Delta **~~is declining~~ exhibited a step decrease in water year 1999.** As a result, the importance of sediment from local watersheds as a source of sedimentation in tidal marshes **has increased ~~is increasing~~. The Bay sediment load has exhibited no specific trend since that time, and changes in future sediment supply are difficult to predict.** As sea level rise accelerates, the erosion of tidal marshes and tidal flats may also accelerate, thus potentially exacerbating shoreline erosion and adversely affecting the ecosystem and the sustainability of ecosystem restoration projects. **~~An adequate supply of sediment is necessary to ensure resilience of the Bay ecosystem as sea level rise accelerates.~~** To ensure that tidal marshes and tidal flats have	This finding already provides information on the need for sediment for tidal marshes and tidal flats to adapt to sea level rise, but does not acknowledge the importance of reconnecting watersheds and restoring connectivity for increasing sediment supply and overall tidal marsh/tidal flat resilience. The Baylands Ecosystem Habitat Goals Science Update (2015) emphasized the importance of restoring natural processes by restoring complete, well-connected baylands by 2030 in order to ensure that these ecosystems can adapt to sea level rise. More support for this finding can be found in the Background Report Chapter 6. This finding supports Tidal Marshes and Tidal Flats policies 5 and 6.	This finding was updated to more accurately portray the trends in sediment supply to the Bay. Changes were made in response to public comment. Additionally, changes were made to remove unnecessary and repetitive statements.

Tidal Marshes and Tidal Flats		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
an adequate supply of sediment, it is important to restore complete tidal wetland systems connected to the physical processes that sustain them. ~~**This includes Rr**~~econnecting watersheds to intertidal habitats ~~**, and**~~ support~~**ings**~~ organic **sediment production** and inorganic sediment **deposition.** ~~**accretion necessary for these habitats to maintain sufficient elevation to support tidal marsh vegetation as sea level rises. Tidal marshes that are well-connected and established with full functionality are more likely to adapt and provide ongoing benefits if the rate of sea level rise accelerates as current climate models predict.**~~ Further, the reconnection of tidal marshes to local tributaries will likely **allow** re-establish**ment of** lost habitats such as adjacent brackish marsh and willow sausals.		
g. Natural site characteristics, including geomorphic setting, suspended sediment concentration, current velocities, water depth, benthic substrate, salinity, light availability, habitat connectivity, and other factors~~,~~ shape which habitats can establish and be sustained in any given part of the Bay. Siting a project in a location where the	This finding is added to highlight some of the factors that could determine whether a habitat is sustainable, and to note the potential negative outcomes that could result from siting a project in an area that it is not sustainable. More support for this finding can	Public comment raised concerns that this finding does not address situations in which valuable habitat cannot be sustained into the future, but in which regular intervention is warranted because of the habitat's high value. An additional sentence is

Tidal Marshes and Tidal Flats		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
appropriate natural processes do not exist to sustain it could result in negative impacts on the Bay, project failure, and wasted resources. **However, the natural processes that sustain some existing tidal marshes now may not sustain them in the future due to rising seas and other environmental changes. In some cases, regular management and intervention is justified for habitats that support important ecosystem services (e.g. habitat connectivity, endangered species habitat, or interim habitat).**	be found in the Background Report Chapter 6. This finding supports Tidal Marshes and Tidal Flats policies 5 and 6.	added to acknowledge this scenario.
r. Pilot and demonstration projects provide an opportunity for research and testing concepts and techniques before implementing experimental projects on a large scale.	Pilot and demonstration projects will be important to address the uncertainty surrounding methods, including fill for habitat approaches, that have not been tested in the Bay. While these projects can be permitted under BCDC's current policies, their importance as a research and learning mechanism are not acknowledged in the Bay Plan. Support for this finding can be found in the Background Report Chapter 8. This finding supports Tidal Marshes and Tidal Flats policy **11** ~~**10**~~.	No further changes.

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Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
s. Coordinated regional monitoring has the potential to ~~**reduce monitoring costs and requirements for individual projects, and**~~ improve understanding of regional status and trends, **identify** restoration needs**,** ~~**and**~~ **improve** project design**, and reduce monitoring costs and requirements for individual projects** by synthesizing and analyzing information from habitat projects across the region.	While BCDC typically requires monitoring of individual projects, regional monitoring can provide benefits that are different from and complimentary to project-based monitoring, and such monitoring may provide opportunities for uses of **reference site** ~~**surrogate**~~ monitoring**, especially when these efforts are linked to management questions**. The San Francisco Estuary **Partnership, San Francisco Estuary** Institute**, the San Francisco Bay National Estuarine Research Reserve, the State Coastal Conservancy, the U.S. Environmental Protection Agency, and the San Francisco Bay Regional Water Quality Control Board, in partnership with various local, state, and federal agencies including BCDC,** are developing a coordinated ~~**regional**~~ **W**etland **Regional** **M**onitoring **P**rogram, that could provide some of these benefits. Sharing of monitoring data and reports among agencies and restoration practitioners throughout the region will help all	Changes were made to improve the clarity and flow of the finding.

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Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	involved to better assess restoration needs and most appropriate project designs. Support for this finding can be found in the Background Report Chapter 8. This finding supports policy **9 ~~8~~**.	
t. Adaptive management is a cyclic, learning-oriented approach that is especially useful for complex **environmentsal ~~systems~~, which are often** characterized by **relatively** high levels of uncertainty about system processes and the potential for different ecological, social and economic outcomes from alternative management options. Effective adaptive management requires setting clear and measurable objectives, collecting data, reviewing current scientific observations, monitoring the results of actions, **~~policy implementation or management,~~** and integrating this information into future actions. **Through this process, adaptive management also documents best practices and scientific findings that can be shared and used in designing and managing similar projects.** Adaptive management of habitat projects can be particularly useful **in large complex projects, and** when **~~there is uncertainty around~~** project design, **~~potential~~** outcomes, **~~changing~~** conditions,	This finding is added to define adaptive management, and to note the use of adaptive management as a tool for dealing with uncertainty and mediating risk, especially when dealing with sea level rise and novel habitat restoration approaches in the Bay. Support for this finding can be found in the Background Report Chapter 8. This finding supports Tidal Marsh and Tidal Flats policies 6**, ~~and~~** 7**, and 8**.	Changes are made for accuracy in response to public comment. Additional changes are made for conciseness. A sentence was also added to reflect Bay Fill Working Group emphasis on the importance of adaptive management as a tool for communication of best practices and information sharing.

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Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
and~~/or for large projects with greater potential for~~ impacts **are uncertain**. In these situations, adaptive management can **respond to evolving conditions and thereby** increase the likelihood of project success and reduce the risk of impacts to Bay organisms and ecosystems.		
u. The extent of uncertainty about appropriate habitat project design (including likelihood of success and risk of impacts) varies depending on **factors including but not limited to:** the project's goals ~~**(e.g. whether the project has a research component)**~~, lifespan ~~**(e.g. whether the habitat is intended to adapt to sea level rise or not)**~~, ~~**and**~~ scale**, existing condition relative to proposed restored condition, location, and surrounding infrastructure**. ~~**Smaller projects and projects constructed using well-vetted techniques will likely involve less uncertainty and/or risk than larger habitat projects anticipated to need adaptation over time, or projects testing new approaches**~~. Projects with higher levels of uncertainty or risk may require more intensive monitoring and adaptive management.	This finding acknowledges that the level of uncertainty and risk associated with habitat projects vary depending on several aspects of the project. The uncertainty and risk associated with a project, as well as its size, should be considered when determining how much monitoring and adaptive management is required. Support for this finding can be found in the Background Report Chapter 8. This finding supports Tidal Marsh and Tidal Flats policy **8** ~~**7**~~.	The phrase "factors including but not limited to" was added for accuracy. The "e.g." statements were removed for ease of reading and conciseness. Additional factors influencing uncertainty were added to the list in response to public comment. The sentence starting with "Smaller projects…" was removed as this sentence was arbitrary in its construction and statements. The sentence was removed in response to public comment.

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Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
4. **To provide for the restoration of Bay wetlands, state, regional, and ~~L~~local** government land use**, ~~and~~** tax**, and funding** policies should not lead to the conversion of restorable lands to uses that would preclude or deter potential restoration. The public should make every effort to acquire these lands for the purpose of habitat restoration and wetland migration.	This policy had been a part of Tidal Marshes and Tidal Flats policy 4 (now policy 5), but since it introduces a distinct idea from the rest of the content of Tidal Marsh and Tidal Flats policy 5, it has been separated into its own policy.	Context was added to the beginning of this policy to clarify its intent (as it had previously been introduced by the content of Fish, Other Aquatic Organisms, and Wildlife policy 5). "State and regional" government, as well as "funding" policies, were added in response to public comment which noted that regional and state agencies can often play a considerable role in land use planning and setting conditions for project funding, which could influence the use of restorable lands. This remains an advisory policy to any agency that would fall within this list.
5. ~~4.~~ Where feasible, former tidal marshes and tidal flats that have been diked from the Bay should be restored to tidal action in order to replace lost historic wetlands or should be managed to provide important Bay habitat functions, such as resting, foraging and breeding habitat for fish, other aquatic organisms**,** and wildlife. As recommended in the ~~2015~~ Baylands Ecosystem Habitat Goals Update report **(2015)**,	The Baylands Ecosystem Habitat Goals report was written in 1999, and the initial goals and findings of the report were reassessed in 2015 in light of new sea level rise predictions and other environmental changes. To ensure that the Bay Plan reflects the best available science, the reference to this report should be updated to reflect the report's most	Language is edited for clarity and conciseness. Additionally, public comment raised concerns that this policy does not take into account situations in which some valuable habitat cannot be sustained into the future, but may warrant regular intervention because of its high value. An additional sentence is added to acknowledge this situation,

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~~around~~ **approximately** 65,000 acres of areas diked from the Bay should be restored to tidal action and supported to maintain a healthy Bay ecosystem on a regional scale. Regional ecosystem targets should be updated periodically to incorporate the best available science to guide regionally appropriate conservation, restoration, and climate adaptation. **To the greatest extent feasible, ~~H~~habitat** projects should be ~~**designed to be sustainable**~~ **sustained** by natural processes~~**; to the greatest extent feasible. Habitat projects should restore, create, or enhance ecosystem integrity by increasing**~~ **increase** habitat connectivity ~~**and restoring;**~~ restore hydrological connections~~.~~**; provide opportunities for endangered species recovery; and provide opportunities for landward migration of Bay habitats. As conditions change, management measures may be needed to maintain habitat and ecological function in some areas.** ~~and management efforts that result in a Bay ecosystem resilient to climate change and sea level rise. Further, local government land use and tax policies should not lead to the conversion of these restorable~~	recent version. Additionally, the Baylands Ecosystem Habitat Goals Science Update (2015) emphasized the importance of restoring complete, well-connected baylands by 2030 in order to ensure that these ecosystems can adapt to sea level rise, and the Adaptation Atlas has addressed the importance of placing shoreline adaptation strategies in locations where they are sustainable by natural processes. The importance of considering these findings in habitat restoration projects is not yet reflected in the Bay Plan. This policy is supported in the Background Report Chapter 6.	and provide an exception to the requirement that every habitat project should be self-sustaining.

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Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
~~lands to uses that would preclude or deter potential restoration. The public should make every effort to acquire these lands for the purpose of habitat restoration and wetland migration.~~		
~~5. The Commission should support comprehensive Bay sediment research and monitoring to understand sediment processes necessary to sustain and restore wetlands. Monitoring methods should be updated periodically based on current scientific information.~~	This policy has been grouped with other policies (both existing and new) that encourage the Commission to support research on several topics related to habitat restoration and sustainability in the Bay.	No further changes.
6. Any ~~ecosystem restoration~~ habitat project should include clear and specific long-term and short-term biological and physical goals, ~~and~~ success criteria, ~~and~~ a monitoring program, and as appropriate, an adaptive management plan ~~**to assess benefits, impacts, the likelihood of success, and the sustainability of the project**~~. Design and evaluation of the project should include an analysis of: (a) how the ~~system's~~ project's adaptive capacity can be enhanced so that it is resilient to sea level rise and climate change; (b) the impact of the project on the Bay's and local embayment's sediment **transport and** budget; (c)	Changes to this policy recognize that adaptive management plans should also be included in project planning in many cases. Also, additional analyses are required during the design and evaluation of the project to assess how the project fits within regional restoration frameworks/goals, a consideration of whether the project can be sustained by natural processes, and how the project restores connectivity. These additions are intended to require that applicants consider best available	In response to public comment, the phrase "to assess benefits…" was removed to avoid confusion about the intent of adaptive management plans. Because sediment is such a high priority in the Bay system, understanding a project's effects on the transport of that sediment is essential to understanding the full suite of the project's benefits/impacts to the Bay. Additionally, the final two sentences of this policy were separated into a new

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localized sediment erosion and accretion; (d) the role of tidal flows; (e) potential invasive species introduction, spread, and their control; (f) rates of colonization by vegetation; (g) the expected use of the site by fish, other aquatic organisms and wildlife; (h) an appropriate buffer, where feasible, between shoreline development and habitats to protect wildlife and provide space for marsh migration as sea level rises; ~~and~~ (i) site characterization; (k) how the project adheres to regional restoration goals; (l) whether the project would be sustained by natural processes; and (m) how the project restores, enhances, or creates connectivity across Bay habitats at a local, sub-regional, and/or regional scale. ~~**If success criteria are not met, benefits and impacts should be analyzed and appropriate adaptive measures should be taken. If substantial adverse impacts to the Bay or species have occurred; the project should be further modified to reduce its impacts.**~~	science in project design, especially the findings and framework of the Baylands Ecosystem Habitat Goals Science Update and the Adaptation Atlas. Additions are supported in the Background Report Chapters 6 and 8.	policy, as described further in the Final Staff Analysis for policy 7.
7. If **a habitat project's** success criteria ~~**are**~~ **have** not **been** met, benefits and impacts should be analyzed **to determine whether** ~~**and**~~ appropriate adaptive measures should be	This policy was previously part of policy 6– there was no separate staff analysis in the preliminary staff report	The Bay Fill Working Group noted that the first part of policy 6 is about project design, whereas the two sentences at the end of policy 6 are about project

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implemented ~~**taken**~~. If substantial adverse impacts to the Bay **and/**or **native or commercially important** species have occurred~~**;**~~, the project should be further modified to reduce its impacts.		management and impacts. To be more clear and effective, it was decided that this language would be best as a self-standing policy. Language is also modified to clarify that the assessment of benefits and impacts could result in no action if the outcomes of the project are considered acceptable, whereas the previous language implied that some adaptive action should be taken if success criteria are not met.
~~7. The Commission should continue to support and encourage the expansion of scientific information on the arrival and spread of invasive plants and animals, and when feasible, support the establishment of a regional effort for Bay-wide eradication of specific invasive species, such as non-native cordgrasses.~~	This Tidal Marsh and Tidal Flats policy is grouped with other policies (both existing and new) later in the document that encourage the Commission to support research on several topics related to habitat restoration and sustainability in the Bay.	No further changes.
8. ~~**7.**~~ The level of design; amount, duration, and extent of monitoring; and complexity of **the** adaptive management plan required for a habitat project should be consistent with the purpose, size, impact, level of uncertainty, and/or expected ~~**duration (**~~lifespan~~)~~ of the	While appropriate design, monitoring, and management are important for all projects, the extent and degree to which each of these aspects is necessary differs from project to project. For example, projects that are	Language is modified and added to clarify that applicants will not need to have a funding plan prepared with funds already obtained, but rather demonstrate a strategy for obtaining funds to support necessary

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Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
project. Habitat projects should have a funding **~~plan~~ strategy** for monitoring and adaptive management of the project, commensurate with the level of monitoring and adaptive management that **is ~~the~~** required for the project**~~.~~, to demonstrate that the applicant has considered costs and identified potential funding sources for any necessary monitoring and management.**	small and/or low-impact should not be burdened with the same extent of monitoring and design requirements as larger, more impactful projects, nor do they have the budget to support these efforts. Similarly, projects for which research is a primary goal should require more thorough monitoring programs. Nonetheless, all projects should demonstrate that they have adequate funding or plans for obtaining funding to complete any necessary monitoring and adaptive management, or else there is a greater risk of project failure/impacts to the Bay. This Tidal Marsh and Tidal Flats policy is supported by the Background Report Chapter 8.	monitoring and management. This change is made in response to concern raised by commenters.
9. ~~8.~~ The Commission should encourage and support regional efforts to collect, analyze, share, and learn from habitat monitoring data. **Where feasible and appropriate, the Commission should encourage monitoring for habitat restoration projects that coordinates with regional efforts and improves the value and usefulness of data.**	While BCDC typically requires monitoring of individual projects, regional monitoring can provide benefits that are different from and complimentary to project-based monitoring, and this monitoring may provide opportunities for uses of **~~surrogate~~ reference site** monitoring, **especially when these efforts are linked to management**	This policy now encourages monitoring required by BCDC permits to coordinate with regional monitoring efforts and ensure that monitoring data is valuable and useful. These changes were made in response to public comment and staff analysis.

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Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	questions. The San Francisco Estuary Institute is developing a coordinated regional wetland monitoring program that could provide some of these benefits. Sharing of monitoring data and reports among agencies and restoration practitioners throughout the region will help all involved to better assess restoration needs and most appropriate project designs. Support for this Tidal Marsh and Tidal Flats policy can be found in the Background Report Chapter 8.	
10. ~~**9**~~. ~~8.~~ Based on scientific ecological analysis, project need, and consultation with the relevant federal and state resource agencies, ~~a minor amount of~~ fill may be authorized for habitat enhancement, restoration, or sea level rise adaptation **of habitat** ~~to enhance or restore fish, other aquatic organisms or wildlife habitat~~ **if the Commission finds** ~~that no other method of enhancement or restoration except filling is feasible~~ **filling is necessary to achieve the habitat restoration, enhancement, or sea level rise adaptation** ~~goals of the project~~**.**	This policy was initially created in 2002 to allow some fill that could be needed for habitat restoration or enhancement in tidal marshes and tidal flats but was intended to still protect these areas by limiting large-scale filling. However, the future need to protect Bay habitats from rising sea level will potentially require substantial volumes of fill placement, so this volume restriction serves its initial intent, but the rationale for the limitation has been superseded by the change in climatic conditions.	Language is modified to clarify that fill for "sea level rise adaptation" specifically addresses the sea level rise adaptation of habitats, not shoreline protection or built environment projects, which are outside of the scope of this Bay Plan amendment. Additionally, the final phrase is removed as it duplicates the standards already required for fill projects under Section 66605 of the McAteer-Petris Act, and it is therefore unnecessary.

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	Additionally, the McAteer-Petris Act states that all projects must use the minimum amount of fill necessary for the project purpose, which maintains an important protection to ensure that projects cannot use an excessive amount of fill, and projects are still required to meet the fill tests therein. This safeguards against issues with removal of "minor". More information can be found in the Background Report Chapter 5.	
11. ~~10.~~ The Commission should encourage and authorize pilot and demonstration projects **that address sea level rise adaptation of Bay habitats ~~when the potential benefits are greater than the potential risks~~**. These projects should include appropriately detailed experimental design and monitoring to inform initial and future work. Project **progress and** outcomes should be analyzed and reported expeditiously**~~, so that findings can be applied to future projects~~**. The size, design, and management of pilot and demonstration projects should be such that it will minimize the project's potential to negatively impact Bay habitats and species.	This policy is added to explicitly state the overall need for experimentation and research via pilot and/or demonstration projects. Additionally, language is provided to guide the design and execution of these projects. Further support for this Tidal Marsh and Tidal Flats policy can be found in the Background Report Chapter 8.	The policy was modified to specify that pilot projects addressing habitat adaptation to sea level rise are strongly encouraged. In response to public comment, the phrase "when potential benefits are greater than the risks" was removed, as this language is redundant with standards required for the Commission to approve fill in Section 66605 of the McAteer-Petris Act. The phrase "so that findings can be applied to future projects" is removed to clarify that follow-up pilot projects can move forward before other

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Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
		pilot projects are completed/outcomes are known. This change was made in response to public comment.
12. ~~11.~~ The Commission should encourage and support research **~~and action~~** on **~~the following topics~~**: a. Habitat restoration, enhancement, and creation approaches, **~~especially research that will inform~~ including** strategies **for: ~~to make Bay habitats more resilient~~ increasing resilience** to sea level rise, **placing fill ~~fill placement approaches~~, ~~impacts of~~ evaluating** habitat type conversion, **~~strategies for~~** enhancing habitat connectivity, and **improving** transition zone design; b. **~~Comprehensive Bay sediment research and monitoring to understand~~ The estuary's** sediment processes **~~necessary to sustain and restore wetlands, including periodic updates to monitoring methods based on current scientific information~~**;	The importance of encouraging research on best techniques to restore, create, or enhance Bay habitats, especially in light of sea level rise, is not emphasized in the Bay Plan. Developing a better understanding of approaches that are required for habitat adaptation to sea level rise will be especially important. Additionally, other policies encouraging research were re-located here. Support for this Tidal Marsh and Tidal Flats policy can be found in the Background Report Chapters 6, 7, and 8.	Changes are made for accuracy and conciseness. Subsection b on sediment research is broadened so it does not just relate to sustaining and restoring wetlands, but also encourages research on sediment processes in the estuary in general.

Tidal Marshes and Tidal Flats		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
c. Detection and monitoring of invasive ~~**plants and animals, including the establishment of**~~ **species and** regional efforts for ~~**Bay-wide**~~ eradication of specific invasive species.		

Subtidal Areas. Staff recommends the Commission revise the findings and policies in the "Subtidal Areas" section as shown in the draft language below

Subtidal Areas		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
k. Pilot and demonstration projects provide an opportunity for research and testing concepts and techniques before implementing experimental projects on a large scale.	Pilot and demonstration projects will be an important tool to address the uncertainty surrounding new methods, including habitat approaches that use fill and/or have not been tested in the Bay. While these projects can be permitted under BCDC's current policies, their importance as a research and learning mechanism are not acknowledged in the Bay Plan. Support for this finding can be found in the Background Report Chapter 8. This finding	No further changes.

Subtidal Areas		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	supports Subtidal Areas policy **9** ~~8~~.	
l. Coordinated regional monitoring has the potential to ~~**reduce monitoring costs and requirements for individual projects, and**~~ improve understanding of regional status and trends, **identify** restoration needs**,** ~~**and**~~ **improve** project design**, and reduce monitoring costs and requirements for individual projects** by synthesizing and analyzing information from habitat projects across the region.	While BCDC typically requires monitoring of individual projects, regional monitoring can provide benefits that are different from and complimentary to project-based monitoring, and such monitoring may provide opportunities for uses of **reference site** ~~**surrogate**~~ monitoring**, especially when these efforts are linked to management questions**. Sharing of monitoring data and reports among agencies and restoration practitioners throughout the region will help all involved to better assess restoration needs and most appropriate project designs. Support for this finding can be found in the Background Report Chapter 8. This finding supports Subtidal Areas policy **6** ~~5~~.	Changes were made to improve the clarity and flow of the finding.
m. ~~**Regional subtidal habitat goals, included in Tt**~~he San Francisco Bay Subtidal Habitat Goals Report (2010)~~,~~ incorporate**s** the best available science at the time of publication; establish**es** regional consensus on the science needed to improve our	The Bay Plan does not currently acknowledge the progress that has been made toward setting regional subtidal habitat goals. More support for this finding	The Subtidal Habitat goals report currently captures regional subtidal habitat goals, so the initial phrase is not necessary.

Subtidal Areas		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
understanding of subtidal areas; and determine**s** specific subtidal habitats that should be conserved, restored, or created. As knowledge of these areas improve, the regional goals report may ~~**should**~~ be updated.	can be found in the Background Report Chapter 6. This finding supports Subtidal Areas policy 3.	
n. Adaptive management is a cyclic, learning-oriented approach that is especially useful for complex **environments**~~**al systems, which are often**~~ characterized by ~~**relatively**~~ high levels of uncertainty about system processes and the potential for different ecological, social and economic outcomes from alternative management options. Effective adaptive management requires setting clear and measurable objectives, collecting data, reviewing current scientific observations, monitoring the results of actions, ~~**policy implementation or management,**~~ and integrating this information into future actions. **Through this process, adaptive management also documents best practices and scientific findings that can be shared and used in designing and managing similar projects.** Adaptive management of habitat projects can be particularly useful **in large complex projects, and** when ~~**there is uncertainty around**~~ project design, ~~**potential**~~ outcomes, ~~**changing**~~ conditions, and~~**/or for large projects with greater potential for**~~ impacts **are uncertain**. In these situations, adaptive management can **respond to**	This finding is added to define adaptive management, and to note the use of adaptive management as a tool for dealing with uncertainty and mediating risk, especially when dealing with sea level rise and novel habitat restoration approaches in the Bay. Support for this finding can be found in the Background Report Chapter 8. This finding supports Subtidal Areas policies 3**, 4,** and **5** ~~**4**~~.	Changes are made for accuracy in response to public comment. Additional changes are made for conciseness. A sentence was also added to reflect Bay Fill Working Group emphasis on the importance of adaptive management as a tool for communication of best practices and information sharing.

Subtidal Areas		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
evolving conditions and thereby increase the likelihood of project success and reduce the risk of impacts to Bay organisms and ecosystems.		
o. The extent of uncertainty about appropriate habitat project design (including likelihood of success and risk of impacts) varies depending on **factors including but not limited to:** the project's goals ~~**(e.g. whether the project has a research component)**~~, lifespan ~~**(e.g. whether the habitat is intended to adapt to sea level rise or not)**~~, ~~**and**~~ scale**, existing condition relative to proposed restored condition, location, and surrounding infrastructure**. ~~**Smaller projects and projects constructed using well-vetted techniques will likely involve less uncertainty and/or risk than larger habitat projects anticipated to need adaptation over time, or projects testing new approaches**~~. Projects with higher levels of uncertainty or risk may require more intensive monitoring and adaptive management.	This finding acknowledges that the level of uncertainty and risk associated with habitat projects vary depending on several aspects of the project. The uncertainty and risk associated with a project, as well as its size, must be considered to determine how much monitoring and adaptive management may be required. Support for this finding can be found in the Background Report Chapter 8. This finding supports Subtidal Areas policy **5** ~~**4**~~.	The phrase "factors including but not limited to" was added for accuracy. The "e.g." statements were removed for ease of reading and conciseness. Additional factors influencing uncertainty were added to the list in response to public comment. The sentence starting with "Smaller projects…" was removed as this sentence was arbitrary in its construction and statements. The sentence was removed in response to public comment.
p. Natural site characteristics, including geomorphic setting, suspended sediment concentration, current velocities, water depth, benthic substrate, salinity, light availability, habitat connectivity, and other factors~~,~~ shape which habitats can establish and be sustained in any	This finding is added to highlight some of the factors that could determine whether a habitat is sustainable, and to note the potential negative outcomes that could result from siting a	No further changes.

Subtidal Areas		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
given part of the Bay. Siting a project in a location where the appropriate natural processes do not exist to sustain it could result in negative impacts on the Bay, project failure, and wasted resources.	project in an area where physical processes and other factors would not sustain it. Support for this finding can be found in the Background Report Chapter 6. This finding supports Subtidal Areas policies 3 and **10 ~~9~~**	

Subtidal Areas		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
3. ~~4.~~ Any subtidal habitat ~~restoration~~ project should include clear and specific long-term and short-term biological and physical goals, ~~and~~ success criteria, ~~and~~ a monitoring program, and as appropriate, an adaptive management plan **~~to assess the benefits, impacts, the likelihood of success, and sustainability of the project~~**. Design and evaluation of the project should include an analysis of: (a) the **ecological ~~scientific~~** need for the project; (b) the effects of relative sea level rise; (c) the impact of the project on **~~the Bay's~~ regional and local** sediment budget **and transport**; (d) localized sediment erosion and accretion; (e) the role of tidal flows; (f) potential invasive species introduction, spread**,** and **~~their~~** control; (g) rates of colonization by vegetation, where	Changes to this policy recognize that adaptive management plans should also be included in subtidal project planning in many cases. Additional analyses are required during the design and evaluation of the project to assess whether the project is aligned with regional restoration frameworks/goals, consideration of project sustainability supported by natural processes, and whether the project restores connectivity. These additions are intended to ensure the best available science is used in project design and analysis, and gives special consideration to the	In response to public comment, the phrase "to assess benefits…" was removed to avoid confusion about the intent of adaptive management plans. The final two sentences of this policy were separated into a new policy, as described further in the Final Staff Analysis for policy 7. The phrase "the Bay's sediment budget" is replaced with "regional and local sediment budget". Depending on the project, it may be important to analyze impacts on sediment at a local, regional, or both local and regional scale. Staff has considered "Bay" to encompass different scales

Subtidal Areas		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
applicable; (h) the expected use of the site by fish, other aquatic organisms and wildlife; ~~and~~ (i) characterization of and changes to local bathymetric features; (k) how the project will adhere to the best available **and regionally appropriate** science on subtidal restoration and conservation goals; and (l) whether the project would be sustained by natural processes. ~~**If success criteria are not met, benefits and impacts should be analyzed and appropriate adaptive corrective measures should be taken. If substantial adverse impacts to the Bay or species have occurred, the project should be further modified to reduce its impacts.**~~	findings and framework of the Subtidal Goals Report and Adaptation Atlas. This policy is supported by the Background Report Chapters 6 and 8.	of sediment budget analysis as necessary for the project. However, commenters suggested changing Bay's to "local". Staff has accepted this addition, but still believes it's important to consider sediment processes at a regional scale because some projects may be large enough in scale to affect regional sediment budget. The term "transport" is added. Because sediment is such a high priority in the SF Bay Estuary, understanding a project's effects on the transport of that sediment is essential to understanding the full suite of the project's benefits/impacts to the Bay.
4. If **a habitat project's** success criteria ~~are~~ **have** not **been** met, benefits and impacts should be analyzed **to determine whether** ~~**and**~~ appropriate adaptive ~~corrective~~ measures should be **implemented** ~~**taken**~~. If substantial adverse impacts to the Bay or **native or commercially important** species have occurred~~,~~ the project should be further modified to reduce its impacts.	This policy was previously part of policy 3 – there was no staff analysis in the preliminary staff report	The Bay Fill Working Group noted that the first part of policy 6 is about project design, whereas the two sentences at the end of the preliminarily recommended policy are about project management and impacts. To be more clear and effective, it was decided that this language would be best as a self-standing policy.

Subtidal Areas		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
		Language is also modified to clarify that the assessment of benefits and impacts could result in no action if the outcomes of the project are considered acceptable, whereas the previous language implied that some adaptive action should be taken if success criteria are not met.
5. ~~4.~~ The level of design; amount, duration, and extent of monitoring; and complexity of **the** adaptive management plan required for a habitat project should be consistent with the purpose, size, impact, level of uncertainty, and/or expected **~~duration (~~**lifespan**~~)~~** of the project. Habitat projects should have a funding **~~plan~~ strategy** for monitoring and adaptive management of the project, commensurate with the level of monitoring and adaptive management that **is ~~the~~** required for the project**~~.~~, to demonstrate that the applicant has considered costs and identified potential funding sources for any necessary monitoring and management.**	While appropriate design, monitoring, and management are important for all projects, the extent and degree to which each of these aspects is necessary differs from project to project. For example, the design, monitoring, and adaptive management should be appropriately scaled with the project size and complexity due to potential impacts and project funding. Similarly, research projects (for which the primary goal of the project is research or testing methods) should require more thorough monitoring programs to inform future efforts. All projects should demonstrate that they have adequate funding or plans to obtain funding to	Language is modified and added to clarify that applicants will not need to have a funding plan prepared with funds already obtained, but rather demonstrate a strategy for obtaining funds to support necessary monitoring and management. This change is made in response to concern raised by commenters.

Subtidal Areas		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	complete any necessary monitoring and adaptive management. Support for this Subtidal Areas policy can be found in the Background Report Chapter 8.	
6. ~~5.~~ The Commission should encourage and support regional efforts to collect, analyze, share, and learn from habitat monitoring data. **Where feasible and appropriate, the Commission should encourage monitoring for habitat restoration projects that coordinates with regional efforts and improves the value and usefulness of data.**	While BCDC typically requires monitoring of individual projects, regional monitoring can provide benefits that are different from and complimentary to project-based monitoring, and this monitoring may provide opportunities for uses of **~~surrogate~~ reference site** monitoring. Sharing of monitoring data and reports among agencies and restoration practitioners throughout the region will help all involved to better assess restoration needs and most appropriate project designs. Support for this Subtidal Areas policy can be found in the Background Report Chapter 8.	This policy now encourages monitoring required by BCDC permits to coordinate with regional monitoring efforts and ensure that monitoring data is valuable and useful. These changes were made in response to public comment and staff analysis.
7. ~~6.~~ ~~3.~~ Subtidal restoration projects should be designed to: (a) promote an abundance and diversity of fish, other aquatic organisms and wildlife; (b) restore rare subtidal areas; (c) establish	This Subtidal Areas policy was relocated to be near the other policy specifically addressing habitat restoration and/or enhancement projects, as	No further changes.

Subtidal Areas		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
linkages between deep and shallow water and tidal and subtidal habitat in an effort to maximize habitat values for fish, other aquatic organisms and wildlife; or (d) expand open water areas in an effort to make the Bay larger .	opposed to all habitat projects. The policy number has been changed accordingly.	
8. ~~7.~~ ~~6.~~ Based on scientific ecological analysis and consultation with the relevant federal and state resource agencies, ~~a minor amount of~~ fill may be authorized for habitat enhancement, restoration, or sea level rise adaptation **of habitat** ~~to enhance or restore fish, other aquatic organisms or wildlife habitat~~ if the Commission finds that no other method of enhancement or restoration except filling is feasible.	This policy was initially created in 2002 to allow some fill that could be needed for habitat restoration or enhancement in subtidal areas, but was intended to still protect these areas by limiting large-scale filling. However, the future need to protect Bay habitats from rising sea level will potentially require substantial volumes of fill placement, so this volume restriction no longer serves its initial intent. Additionally, the McAteer-Petris Act states that all projects must use the minimum amount of fill necessary for the project purpose, which maintains an important protection to ensure that projects cannot use an excessive amount of fill, and projects are still required to meet the fill tests therein. This safeguards against issues	Language is modified to clarify that fill for sea level rise adaptation is specifically addressing the sea level rise adaptation of habitats, not shoreline protection or built environment projects. The word “habitat” was added to specify that “sea level rise adaptation” is referring to habitat adaptation, not adaptation of infrastructure or built environment.

Subtidal Areas		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	with removal of "minor". More information can be found in the Background Report Chapter 5.	
9. ~~8.~~ The Commission should encourage and authorize pilot and demonstration projects **that address sea level rise adaptation of Bay habitats ~~when the potential benefits are greater than the potential risks~~**. These projects should include appropriately detailed experimental design and monitoring to inform initial and future work. Project **progress and** outcomes should be analyzed and reported expeditiously**~~, so that findings can be applied to future projects~~**. The size, design, and management of pilot and demonstration projects should be such that it will minimize the project's potential to negatively impact Bay habitats and species.	This policy is added to explicitly state the overall need for experimentation and research via pilot and/or demonstration projects. Additionally, language is provided to guide the design and execution of these projects. More support for this Subtidal Areas policy can be found in the Background Report Chapter 8.	The policy was modified to specify that pilot projects addressing habitat adaptation to sea level rise are strongly encouraged. In response to public comment, the phrase "when potential benefits are greater than the risks" was removed, as this language is redundant with standards required for the Commission to approve fill in Section 66605 of the McAteer-Petris Act. The phrase "so that findings can be applied to future projects" is removed to clarify that follow-up pilot projects can move forward before other pilot projects are completed/outcomes are known. This change was made in response to public comment.
10. ~~9.~~ ~~5.~~ The Commission should continue to support and encourage expansion of scientific information on the Bay's subtidal areas, including: (a) inventory and description of the Bay's subtidal areas; (b) the relationship between the Bay's physical regime	To further the goals of regional assessment in habitat restoration, regional habitat needs should be considered in the determination of where and how restoration should occur.	To reflect public comment, oyster shell transport was added as an area of necessary research.

Subtidal Areas		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
and biological populations; (c) sediment dynamics, including sand transport, and wind and wave effects on sediment movement; **(d) oyster shell transport**; (**ed**) areas of the Bay used for spawning, birthing, nesting, resting, feeding, migration, among others, by fish, other aquatic organisms and wildlife; and (**fe**) where and how habitat restoration, enhancement, and creation should occur considering species/habitat needs and suitable project sites; and (**gf**) if, where, and what type of habitat type conversion may be acceptable.	Additionally, more research is needed to support decisions involving habitat conversion to facilitate the Commission's assessment of future projects.	

Dredging. Staff recommends the Commission revise the findings and policies in the "Dredging" section as shown in the draft language below.

Dredging		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
n. **Continuation of b**~~**B**~~aywide studies would help determine the need for, appropriate locations for, and potential effects of ~~in-Bay disposal~~ the use of dredged sediment for eelgrass or other shallow water habitat enhancement or restoration. **The Commission ~~has~~ approved a pilot project, the Oakland Middle Harbor E~~e~~nhancement Area project, that could help to determine**	The second part of this finding is no longer necessary to support a policy in the Dredging section regarding the Oakland Middle Harbor Enhancement **Area** Project.	To reflect the fact that studies described here have already been occurring, the phrase "continuation of" is added. Additionally, because staff's final recommendation is to retain a reference to the Oakland Middle Harbor enhancement project in Dredging Policy 11b, it is

Dredging		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
the feasibility of eelgrass or other shallow water habitat creation ~~enhancement or restoration~~ in the Bay.		necessary to retain this finding.

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
11. a. A project that uses dredged sediment ~~material~~ to create, restore, or enhance Bay or certain waterway natural resources may ~~should only~~ be approved if: 1. The Commission, based on detailed site specific studies, appropriate to the size and potential impacts of the project, that include, but are not limited to, site morphology and physical conditions, biological considerations, the potential for fostering invasive species, dredged sediment ~~material~~ stability, and engineering aspects of the project, determines all of the following: a. the project would provide, in relationship to the project size, substantial net improvement in habitat for Bay species;	A component is added to this policy to ensure that dredged sediment placement for habitat projects is performed in accordance with the best available science.	Subsection 4 is removed in accordance with public comment because beneficial reuse of dredged sediment in habitat projects in areas such as tidal marshes or other intertidal areas could result in a temporary net loss of surface area.

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
b. no feasible alternatives to the fill exist to achieve the project purpose with fewer adverse impacts to Bay resources; c. the amount of dredged <u>sediment</u> ~~material~~ to be used would be the minimum amount necessary to achieve the purpose of the project; d. beneficial uses and water quality of the Bay would be protected; and e. there is a high probability that the project would be successful and not result in unmitigated environmental harm; 2. The project includes an adequate monitoring and management plan and has been carefully planned, and the Commission has established measurable performance objectives and controls that would help ensure the success and permanence of the project, and an agency or organization with fish and wildlife management expertise has expressed to the Commission its intention to manage and operate the site for habitat enhancement or restoration purposes for the life of the project;		

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
3. The project would use only clean <u>sediment</u> ~~material~~ suitable for aquatic disposal and the Commission has solicited the advice of the San Francisco Bay Regional Water Quality Control Board, the Dredged Material Management Office and other appropriate agencies on the suitability of the dredged <u>sediment</u> ~~material~~; **~~4. The project would not result in a net loss of Bay or certain waterway surface area or volume. Any offsetting fill removal would be at or near as feasible to the habitat fill site;~~** **4 ~~5~~**. Dredged <u>sediment</u> ~~material~~ would not be placed in areas with particularly high or rare existing natural resource values, such as eelgrass beds and tidal marsh and mudflats, unless the material would be needed to protect or enhance the habitat. The habitat project would not, by itself or cumulatively with other projects, significantly decrease the overall amount of any particular habitat within the Suisun, North, South, or Central Bays, excluding areas that have been recently dredged;		

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
5 ~~6~~. The Commission has consulted with the California Department of Fish and Wildlife ~~Game~~, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service to ensure that at least one of these agencies supports the proposed project; and **6** ~~7~~. The project's design and goals incorporate the best available science on the use of dredged sediment for habitat projects. **7** ~~8~~. After a reasonable period of monitoring, if either: a. the project has not met its goals and measurable objectives, and attempts at remediation have proven unsuccessful, or b. the dredged sediment ~~material~~ is found to have substantial adverse impacts on the natural resources of the Bay, then the dredged sediment ~~material~~ would be removed, unless it is demonstrated by competent environmental studies that removing the material would have a greater adverse effect on the Bay than allowing it to remain, and the site		

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
would be returned to the conditions existing immediately preceding placement of the dredged sediment ~~material~~.		
11.b. To ensure protection of Bay habitats, the Commission should not authorize placement of more than a minor amount of dredged sediment ~~material disposal~~ for projects that are similar to the Oakland Middle Harbor Enhancement Area project in characteristics including, but not limited to, scale, bathymetric modification, and type of habitat creation, ~~in the Bay and certain waterways for habitat creation, enhancement or restoration, except for projects using a minor amount of dredged material,~~ until the Oakland Middle Harbor Eenhancement Area project is completed successfully.	Dredging policy 11b was created to ensure that in-Bay use of dredged sediment for habitat projects would be limited until extensive studies were completed and additional policies were adopted. When the Middle Harbor Enhancement Project was proposed, there was concern that in-Bay disposal of large volumes of dredged sediment ~~purportedly~~ for restoration would become a common occurrence. In-Bay disposal of dredged sediment near a dredge site is generally cheaper and more time-efficient than disposal at designated sites in the Bay or offshore. The conditions of Dredging policy 11b were written with this consideration in mind, and attempted to safeguard against dredged sediment disposal for convenience without habitat restoration, enhancement, or creation as the primary goals. The policy is well-justified in this goal, but some of its language and conditions limit projects that	Based on careful consideration of public comment, discussion at the June 20 public hearing on BPA 1-17, and discussion with the Bay Fill Working Group, staff concluded that retaining an amended version of Dredging policy 11b is important to ensure that the Middle Harbor Enhancement Area project is completed prior to permitting another similar project. Additionally, staff concluded through these discussions that amending Dredging Policy 11b, in conjunction with the addition of a Plan Map policy regarding the MHEA, is important to re-affirm the Commission's commitment to ensuring the completion of the MHEA. The policy as written would not restrict any currently proposed habitat restoration, enhancement, and creation work in the Bay, and is not expected to restrict any currently conceivable future project intended primarily for habitat protection or improvement.

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	~~**genuinely**~~ need sediment to restore habitat as their primary goal. Regarding policies that limit the use of fill in the Bay for habitat projects to a "minor amount," there is a broad consensus that dredged sediment will be needed at habitat sites in tidal waters in significant volumes to adapt to rising seas. The McAteer-Petris Act safeguards against the use of more than the minimum amount of fill necessary for the successful completion of a project. Thus, removing Dredging Policy 11b would allow use of dredged sediment in tidal waters, but not more than the minimum amount necessary for the project purpose . Condition 1 of this policy has been partially addressed as there is a better understanding now of the need for beneficial reuse of sediment and where such projects are most appropriate than when the policy was written. However, it still outlines worthy goals. Aspects of condition 2 are still useful, as it would be beneficial to improve our	

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	understanding of ideal site conditions for the beneficial reuse of sediment for habitat goals. The level of detail in this policy may be better accomplished through a guidance document rather than the Bay Plan, or could be captured by simply by referring to the use of the best available science on these matters. To maintain the research goals of Conditions 1 and 2, these conditions have been slightly modified and moved to a new version of Dredging policy 11b (below). Condition 3 requires that the Middle Harbor Enhancement project is completed successfully before more than a minor amount of dredged sediment can be used for habitat projects in the Bay. While caution is certainly still warranted for any project that places large volumes of fill in the Bay, the success of Middle Harbor is not an accurate proxy for the potential success of every other habitat project in the Bay that uses dredged sediment. Thus, it is imprudent to limit the options of all other projects based on this one very specific type of project.	

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	However, this policy did serve two essential functions that are still important to maintain in the Bay Plan in some capacity: 1) Dredging policy 11b limits the amount of sediment that can be placed in deep water for habitat projects. In a sediment-limited system, it is important for sediment to be placed in the areas where it is the most needed for sea level rise adaptation—restoration projects in the margins of the Bay. Additionally, our scientific understanding of deep subtidal areas is not sufficient to fully understand the consequences of placing large volumes of sediment in these areas. This policy function is accomplished by the new Fish, Other Aquatic Organisms, and Wildlife policy 8. 2) Dredging Policy 11b indirectly encourages the completion of the Middle Harbor Enhancement Project. However, area-specific policies and goals are addressed as policy notes in the Bay Plan Maps. Thus, staff recommends adding a new policy note to Bay Plan Map 4 to require	

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	that the Middle Harbor Enhancement Area provide the habitat benefits that were intended. However, the Brief Descriptive Notice for this Bay Plan Amendment (BPA 1-17) did not include Bay Plan Map 4 as a section of the Bay Plan to be considered for amendment. In order maintain the current schedule of BPA 1-17 (which would be delayed if a new section were added for consideration in BPA 1-17 at this stage), BCDC staff will recommend initiation of a new Bay Plan Amendment 4-19. This initiation is tentatively scheduled for the Commission Meeting on June 6, which would include the Plan Map policy notes. The public hearing on BPA 4-19 would be tentatively scheduled for July 18, 2019.	
11.c.~~b~~. The Commission should encourage research and well-designed pilot projects to evaluate**: ~~the feasibility of the beneficial reuse of dredged sediment in the Bay and certain waterways for habitat creation, enhancement and restoration. Studies should address:~~**	While the body of research on beneficial reuse of dredged sediment for habitat projects has been growing, this is an important topic that should be investigated more thoroughly for the San Francisco Bay Area. A better understanding of the topics outlined in this policy could enhance BCDC's ability to	Language was modified for clarity and consistency.

Dredging		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
1. ~~**The need to use dredged sediment for in-Bay habitat creation, enhancement and restoration in the context of maintaining**~~ **The** appropriate amounts of all habitat types within the Bay, especially for support and recovery of endangered species; 2. The appropriate biological, hydrological, and physical characteristics of locations in the Bay for **habitat creation, enhancement, and restoration** ~~**such**~~ projects **that use dredged sediment**; 3. The potential ~~**of**~~ **for** direct, indirect, and cumulative impacts of such projects; ~~**and**~~ 4. The effectiveness of different dredged sediment placement strategies for habitat restoration, enhancement, and creation~~.~~**; and** 5. **The feasibility of the beneficial reuse of dredged sediment in the Bay and certain waterways for habitat creation, enhancement, and restoration.**	permit these projects efficiently and to ensure that projects will provide net benefits to the Bay.	

Shoreline Protection. Staff recommends the Commission revise the findings and policies in the "Shoreline Protection" section as shown in the draft language below.

Shoreline Protection		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
f. Shoreline protection solutions vary along a spectrum from hardened (grey) structures to natural (green) solutions. ~~Nonstructural~~ Natural and nature-based shoreline protection methods, such as tidal marshes, levees with transitional ecotone habitat, oyster reefs, mudflats, and beaches can provide effective flood protection ~~control~~ and/or wave attenuation when sited properly. In some instances, it may be possible to combine natural and nature-based methods (e.g. habitat restoration, enhancement or protection) with structural approaches to provide protection from flooding and control shoreline erosion, thereby minimizing the shoreline protection project's impact on natural resources, and maximizing other ecological benefits. The appropriate solutions and combinations of solutions depend on physical and biological characteristics of the site, in addition to other factors.	This finding is updated to acknowledge that other habitats besides marshes can also provide important shoreline protection benefits, and that shoreline protection approaches realistically fall on a spectrum of hardened (grey) to natural/nature-based (green). The importance of considering site-specific factors to determine project suitability is also added.	No further changes.

Shoreline Protection		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
g. Loose dirt, concrete slabs, asphalt, bricks, scrap <u>lumber</u> ~~wood~~ and other kinds of debris, are generally ineffective in halting shoreline erosion or preventing flooding and may lead to increased fill or release of pollutants. Although providing some short-term shoreline protection, protective structures constructed of such debris materials typically fail rapidly in storm conditions because the material slides bayward or is washed offshore. Repairing these ineffective structures requires additional material to be placed along the shoreline, leading to unnecessary fill and disturbance of natural resources.	This finding was changed to clarify that scrap wood is really intended to mean scrap lumber, as woody material such as tree branches/trunks may be a part of living shoreline projects.	No further changes.
<u>h. In some cases, natural solutions that support wildlife may conflict with adjacent land uses, such as **airports** ~~**aviation operations**~~</u>.	Certain natural and nature-based features for shoreline protection may not be appropriate in some areas if the feature does not provide protection that is consistent with the adjacent land use, or if the feature attracts wildlife that could pose a high risk to human life or property by interference with adjacent land uses. This is primarily of concern when tidal marshes or tidal flats, which both attract numerous species of birds, are	The finding is updated to improve clarity.

Shoreline Protection		
Findings Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
	located near airports. Birds collisions with aircraft present a significant safety risk to airport operations.	
i. The use of natural and nature-based features provides additional benefits beyond shoreline protection, including habitat, water quality improvement, carbon sequestration, recreation, and more. Because these benefits are provided, natural and nature-based shoreline protection approaches are sometimes considered self-mitigating.	This finding is added to acknowledge the other ecosystem benefits provided by natural and nature-based features, beyond shoreline protection, and to highlight that provision of these benefits can make projects self-mitigating.	No further changes.

Shoreline Protection		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
1. New shoreline protection projects and the maintenance or reconstruction of existing projects and uses should be authorized if: (a) the project is necessary to provide flood or erosion protection for (i) existing development, use or infrastructure, or (ii) proposed development, use or infrastructure that is consistent with other Bay Plan policies; (b) the type of the protective structure is appropriate for the	Language is added to this policy to require that not only the erosion and flooding conditions at the site, but the causes of those conditions, are considered in determining whether a shoreline protection project should be authorized. It is important to identify the cause of erosion and/or flooding, and take appropriate measures to address the problem at its source, and use shoreline	No further changes.

Shoreline Protection		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
project site, the uses to be protected, and the causes and conditions of erosion and flooding ~~conditions~~ at the site; (c) the project is properly engineered to provide erosion control and flood protection for the expected life of the project based on a 100-year flood event that takes future sea level rise into account; (d) the project is properly designed and constructed to prevent significant impediments to physical and visual public access; and (e) the protection is integrated with current or planned adjacent shoreline protection measures. Professionals knowledgeable of the Commission's concerns, such as civil engineers experienced in coastal processes, should participate in the design.	protection measures that target the issue if it cannot be addressed at the source.	
4. ~~Whenever feasible and appropriate~~ All shoreline protection projects should evaluate the use of ~~include provisions for nonstructural methods~~ natural and nature-based features such as marsh vegetation, levees with transitional ecotone habitat, mudflats, beaches, and oyster reefs, and should incorporate these features to the greatest extent practicable. Ecosystem benefits, including habitat and	This policy has been modified to strengthen the requirement that all projects evaluate and include natural and nature-based features to the greatest extent practicable, and includes new language to address the most recent science on natural and nature-based features. A specific potential exemption is added for airports, because of the high risks to human life and property posed by potential	Language is updated to specify that any exemption allowed for airports should be related to public safety risk. The previous language was much more ambiguous, stating that airports may be exempt from certain natural and nature-based features. The language was updated in response to public comment and discussion with the Bay Fill Working Group.

Shoreline Protection		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
water quality improvement, should be considered in determining the amount of fill necessary for the project purpose. Suitability and sustainability of proposed shoreline protection and restoration strategies at the project site should be determined using the best available science on shoreline adaptation and restoration. Airports may be exempt from incorporating ~~**certain**~~ natural and nature-based features **that could endanger public safety by attracting potentially hazardous wildlife.** ~~and integrate shoreline protection and Bay ecosystem enhancement, using adaptive management. Along shorelines that support marsh vegetation, or where marsh establishment has a reasonable chance of success, the Commission should require that the design of authorized protection projects include provisions for establishing marsh and transitional upland vegetation as part of the protective structure, wherever feasible.~~	collision of airplanes with birds (which are attracted by certain natural and nature-based features).	
5. Adverse impacts to natural resources and public access from new shoreline protection should be avoided. Where significant impacts cannot be	Language is added to this policy to acknowledge that the use of natural and nature-based features provide	No further changes.

Shoreline Protection		
Policy Changes	**Preliminary Staff Analysis**	**Final Staff Analysis**
avoided, mitigation or alternative public access should be provided. Shoreline protection projects that include natural and nature-based features may be self-mitigating or require less mitigation than projects that do not include any natural or nature-based features.	ecological benefits that hard structures such as traditional seawalls do not. As a result, these benefits should be considered when evaluating the need for mitigation for the project and as an incentive to use natural and nature based features.	
6. The Commission should encourage pilot and demonstration projects to research and demonstrate the benefits of incorporating natural and nature-based techniques in San Francisco Bay.	Many natural and nature-based features, including hybrid techniques that blend natural features with hardened, structural features, have not been tested for shoreline protection in the region, and it is thus difficult to assess their effectiveness or appropriateness for given sites and situations. A formal statement of the Commission's support and encouragement of pilot projects could help to advance research and understanding on these approaches.	No further changes.

Environmental Assessment

As staff concluded in the preliminary recommendation, the projects that could be permitted through the proposed amended policies may have some environmental impacts, which would be assessed, and if necessary, mitigated through the permitting process. However, the Bay Plan amendment will not have any significant environmental effects. For these reasons, which are detailed in the Environmental Assessment of the preliminary staff recommendation, the Commission's adoption of the proposed amendments to the Bay Plan will have no clearly identifiable significant adverse effects on the environment.

Response to Comments

All public comments received during the public comment period were numbered and attached to this document (Attachment B). Given the similarity of many of the comments, the staff has developed two master responses that address the most common comments. For those comments that could not be partially or fully addressed with the master responses, individual responses are provided. Comments received after the public hearing were mailed separately to Commissioners, Alternates and interested parties without responses. Following the master responses are responses to letters received from the public during the public comment period (May 21, 2019 through July 8, 2019), which capture the entirety of comments conveyed at the June 20 public hearing, and staff responses to those comments.

Master Response 1: **Concern About Increased Regulatory Burden**

Summary of Issues Raised by Commenters

- The proposed policies will add new requirements (including more analyses during the design phase, increased monitoring requirements, and increased adaptive management requirements) and undue financial burden for habitat projects, which will slow the implementation of projects that must occur quickly and efficiently to be resilient to sea level rise.
- The proposed policies do not recognize that the estuary is in a state of flux with sea level rise and other predicted changes, which will require bolder and faster action.
- Staff's preliminary recommendation for Fish, Other Aquatic Organisms, and Wildlife Policy 6 is too prescriptive. The decision of how to place fill should be made on a case-by-case basis.
- Staff's preliminary recommendation for Fish, Other Aquatic Organisms, and Wildlife Policy 7 could hinder necessary habitat projects. It does not recognize that sea level rise will likely result in changes in the distribution and relative amounts of various habitat types, and that restoration activities that convert existing habitat should be considered through that lens.
- Concern about the burden of evaluation, monitoring, and adaptive management requirements in Tidal Marshes and Tidal Flats Policy 6 and Subtidal Areas Policy 3.
- It is unclear what is meant by "funding plan" in preliminary Tidal Marshes and Tidal Flats Policy 7 and Subtidal Areas Policy 4, and there is concern that it could add burden.

Response

- The goal of the fill for habitat amendment is to allow more fill in Bay habitats, where it has been limited previously, recognizing that this fill may be important for sea level rise adaptation of these habitats. The allowance of more fill in the Bay, even for habitat restoration, creation, enhancement, or adaptation projects, increases risk for harm to existing Bay habitats and organisms. Staff recognizes that these habitats are also

threatened by sea level rise. However, it is equally important that the long-term benefits of proposed habitat projects outweigh the potential negative impacts to current Bay habitats and organisms. Thus, monitoring, research, and careful consideration of appropriate fill volumes are warranted to ensure that the restoration community moves forward wisely with work in these existing habitats.

- The new policies will generally not add unnecessary monitoring or management burden. Based on proposed policy additions—Tidal Marshes and Tidal Flats Policy 8 (previously Policy 7), and Subtidal Areas Policy 5 (previously Policy 4)—the amount of required evaluation, monitoring, and adaptive management is intended to scale with project purpose, risk, size, lifespan, etc. Projects that use large volumes of fill in the Bay may require extensive monitoring, but that is because this kind of work may have fewer precedents in the Bay and pose higher risk for failure or adverse impacts to resources. On the other hand, project types that have already been regularly permitted and executed (e.g. fill to restore diked Baylands) will likely be subject to similar or slightly decreased monitoring/management requirements relative to what has previously been required. In addition, the McAteer-Petris Act requires all conditions imposed on the project by the Commission to be reasonable, which includes monitoring and management conditions. As a result, rather than a "one-size fits all" approach to monitoring, the extent of monitoring and management required for a project must be decided on a project-by-project basis, based on the benefits and potential impacts of the project.
- The Bay Plan is designed to be applied flexibly, and the extent of evaluation and analysis that is required for a permit application can vary widely depending on the project. The analyst will work with applicants and determine on a project-by-project basis the extent of evaluation needed to determine the project's consistency with the Commission's laws and policies. For example, in Tidal Marshes and Tidal Flats Policy 6 and Subtidal Areas Policy 3, the level of detail required on the listed criteria will be determined based on the project. Some criteria may be more relevant than others, depending on the project.
- Adaptive management is not required of every project by Tidal Marshes and Tidal Flats Policy 6 and Subtidal Areas Policy 3. Adaptive management is encouraged as a strategy where appropriate so that projects can respond to increasingly dynamic conditions in the estuary.
- The Baylands Ecosystem Habitat Goals Update calls for restoration of diked historic baylands or salt ponds to tidal action by 2030. The new policies will likely have a streamlining effect on this type of project. The policies subject to this Bay Plan amendment are primarily targeting projects in the Bay, some of which may impact existing Bay habitat, that can now use much larger volumes of fill.
- To reflect the call for more flexibility/recognition of dynamic conditions in fill placement and assessment of impacts, Fish, Other Aquatic Organisms, and Wildlife preliminarily recommended policies 6 and 7 were modified and combined to state: "Allowable fill for habitat projects in the Bay should (a) minimize near term adverse impacts to and loss of

existing Bay habitat and native species; (b) provide substantial net benefits for Bay habitats and native species; and (c) be scaled appropriately for the project and necessary sea level rise adaptation measures in accordance with the best available science. The timing, frequency, and volume of fill should be determined in accordance with these criteria."

- To clarify the intent of the funding plan added in Tidal Marshes and Tidal Flats Policy 8 (previously policy 7), and Subtidal Areas Policy 5 (previously policy 4), and that it is not intended to add significant burden, the language was changed to state: "Habitat projects should have a funding strategy for monitoring and adaptive management of the project, commensurate with the level of monitoring and adaptive management that is required for the project, to demonstrate that the applicant has considered costs and identified potential funding sources for any necessary monitoring and management."

Master Response 2: **Comments on Issues Outside the Scope of Amendment**

Summary of Issues Raised by Commenters

- Voluntary habitat restoration projects, especially those that are meant to provide habitat for sensitive wildlife, should not be required to provide public access.
- The Fill for Habitat Bay Plan Amendment policy changes should address the importance of fill for protecting shoreline development from flooding.
- The Fill for Habitat Bay Plan Amendment should address the beneficial reuse of dredged sediment, and ways to facilitate the beneficial reuse of dredged sediment, in more detail.

Response

- While BCDC recognizes the vital importance of the above issues, these topics are not within the scope of the Bay Plan Amendment, and thus will not be addressed via the currently proposed changes to Bay Plan findings and policies.
- Issues of public access requirements considering rising sea level, and the request for regional public access/public access to not be required of every habitat project, will be addressed through a separate Bay Plan Amendment on Public Access.
- Shoreline Protection issues will be addressed through a separate Bay Plan Amendment on Shoreline Protection.
- Most issues related to beneficial reuse of dredged sediment will be addressed through a Bay Plan Amendment focused on beneficial reuse. BCDC already does encourage the beneficial reuse of dredged sediment to the greatest extent possible as an agency and via the Long-Term Management Strategy for the Placement of Dredged Material in the Bay Region (LTMS) Program.

Response to Specific Comments

Anne E. Morkill, San Francisco Bay National Wildlife Refuge Complex, July 8, 2019

1. Comments are outside the scope of the Fill for Habitat Bay Plan Amendment – please see Master Response 2. However, staff greatly appreciates the explanation, and looks forward to discussing these issues further during a future amendment process.

Anne E. Morkill, San Francisco Bay National Wildlife Refuge Complex, June 20, 2019

1. Comment noted.
2. Comment noted.
3. Comment noted.
4. BCDC recognizes the close link between public access requirements and increased fill that is proposed through this amendment. However, given the scope of the necessary review of the Public Access policies and its intersection with habitat projects, these policies should be evaluated in a separate amendment process, as staff have has publicly noted since October of 2018.
5. Please see Master Response 1.
6. Please see Master Response 1.

Kristine A. Zortman, Port of Redwood City, July 8, 2019

1. Comment noted.
2. Comment noted.
3. Comment noted.
4. The “minimum amount of fill” language, which reflects the language of the McAteer-Petris Act, section 66605(c), is already interpreted to consider the project’s purpose, which could certainly include creation of high value habitat, enhancement of ecological functions, and sea level rise adaptation. The “minimum amount of fill necessary” language has not prohibited the use of very large volumes of fill in the past where necessary for the project.

Rebecca Schwartz Lesberg, Audubon California, June 20, 2019

1. Comment noted.
2. Comment noted.
3. Please see Master Response 1. Additionally, BCDC is an active member of both the Wetlands Regional Monitoring Program and the Bay Restoration Regulatory Integration Team. Proposed policy additions to the Bay Plan recognize the importance of coordinating with regional monitoring efforts (Tidal Marshes and Tidal Flats Policy 9; Subtidal Areas Policy 6).
4. Please see Master Response 1.
5. Please see Master Response 2.

6. Comment noted.
7. Comment noted. Dredging Policy 11b has been amended and retained in the Bay Plan.
8. Comment noted. Staff agrees that not all non-minor subtidal fill for habitats should be restricted pending the completion of the Middle Harbor Enhancement project. Language has been proposed accordingly.

Pam Young, Golden Gate Audubon Society, June 20, 2019

1. Comment noted.
2. Comment noted. While staff's updated recommendation is to retain an amended version of Dredging Policy 11b, the language proposed will still allow almost any other habitat project that uses dredged sediment in the Bay to go forward independently of the completion of the Middle Harbor Enhancement Area. Staff believes that either the amended language or removal of the policy would in effect allow the same projects to move forward.
3. Staff also recognizes that there may be exceptions to the encouragement of projects to contribute to regional goals/restore complete ecosystems. The proposed policy addition that states this goal (Tidal Marshes and Tidal Flats Policy 5) allows for exceptions, via the language "to the greatest extent feasible". BCDC Bay Plan policies are applied on a project-by-project basis, and the Commission must consider all relevant policies in determination of a project's consistency. Thus, if a restoration site is not in line with regional goals, but a proponent could demonstrate its importance for providing endangered species habitat, it could still be permitted. Additionally, the language of Tidal Marshes and Tidal Flats Policy 5 has been modified in the final recommendation to reflect these concerns.
4. Adaptive management measures could certainly be permitted and are encouraged for adaptation of habitat projects in general, and thus could be used to restore or protect habitat for specific endangered/threatened species.
5. The new policies strive to do exactly this. Bay Plan policies also aim to avoid cumulative and significant impacts to Bay habitats and restrict excessive fill, while also enhancing the resilience of Bay habitats. Fish, Other Aquatic Organisms, and Wildlife Policy 6, as well as existing Fish, Other Aquatic Organisms, and Wildlife policies, address these concerns.

Keith H. Lichten, San Francisco Bay Regional Water Quality Control Board, June 19, 2019

1. Comment noted.
2. Comment noted, and staff has updated the language in the revised recommendation to reflect this suggestion.
3. Staff appreciates the suggestion for more accurate terminology. However, the intent of the finding was not to convey mechanisms of habitat loss, but rather state that habitat is at risk for loss or degradation. Staff recognizes that the phrase "be inundated" did not convey this concept, and thus it was replaced with "be lost or degraded".
4. Comment noted.

5. Comment noted, and the suggested changes have been made.
6. Comment noted. Policy has been modified since preliminary recommendation – please see Master Response 1.
7. See the response to comment 3 above. Regarding the inclusion of beaches and other coarse shoreforms, these areas are already included in the habitats/areas referenced in the policy (e.g. tidal flats, intertidal habitats), although not explicitly.
8. Comment noted, and the suggested changes have been made.
9. Comment noted, and the suggested changes have been made.
10. Comment noted, and changes have been made to the preliminary staff analysis accordingly.
11. Comment noted, and the suggested changes have been made.
12. Comment noted, and oyster shell transport was added to the policy. However, it was not added as a component of sediment dynamics, and was instead added as a separate subsection of the policy.
13. Staff agrees that a framework for assessing mitigation needs and clarifying the expectations on the role of regional mitigation banks would be useful. Staff is slated to propose the initiation of a Bay Plan Amendment (BPA) on mitigation after the completion of the Fill for Habitat BPA, and analysis/proposal of supporting guidance and framework documents would be associated with the research and proposal for that amendment.
14. Staff agrees with this notion and recognizes that this proposed policy does have implications for habitat restoration potential. However, the proposed addition is technically about shoreline protection infrastructure, and therefore does not fall within the scope of this amendment. This suggestion is much appreciated, and will be considered through the Bay Plan Amendment focused on fill for shoreline protection.

Lt. Col. Travis J. Rayfield, U.S. Army Corps of Engineers, June 18, 2019

1. Comment noted.
2. Comment noted.
3. Regarding addition of term “coastal”, comment noted and accepted. Regarding the edits to the final sentence, staff appreciates the suggestion, but believes that this language is too specific for what the finding intends to convey.
4. Comment noted, and the suggested change has been made.
5. Comment noted, and the suggested change has been made.
6. Comment noted. While staff did not make the exact proposed changes to language, staff believes that the revised recommendation on this language reflects the spirit of the commenter’s proposed changes.

7. Staff understands the intent of the comment. Staff recognizes that in many cases, alternative approaches to resilience could be used rather than fill, and that in some cases any amount of fill may result in unnecessary near-term habitat loss. However, this policy compares situations in which fill is proposed and necessary. Thus, for the sake of comparison with the potential benefits of smaller fill volumes, it is important to retain the term "large". Language has been added in the final recommendation to clarify that this finding refers to projects in which fill is proposed.
8. The term "minimum" is used to mirror the McAteer-Petris Act in the policy. The phrase "minimum amount...necessary" can allow relatively large volumes of fill or amounts of dredging, depending on the goals of the project.
9. Comment noted, and the suggested change has been made.
10. The term minor was removed and replaced with more specific language on situations in which sediment placement in deep subtidal areas may be acceptable.
11. The finding language that is suggested for removal is retained because it highlights the reasons that siting projects in sustainable locations is important. The proposed replacement text is suggested policy language, not a finding. Bay Plan findings support the policies, but unlike policies are not themselves substantive provisions that guide future uses of the Bay and shoreline. Staff's proposed finding language supports Tidal Marshes and Tidal Flats policy 5, which states that projects should be sited to be sustainable and is consistent with the commenter's proposed replacement text.
12. See response to comment 11 for explanation of difference between findings and policies. This is an advisory policy, which acts on entities outside of the Commission's jurisdiction, but provides a stance that the Commission should support on external matters.
13. See response to comment 11 for explanation of difference between findings and policies. This policy states BCDC's commitment to working with regional monitoring efforts, and is thus an important addition to the Bay Plan.
14. The phrase proposed for elimination is retained in this policy because it is a policy for subtidal areas, where a cautious approach toward fill is still warranted.
15. Comment noted, and changes have been made to the preliminary staff analysis accordingly.
16. Comment noted, and changes have been made to the preliminary staff analysis accordingly.
17. Comment noted. This issue is being addressed separately through BPA 3-19.
18. Comment noted. As described in the comment, this issue is being addressed separately through BPA 3-19.

Jim Wunderman, Bay Area Council, June 14, 2019

1. This is not an accurate characterization of existing Bay Plan language. The Bay Plan does not uniformly restrict fill. The Bay Plan incorporates the consideration of impacts in determining the minimum amount of fill necessary, and requires the consideration of climate change and sea level rise as well as impacts to natural resources.
2. Comment noted.

3. As part of BCDC's public workshops on rising sea level, staff proposed an amendment on fill for flood protection as one of four upcoming Bay Plan Amendments. This topic is not within the scope of this Bay Plan Amendment.

Caitlin Sweeney, San Francisco Estuary Partnership, June 14, 2019

1. Comment noted.
2. Comment noted.

WRMP Core Team, June 14, 2019

1. Comment noted, and changes have been made to the preliminary staff analysis.
2. Comment noted, and changes have been made to the preliminary staff analysis.
3. BCDC staff has engaged with the WRMP process and supports its development. However, it is premature to include a direct reference to the WRMP in Bay Plan findings and policies before the program has been established and before any recommendations from the program can be reviewed for compatibility with BCDC's laws and policies. Rather, the Bay Plan amendment acknowledges the program in its dynamic state by referencing regional monitoring programs more generally. Furthermore, programs and regional efforts change, are replaced, and emerge over time often at a faster pace than the Bay Plan language. This can lead to outdated references and language if direct references to those programs are included.
4. Comment noted, and changes have been made to the preliminary staff analysis.

Amy Hutzel, State Coastal Conservancy, June 14, 2019

1. Comment noted. Please note that the Bay Plan policies subject to this amendment avoid the term "beneficial fill" to differentiate fill for habitat projects from fill for development. Allowable fill for development of the built environment also provides benefits. The McAteer-Petris Act does not assign values to fill for water-oriented uses for various purposes, as all fill may have some benefits and impacts.
2. Comment noted.
3. Comment noted. While staff's updated recommendation is to retain an amended version of Dredging Policy 11b, the language proposed will still allow almost any other habitat project that uses dredged sediment in the Bay to go forward independently of the completion of the Middle Harbor Enhancement Area. Staff believes that either the amended language or removal of the policy would in effect allow the same projects to move forward.
4. Comment noted.
5. Comment noted
6. The language of Major Conclusions and Policies 5 was modified to reflect the positive effects of fill for habitat as well. Regarding the specific reference to multiple benefits, the proposed language additions to Major Conclusions and Policies 4 already address the multiple benefits provided by habitat restoration projects.
7. Comment noted, and the suggested change has been made.

8. Comment noted, and the suggested change has been made.
9. Comment noted, and the suggested change has been made.
10. While BCDC staff generally agrees with the idea of providing high value habitat, staff does not agree that it should be a consistent goal to convert more common habitats to scarcer habitats. This decision should be made on a case-by-case basis. Additionally, determination of "higher ecological value" may be subjective. Another minor concern with the proposed language is the use of the term "should", which makes this policy language as opposed to finding language. The Bay Plan also does not and should not state what types of projects are self-mitigating because that determination is made on a project-by-project basis. Even for restoration projects, projects are very diverse in their goals and potential impacts, and there could be significant adverse impacts that require mitigation and/or minimization measures.
11. This finding is focused on sediment and how the region should be prioritizing the limited amount of sediment that is available. The finding is in support of proposed policy 7 in Fish, Other Aquatic Organisms, and Wildlife, which prioritizes sediment placement locations. Oyster reefs and other types of fill are discussed elsewhere in the Bay Plan.
12. Regarding the term "beneficial fill", please see the response to comment 1. Staff recognizes that placing fill incrementally is not always feasible and will often have a higher cost. The policy language has been updated to reflect this concern.
13. Comment noted, and the suggested change has been made.
14. BCDC staff have confirmed that BCDC could authorize smaller repeat placements under a single permit. However, a statement of how a permit should be administered for a certain type of project is too prescriptive for the Bay Plan and should be determined as appropriate on a project-by-project basis.
15. Staff appreciates the concern. However, because one of the key goals of pilot projects is to gather information and fill data gaps, staff believes it is implied that these projects need to move forward with data gaps or no information, and don't believe the proposed language addition is necessary.
16. They are not used interchangeably here, or elsewhere in the document. Monitoring is used to refer to the gathering of information to determine the performance of a project, or tracking trends throughout the estuary (e.g. data collection at sites through the wetlands regional monitoring program, or monitoring sediment patterns in the estuary). No part of this finding or any other findings or policies requires research to obtain a permit.
17. Please see Master Response 1.
18. Please see Master Response 1.
19. Rather than use the term "grey-green", an example was provided of materials that are often combined to make hybrid material.
20. The finding wouldn't preclude projects that use well-vetted techniques and have major impacts from required monitoring or adaptive management. Rather, projects that do have high uncertainty or risk would also likely need higher levels of monitoring and adaptive management.

21. Please see Master Response 1.
22. Please see Master Response 1.
23. Please see Master Response 1.
24. This policy change does not require that all projects be involved in regional efforts.
25. This finding was retained in the revised staff recommendation to support the amended Dredging Policy 11b. Please see the response to comment 3 for more details.
26. Changing dredged "material" to dredged "sediment" clarifies what is being dredged from the Bay, which is primarily mud and sand. Dredged sediment could also encompass other larger particles dredged from the Bay, although dredging larger items is extremely uncommon. Boulders and large rocks are generally upland material, and are not dredged from the Bay. Dredging polices do not apply to upland materials.
27. The "minimum amount of fill" language, which reflects the language of the McAteer-Petris Act, section 66605(c), is already interpreted to consider the project's purpose, which could certainly include creation of high value habitat, enhancement of ecological functions, and sea level rise adaptation. The "minimum amount of fill necessary" language has allowed very large volumes of fill in the past, and will continue to do so.
28. Please see the response to comment 3.
29. Staff recognizes that these boundaries are flexible and that many of these habitats are not strictly intertidal or subtidal. However, the Bay Plan is structured to reference habitats that are predominantly in either "Tidal Marshes and Tidal Flats" or "Subtidal Areas".

Jeff McCreary, San Francisco Bay Joint Venture, June 14, 2019

1. Comment noted.
2. Staff appreciates this offer. Staff engaged with the SFBJV during the revision process at the July 30, 2019 SFBJV Management Board meeting. Staff would be pleased to continue engagement with the SFBJV through the implementation process.
3. Comment noted.
4. Staff believes that the amendment already consistently acknowledges the need to respond to increasingly dynamic conditions (which is the goal of the amendment), but some further changes have been made to address this concern. Please see Master Response 1.
5. Please see Master Response 1.
6. The amendment addresses the need to be adaptive and respond to the dynamic environment, as well as the need to keep up with current scientific understanding. All of the proposed changes allow for greater flexibility in approaches that can be used for in-Bay habitat adaptation to sea level rise, and call for use of the best available science in determining these approaches. Proposed policy revisions add minimal new requirements of permittees—please see Master Response 1.
7. The existing policies and proposed policy changes already do this. The beneficial reuse of dredged sediment will be further addressed through the Bay Plan Amendment on beneficial reuse—please see Master Response 2.

8. Staff does acknowledge the benefits of regional monitoring and potential in some cases for this to replace project-based monitoring in Tidal Marshes and Tidal Flats Finding s and Subtidal Areas Finding l, and the staff analysis for Tidal Marshes and Tidal Flats Policy 9, and Subtidal Areas Policy 6, of the preliminary staff recommendation. In the revised recommended language for these proposed policies, it is stated that "Where feasible and appropriate, the Commission should encourage monitoring for habitat restoration projects that coordinates with regional efforts and improves the value and usefulness of data." However, staff expects that project-based monitoring to determine whether the project is meeting its goals will still be necessary in many cases.
9. Please see Master Response 2.
10. Staff recognizes these projects for the multiple benefits they provide. The majority of past habitat restoration projects that have been approved by BCDC have been determined to be self-mitigating, but this is a determination that must be made on a project-by-project basis.

Norma J. Camacho, Valley Water, June 17, 2019

1. Comment noted.
2. BCDC recognizes the challenges of acquiring sufficient clean fill at a given time for restoration projects. For this and other reasons, the preliminary proposed policy for Fish, Other Aquatic Organisms, and Wildlife Policy 6 has been updated. Please see Master Response 1.
3. Comment noted. However, please note that the policies mentioned only apply in the Bay, and so never restricted fill volumes in historic wetlands diked from the Bay.
4. None of the components of Dredging Policy 11a call for complete and conclusive studies. Dredging Policy 11a(1a-e) calls for "detailed, site specific studies", and the types of studies/information that must be provided are outlined in Dredging Policy 11a(1a-e). Further definition about conclusiveness or completeness would be assessed by the analyst based on the project.
5. Staff agrees that a framework/guidance for assessing how mitigation would be assigned to shoreline protection projects would be useful. Staff is slated to propose the initiation of a Bay Plan Amendment (BPA) on mitigation after the completion of this amendment, and that amendment would likely address the question of how mitigation would be assigned to shoreline protection projects.
6. Please see Master Response 2.
7. This topic is not within the scope of the current amendment, but could be addressed as part of an upcoming Bay Plan Amendment focused on public access. Please see Master Response 2.
8. Please see Master Response 1 for explanation of changes to preliminary Tidal Marshes and Tidal Flats Policy 7. Most voluntary restoration/habitat projects are subject to uncertainty in funding, and thus it is not fair to provide an exemption just for government agencies.
9. Comment noted.

10. Comment noted. However, not all habitat/restoration projects will go through the Bay Restoration Regulatory Integration Team (BRRIT).

Dave Halsing, South Bay Salt Pond Restoration Project, June 14, 2019

1. Comment noted.
2. Comment noted.
3. Comment noted. While staff's updated recommendation is to retain an amended version of Dredging Policy 11b, the language proposed will still allow almost any other habitat project that uses dredged sediment in the Bay to go forward independently of the completion of the Middle Harbor Enhancement Area (MHEA). Staff believes that either the amended language or removal of the policy will in effect allow the same projects to move forward. Regarding the comment that no individual project should serve as a prerequisite for beneficial reuse in another project, staff generally agrees, but due to the scale and potential for adverse impacts of the MHEA, staff believes it is reasonable to learn from this project before pursuing another similar project.
4. Comment noted.
5. The language in the final recommendation has been modified accordingly. The beneficial effects of fill have been acknowledged in the policy as well.
6. The word "primary" does not imply that restoration projects can be permitted without providing ongoing public access features that will exist in perpetuity. BCDC's Public Access policies already address public access/wildlife conflicts, and provide options for in-lieu public access in these situations. Public access requirements are also flexible and determined on a case-by-case basis, so the site and potential conflicts with wildlife are considered in determination of appropriate public access. This issue is also not within the scope of this Bay Plan Amendment. Please see Master Response 2.
7. While staff generally agrees with the idea of providing high value habitat, staff does not agree that it should be a consistent goal to convert more common habitats to scarcer habitats. This decision should be made on a case-by-case basis. Additionally, determination of "higher ecological value" may be subjective.
8. This finding is focused on sediment and how we should be prioritizing the limited amount of sediment that is available. The finding is in support of proposed policy 7 in Fish, Other Aquatic Organisms, and Wildlife, which states prioritizations for sediment placement locations. Oyster reefs and other types of fill are discussed elsewhere in the Bay Plan.
9. BCDC staff have confirmed that BCDC could authorize smaller repeat placements under a single permit. However, a statement of how a permit should be administered for a certain type of project is too prescriptive for the Bay Plan and in general could be determined as appropriate on a project-by-project basis.

10. The Bay Plan policies subject to this amendment avoid the term "beneficial fill" to differentiate fill for habitat projects from fill for development. Allowable fill for development of the built environment also provides benefits. The McAteer-Petris Act does not assign values to fill for water-oriented uses for various purposes, as all fill may have some benefits and impacts.
11. Staff recognizes the importance of fill for improvements to existing levees and berms in order to allow habitat restoration projects to proceed. However, BCDC has had no trouble permitting fill for this purpose before, and there is no need to explicitly state the need for this type of fill in the Bay Plan policies.
12. Please see the response to Comment 9.
13. Staff expects that direct encouragement of pilot and demonstration projects in the Bay Plan policies would facilitate the permitting of these projects.
14. Please see Master Response 1.
15. Please see Master Response 1.
16. Please see Master Response 1.
17. Comment noted. This policy change does not require that all projects be involved in regional monitoring efforts.
18. This finding was retained in the revised staff recommendation to support the amended Dredging Policy 11b. Please see the response to comment 3 for more details.
19. Changing dredged "material" to dredged "sediment" clarifies what is being dredged from the Bay, which is primarily mud and sand. Dredged sediment could also encompass other larger particles dredged from the Bay, although dredging larger items is extremely uncommon. Larger materials that are used for fill are generally upland material, and are not dredged from the Bay. Dredging polices do not apply to upland materials.
20. Section 66605 McAteer-Petris Act requires, in part, that the Commission may only approve fill "when public benefits from fill clearly exceed public detriment from the loss of the water areas" and when the fill is the "minimum amount necessary to achieve the purpose of the fill." As a result, the amount of fill must be appropriate for the project. The project's goals and benefits it will provide must be considered. Thus, if a project goal is to provide greater benefits, and that would require more fill, a larger volume could likely be justified.
21. Please see the response to Comment 3.
22. Please see the response to Comment 11.

Mark E. Biddlecomb, Ducks Unlimited, June 7, 2019

1. Comment noted.
2. Please see Master Response 1.
3. Staff agrees that some of the proposed changes should be accepted as part of this Bay Plan Amendment, but that others are not necessary or should not be addressed here, as described in more detail below.

4. BCDC encourages habitat projects in the Bay, which is reflected through existing Bay Plan language and in the language changes proposed through this Bay Plan Amendment.
5. This Bay Plan Amendment recognizes that bay shorelines and wetland distribution will change through time. However, the topic of potential policies that allow for managed retreat is outside the scope of this Bay Plan Amendment.
6. Please see response to comment 5.
7. This Bay Plan Amendment recognizes the continued benefit of habitats and the dynamic nature of ecosystem change in the SF Bay Estuary.
8. BCDC's policies recognize the vital importance of wetlands.
9. BCDC's permitting process does not subject conservation projects to more stringent requirements than development projects. This Bay Plan Amendment, as well as BCDC's participation in and support of the Bay Restoration Regulatory Integration Team (BRRIT), the Wetlands Regional Monitoring Program (WRMP), and other regionwide efforts to streamline regulatory permitting reflects BCDC's desire to and work towards incentivizing voluntary wetland restoration and enhancement projects.
10. Comment noted.
11. BCDC staff actively participates in and engages with the Joint Venture, and appreciates the offer for additional assistance as needed.
12. Permit fees are not addressed via the Bay Plan, and thus this topic is outside the scope of this Bay Plan Amendment. BCDC is currently engaged in a rulemaking process to amend its existing permit application fees, and Ducks Unlimited is invited to comment on/participate in that process.
13. Proposed policy language as part of this Bay Plan Amendment (Tidal Marshes and Tidal Flats Policy 8; Subtidal Areas Policy 5) would allow for monitoring to be limited/reduced when appropriate (for projects that present less risk to Bay organisms and habitats).
14. The BCDC monitoring and compliance requirements in a permit are determined on a case-by-case basis. Staff may pursue additional regulation or procedural modifications to facilitate habitat project permitting in the future.
15. Development of a regional permit is not within the scope of this Bay Plan Amendment, although staff has also been considering additional regulation or procedural modifications to facilitate habitat project permitting in the future, including the use of Regionwide Permits.
16. Please see the response to comments 13 and 14.
17. This comment is not within the scope of this Bay Plan Amendment. It could potentially be considered as part of the Beneficial Reuse Bay Plan Amendment—please see Master Response 2.
18. The finding has been modified to reflect this comment as well as the comments of other organizations.
19. See Master Response 1.

20. Neither this finding, nor the associated policy (Fish, Other Aquatic Organisms, and Wildlife preliminarily recommended Policy 6) preclude the consideration of any of these aspects of project design, and in fact other Bay Plan policies encourage these considerations.
21. This is not a draft policy—it is an existing Bay Plan policy. BCDC has its own authority to ensure that fill projects do not adversely impact Bay resources (McAteer Petris Act section 66605). While BCDC seeks the advice of other agencies, and regularly agrees with and incorporates the measures of the resource agencies, it does not defer its authority. Additionally, this policy broadly strives to protect most species in the Bay, whereas other agency authorities are often focused on endangered or threatened species.
22. See Master Response 1.
23. See Master Response 1.
24. This language doesn't prevent multiple approaches to restoration. It notes the science on the importance of re-connecting wetlands to sediment sources for their sustainability. This by no means precludes other approaches. Also, this finding is specifically about natural sediment supply. Therefore, a discussion of other restoration approaches doesn't fit here.
25. This finding has been updated to reflect the value and need for ongoing management of wetlands in some cases.
26. Staff understands this issue, and sympathizes with the challenges of securing funding for project monitoring. Nonetheless, it is important to understand that the funds that are being spent on restoration projects are providing the proposed public benefits associated with the project, consistent with the requirements of the McAteer-Petris Act. Without monitoring, BCDC cannot confirm whether projects are meeting the goals and conditions of its permits, and thus determine whether projects are succeeding or not. In many cases, staff expects that some project-based monitoring will still be required.
27. The finding already is framed in terms of project goals and objectives. The other factors mentioned have been added to the finding in the final recommended language as variables that can influence the extent of uncertainty about a project's success. BCDC staff agrees that risk should not be conflated with project size. However, size can be a factor increasing risk for impacts. The sentence removal in the revised recommendation should address this. BCDC staff recommends that risk and uncertainty are the drivers for monitoring/adaptive management, but size, combined with other factors, influences risk and uncertainty.
28. This is an existing advisory policy to alert the Commission and local governments to the need to conserve land for restoration wherever available. The current language is intentionally broader than the commenter's suggested edit, and encourages protection of lands for restoration and migration space wherever possible.
29. Comment noted, and recognition of opportunities for landward migration has been incorporated into the policy.
30. See Master Response 1.

31. The policy already essentially requires that amount, duration, extent of monitoring, and complexity of adaptive management are consistent with risk by making them consistent with key factors in determining risk. This policy does not add burden to permit applicants, but rather reduces it for many projects—please see Master Response 1. BCDC strives to only require meaningful monitoring data, and new policies encourage the analysis and sharing of the results of project monitoring (Tidal Marshes and Tidal Flats Policy 9; Subtidal Areas Policy 6).
32. This policy is not saying this research will be required, but rather that projects that propose research related to any of those topics are in line with our priorities.
33. This finding does not preclude the use of aged concrete. The materials listed are only examples.
34. Staff is certainly open to considering pilot and demonstration projects for which proof of concept exists in other areas. In fact, these are possibly the ideal candidates for pilot testing, since they have been tried elsewhere and are now being tested for suitability in the SF Estuary.
35. Because size is a factor in determining potential risks to habitats and organisms, the finding notes that adaptive management could be beneficial for large and potentially impactful projects. However, the finding is not saying that size alone should be an indicator that the project may benefit from an adaptive management plan. Size, uncertainty, potential outcomes, etc., are all factors in determining potential impact to Bay habitats and organisms, and when assessed together determine the need for/benefit of having an adaptive management strategy in place.
36. This finding is necessary to support proposed Subtidal Areas Policy 5, and simply describes several of the factors that influence project uncertainty. This finding reflects the idea that not all projects have the same level of risk, and thus not all projects will require the same extent of monitoring and adaptive management. Adopting this finding would allow BCDC to potentially reduce monitoring requirements for more well-established project approaches.
37. Please see responses to comments 27 and 35.
38. This is already implied in the support of pilot projects. The goal of pilot projects is to learn and apply that knowledge in future projects.
39. Staff is not aware of any evidence that supports this statement.
40. The Bay Plan does not prescribe what is considered self-mitigating. This determination is made on a project-by-project basis, depending on the individual benefits and impacts of the project.
41. Please see Master Response 1 regarding evaluation requirements. Staff expects that an exemption will be easy to demonstrate for projects where it truly is not feasible to consider natural and nature-based infrastructure.
42. Staff does not believe this separation is necessary in this case.
43. Please see responses to comments 34 and 38.

44. Waterfowl and other waterbirds are already included in "Fish, other aquatic organisms, and wildlife." The comment regarding subsidence reversal was accepted.
45. The suggested changes have been incorporated into the language.
46. Yes, this includes any of the species mentioned in the comment. Substantial public benefits is not explicitly defined, but uses terms from the McAteer-Petris Act that are regularly applied and interpreted by permit analysts—"substantial" and "public benefits".
47. Comment noted, and the suggested change was made.
48. Comment noted.
49. The Environmental Assessment begins on page 43 of the Staff Report and Preliminary Recommendation, and ends on page 45. The first paragraph explains that BCDC's planning and permitting programs under the McAteer-Petris Act have been certified as a Certified State Regulatory Program pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines, and, therefore, are exempt from the CEQA requirements to prepare an environmental impact report (EIR), negative declaration, or initial study. Instead, as explained in the Environmental Assessment section of the Staff Report and Preliminary Recommendation (pg. 43), "BCDC's regulations provide for preparation of an Environmental Assessment, which is considered the 'functional equivalent' of an EIR (14 CCR §11521)."
50. BCDC staff engaged in significant public outreach, as described in the May 21 staff report Background, and detailed in Appendices A-C of the May 21 staff report. BCDC staff has engaged with Ducks Unlimited via a staff presentation to the San Francisco Bay Joint Venture on July 30, 2019; the Fill for Habitat Workshop on March 21, 2019; and an email to Mark Biddlecomb on April 9, 2019.
51. As noted throughout the response to Ducks Unlimited's Comments, described in Master Response 1, and described in the Environmental Assessment, this Bay Plan Amendment will not significantly add time, costs, or monitoring/management requirements to habitat projects.
52. The Bay Plan does not state what types of projects are self-mitigating because that determination is made on a project-by-project basis. Even restoration projects are very diverse in their goals and potential impacts, and there could be significant adverse impacts that require mitigation and/or minimization measures.

Samuel G. Ziegler, U.S. Environmental Protection Agency, June 13, 2019

1. Regarding the first comment, staff does not believe the addition is necessary. Major Conclusions and Policies 4g as written is already stating that fill for restoration is an important and justifiable use. It is not necessary to say that there is broad agreement and recognition among scientists and resource agencies—any language included in the Bay Plan findings is typically included because there is broad agreement and recognition of that concept. Regarding the second comment, the language as written here is consistent with the language for Tidal Marshes and Tidal Flats Policy 10 (formerly policy 9). Major Conclusions and Policies 4g as written includes the addition of fill to tidal marshes and other aquatic habitats.

2. All fill can have some negative impacts and benefits. BCDC laws and policies do not ascribe inherent negative or positive value to fill for any purpose (e.g., fill for development is "detrimental" or fill for restoration is "good/beneficial"). The phrase "created by nature" has been removed, but staff believes it is still important to acknowledge that aspects of the Bay ecosystem are delicate, and can be adversely affected by even small changes.
3. Comment noted, and the suggested change has been made.
4. Comment noted. The intent of the addition was to reflect the importance of sediment availability for maintaining species habitat. To clarify this intent, "sufficient sediment supply" was added as a separate item in this list.
5. Comment noted, and the suggested change has been made.
6. The term "convert" was replaced with "change". The finding has been re-written to reflect the need to make carefully guided decisions on habitat type conversion. Additionally, it is premature to include a direct reference to the WRMP before the program has been established and before any recommendations from the program can be reviewed for compatibility with BCDC's laws and policies. Rather, this Bay Plan Amendment acknowledges the program in its dynamic state by referencing regional monitoring programs more generally. Furthermore, programs and regional efforts change, are replaced, and emerge over time often at a faster pace than the Bay Plan language. This can lead to outdated references and language if direct references to those programs are included.
7. Comment noted, and changes have been made to reflect this concern.
8. Comment noted, and changes have been made to reflect that fill placement approach should depend on the specific project.
9. Please see Master Response 1.
10. Please see Master Response 1.
11. They are not necessarily synonymous, but both terms were included to account for a broader range of research-oriented projects with a major goal of informing future similar projects.
12. Language was added to clarify that complex environmental systems are often characterized by relatively high levels of uncertainty, especially when considering sea level rise.
13. Staff does not see the benefit in changing "program" to "plan". Projects should not only have a plan, but a program to carry out that plan. Regarding the deletion of "to assess benefits, impacts, the likelihood of success, and sustainability of the project,", comment noted, and the proposed change has been made to improve the syntax and clarity of the sentence.
14. Please see Master Response 1.
15. Most of the suggested language was added, but qualified with "where feasible and appropriate", and made active to state that the Commission should encourage this. The final clause, "if possible reduce the cost of project-based monitoring" was not added. This is already listed in the associated finding as a benefit of coordinated regional monitoring.

16. The intent of "should encourage and authorize" is to ensure that the Bay Plan directly supports and encourages pilot projects, which will be important to understand best approaches to sea level rise adaptation for Bay habitats. Reducing this statement to "may" does not add the same level of support for these projects. The Commission already may authorize pilot projects—there is no need to state that in a policy. The phrase "when the potential benefits are greater than the potential risks" is removed in the final recommendation, as this is already required for the Commission to authorize fill, as provided in Section 66605 of the McAteer-Petris Act. Regarding the addition of a qualification that outcomes and lessons learned "are not intended to preclude permitting of other pilot projects", this policy as written would not preclude the initiation of similar pilot projects in other areas. BCDC staff assesses each project on a project-by-project basis and typically does not preclude the permitting of one project based on any other project. However, there may be situations in which information gained from one pilot project would inform the conditions of permitting another pilot project (e.g., if one pilot project failed, it may not be desirable to repeat the same project again without changing certain variables/conditions).
17. The term "and action" was removed for clarity. It is unnecessary to qualify "support research" with "which may include pilot and demonstration projects." This is implied in the term research, which is typically a key project goal of pilot and demonstration projects.
18. The Bay Plan Dredging policies already call for research and studies on the beneficial reuse of dredged sediment, so staff does not believe this addition is necessary.
19. Depending on the project, it may be important to understand the impact of the project on the region's sediment budget, not just local sediment budget. Therefore, it is important to retain the notion of regional sediment budget, not just local budget.
20. The addition of "subtidal" isn't necessary, as this policy is already in the Subtidal Areas section, so only applies to Subtidal Areas. Regarding the change to the last sentence of the policy, staff believes it is important to retain the qualification that no other method of restoration or enhancement is feasible prior to using fill in subtidal areas. Because subtidal areas are not well-studied and the impacts of fill in these areas could have unintended consequences, restoration and enhancement approaches not involving fill would be preferred. While staff appreciates the suggested alternative language, "best available" can be very subjective, and could be open to broad interpretation.
21. Please see response to comment 16.
22. Please see Master Response 2.
23. Comment noted, and the suggested change has been made.
24. These policies only apply in the Bay and certain waterways, but the most critical need for dredged sediment is in subsided diked Baylands. For projects in the Bay, staff believes that the Commission would still want to ensure that no feasible alternative that would minimize impacts exists.

25. Most Bay fill projects involve some temporary construction impacts, however the McAteer-Petris Act provides, in part, that the Commission may only authorize fill where the "public benefits from fill clearly exceed public detriment from the loss of the water areas." As a result, staff often engages in an analysis of benefits of fill and the impacts of fill, including the temporary impacts due to construction. This policy does not refer to temporary water quality impacts associated with project construction. It requires that the project would not deteriorate water quality in the long-term, which is desirable for any beneficial reuse project.
26. Comment noted, and the suggested change has been made.
27. This section refers to sediments/materials dredged from the Bay, so these policies do not apply to upland soils. Thus, a change in the language regarding sediment from the Bay would have no impact on the use of upland soils.

Martha Whetstone, San Francisco International Airport, June 6, 2019

1. Comment noted.
2. Staff does not believe the exemption should be mandatory, as the language does not allow an exemption from natural and nature-based features that *will* endanger public safety, but only that *could* endanger public safety. The Policy should continue to encourage the consideration of natural and nature-based features that do not pose a safety risk to the airport, and thus some flexibility is key in this finding.
3. After discussion with SFO and the Bay Fill Policies Working Group, a modified version of SFO's proposed language was incorporated into the final staff recommendation.

Barbara Salzman and Phil Peterson, Marin Audubon Society, June 13, 2019

1. Comment noted.
2. Please see Master Response 1.
3. Please see Master Response 2.
4. While staff appreciates the suggestion, this is an advisory policy. BCDC does not have the authority to abrogate local land use preferences in upland areas, except where there are priority use areas designated in the Bay Plan. Furthermore, there is no authority in the McAteer-Petris Act for BCDC to deny a permit for a project that is otherwise consistent with the requirements of the Act on the basis that the project is not a restoration project.
5. This policy is encouraging pilot projects, but not at the expense of projects based on proven techniques. Projects that are based on proven techniques have been consistently permitted in the past, and are already encouraged through other Bay Plan policies that call for restoration and sea level rise adaptation of Bay habitats.
6. Please see Master Response 1.

Mike Mielke, Silicon Valley Leadership Group, June 10, 2019

1. Comment noted.
2. Comment noted.
3. Comment noted.

John A. Coleman, Bay Planning Coalition, June 12, 2019

1. Comment noted.
2. Please see Master Response 2.
3. Please see Master Response 2.

David Lewis, Save the Bay, May 31, 2019

1. Comment noted.
2. Comment noted.
3. Staff understands the history of this issue and the concern raised about removing the policy. Thus, to maintain the policy until it has fulfilled its original intent, staff has recommended the retention of an amended version of Dredging Policy 11b in the revised staff recommendation.
4. Comment noted. Staff's revised recommendation includes a Plan Map policy regarding the Middle Harbor Enhancement Area, and also retains an amended version of Dredging Policy 11b.
5. Staff believes that combined with keeping Dredging Policy 11b, the addition of a policy to the Plan Maps would strengthen BCDC's efforts to ensure that the project is completed.
6. Staff agrees that the amended Dredging Policy 11b should allow the appropriate use of dredged sediment in tidal marshes and similar habitat, but that the completion of the project should remain a pre-requisite to the Commission approving any fill project similar to the MHEA's scale, bathymetric modification, and type of habitat creation. The proposed language in the final staff recommendation reflects this comment.
7. Staff does not believe that the use of dredged sediment for habitat projects should be limited in sub-aquatic habitat overall until the Middle Harbor Enhancement Area (MHEA) is completed. There may be a valuable subtidal habitat project proposed in the future that uses dredged sediment in the Bay that would be appropriate to authorize prior to the completion of the MHEA. Rather, staff proposes that dredged sediment reuse in projects similar to the MHEA be restricted until the MHEA is completed. Staff also does not believe that it is appropriate to address the details of a specific project's remedial action through the Bay Plan.
8. Comment noted.

Attachment A: Resolution No. 2019-05

Adoption of Bay Plan Amendment No. 1-17 Revising the Bay Plan Major Conclusions and Policies; Fish, Other Aquatic Organisms, and Wildlife; Tidal Marshes and Tidal Flats; Subtidal Areas; Dredging; and Shoreline Protection Findings and Policies

San Francisco Bay Conservation and Development Commission
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Resolution No. 2019-05

Adoption of Bay Plan Amendment No. 1-17 Revising the Bay Plan Major Conclusions and Policies; Fish, Other Aquatic Organisms, and Wildlife; Tidal Marshes and Tidal Flats; Subtidal Areas; Dredging; and Shoreline Protection Findings and Policies

Whereas, in 1965 the McAteer-Petris Act established the San Francisco Bay Conservation and Development Commission ("BCDC" or "the Commission") as a temporary state agency, designated the San Francisco Bay as a State-protected resource, and charged the Commission with preparing a plan for the long-term use of the Bay and regulating development in and around the Bay while the plan was being prepared; and,

Whereas, the initial *San Francisco Bay Plan* (Bay Plan) was approved in 1968, BCDC was made permanent one year later, and BCDC updates the Bay Plan regularly to ensure that the Bay and its shoreline are developed and conserved responsibly and to address new issues as the Bay Area changes; and,

Whereas, the Commission's role is to protect and enhance San Francisco Bay and encourage the Bay's responsible and productive use for this and future generations; and,

Whereas, Government Code Section 66652 states that "the Commission at any time may amend, or repeal and adopt a new form of, all or any part of the Bay Plan but such changes shall be consistent with the findings and declaration of policy" contained in the McAteer-Petris Act; and

Whereas, the Legislature directed the Commission to keep the Plan up-to-date so that it reflects the latest scientific research on the Bay and addresses emerging issues that could impact the Bay in the future. To accomplish this, the Legislature empowered the Commission to amend the Bay Plan if two thirds (18) of the 27 members of the Commission vote for the amendment, after providing an opportunity for public review of the proposed amendment and after holding a public hearing on the amendment. Over its history, the Commission has made numerous amendments to the Bay Plan, some of which dealt with simple matters, such as changing a boundary of a Bay Plan map designation, and some of which have addressed major issues, such as climate change; and

Whereas, the initial step in revising the Bay Plan is a policy decision by the Commission whether to consider an amendment dealing with a specified issue. Thereafter, the staff prepares a report containing the results of research and policy analysis on the issue, preliminary recommended findings and policies, and an environmental assessment of the proposed amendment; and

Whereas, sea level in the San Francisco Bay Area (Bay Area) has already risen eight inches in the last 100 years,[1] and is likely to rise anywhere between 2.8 and 4.1 feet in the next 100 years[2]; and

Whereas, a step decrease in suspended sediment concentration entering the San Francisco Bay from the Delta occurred from water years 1991-1998 to 1999-2007[3], putting increased importance on suspended sediment entering the Bay from local tributaries. However, many of the streams and rivers that could supply much-needed sediment to the Bay are channelized and not connected naturally to marshes and mudflats as they once were. This disconnection further reduces the supply of sediment. It is still unclear how sediment supply to the Bay will change in the coming years with climate change. Future sediment supply will depend on shifts in precipitation, wildfires, and temperature, among other environmental variables; and

Whereas, sea level rise, sediment supply, and other environmental changes will affect rates of processes that govern the extent of tidal baylands, including migration, erosion, progradation, drowning, and accretion. Through these processes, relative proportions of coastal habitats may shift dramatically in response to sea level rise and changes in sediment supply, and many coastal wetlands may ultimately disappear; and

Whereas, between 1800 and 1998, 79 percent of the Bay's tidal marshes (150,000 acres) and 42 percent of tidal flats (21,000 acres) were lost to diking and filling.[4] To reverse this loss, the 1999 Baylands Ecosystem Habitat Goals report set the goal of restoring significant areas of baylands to reach a total of 100,000 acres. Recent science has predicted that well-connected, complete wetland ecosystems are likely to be more resilient to changing environmental conditions, especially if they are restored prior to predicted acceleration in sea level rise in the middle of the century. Therefore, the 2015 Baylands Ecosystem Habitat Goals Update report set the goal of restoring complete tidal wetland systems and restoring as much of the 100,000 acre goal as possible by 2030; and

Whereas, existing or restored tidal wetlands may not be able to accrete sediment and gain elevation at the same pace as sea level rise in some areas. For these wetlands, the placement of sediment and other fill in the Bay could facilitate adaptation to sea level rise; and

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[1] Ackerly, David, Andrew Jones, Mark Stacey, Bruce Riordan. (University of California, Berkeley). 2018. San Francisco Bay Area Summary Report. California's Fourth Climate Change Assessment.
[2] California Natural Resources Agency and California Ocean Protection Council. State of California Sea Level Rise Guidance: 2018 Update.
[3] Schoellhamer, D.H. 2011. Sudden Clearing of Estuarine Waters upon Crossing the Threshold from Transport to Supply Regulation of Sediment Transport as an Erodible Sediment Pool is Depleted: San Francisco Bay, 1999. Estuaries and Coasts 34: 885-899.
[4] Baylands Ecosystem Habitat Goals Project. 2015. Baylands Ecosystem Habitat Goals Science Update.

Whereas, other intertidal and subtidal habitats, including oyster beds, eelgrass beds, beaches, and rocky intertidal areas, are important components of complete tidal wetland systems. These habitats may require fill to increase their resilience to sea level rise and/or advance restoration, creation, or enhancement efforts; and

Whereas, recognizing the potential need for projects in the Bay to use more fill for sea level rise adaptation, the Commission created a Commissioner Working Group called the Bay Fill Policies Working Group (BFWG). The BFPWG first met in 2015 with the charge of "making recommendations to the full Commission regarding whether BCDC's law and policies regarding Bay fill need to be amended to adapt to rising sea level, and make the Bay region more resilient and environmentally and economically productive, while ensuring Bay protection and maximum feasible public access to the Bay."[5] In order to provide these recommendations, the BFPWG examined and discussed relevant parts of the McAteer-Petris Act and *San Francisco Bay Plan*, and hosted stakeholder presentations on relevant topics. Through the discussions, BCDC staff and the BFPWG identified challenges in policy language, interpretation, and application that could hinder adaptation to sea level rise for habitat projects, and noted that the Bay Plan contains language that could be problematic for future habitat adaptation; and

Whereas, the *Policies for a Rising Bay*[6] report issued in 2016 identified BCDC's fill policies as potentially problematic in allowing fill necessary for habitat restoration and sea level rise adaptation; and

Whereas, the Commission held a series of public workshops in 2016 and 2017 on the Bay Plan's climate change policies and rising sea level and identified amendment of the Bay Plan fill for habitat policies as a key priority; and

Whereas, (1) on July 20, 2017, the Commission voted to initiate a Bay Plan Amendment (BPA No. 1-17) to address fill in habitat projects, and the associated natural resources, dredging, and shoreline protection policies; (2) A Brief Descriptive Notice was issued setting the initial public hearing date of the amendment to May 3, 2018; (3) A Notice of Revised Date of Public Hearing was issued on March 30, 2018 to set a new public hearing date of November 15, 2018; (4) A second Notice of Revised Date of Public Hearing was issued on November 2, 2018 to set a public hearing date of June 20, 2019; (5) A Notice of Revision of Scope to include the Major Conclusions and Policies section of the Bay Plan was approved by the Commission on March 7, 2019, and issued on March 13, 2019; and

Whereas BCDC staff identified 6 key issues associated with the Fill for Habitat amendment through interviews with regulatory staff, interviews with key stakeholders, and discussions with

[5] BCDC, May 13, 2016. Summary of Bay Fill Working Group Activities and Considerations on Bay Fill Policies and Habitat Based Projects.
[6] BCDC, November 1, 2016. Policies for a Rising Bay Project Final Report.

the BFWG, and the issues are: (1) limitations on the amount of fill allowed for habitat projects in the Bay; (2) limitations on the amount of dredged sediment allowed for habitat projects in the Bay; (3) consideration of regional restoration goals and restoring complete, well-connected ecosystems; (4) how to address uncertainty connected with increased fill for habitat projects while encouraging innovation and new approaches in the face of a rising Bay; (5) consideration of the impacts and potential habitat type conversion caused by allowing more fill for habitat projects in the Bay; and (6) consideration of more robust policies on natural and nature-based shoreline protection solutions; and

Whereas, on May 21, 2019, the staff released a staff planning report that included an environmental assessment and preliminary recommendation on proposed Bay Plan Amendment No. 1-17 to address fill for habitat. Along with the preliminary recommendation, staff released a background report entitled *Fill for Habitat Restoration, Enhancement, and Creation in a Changing Bay*. The background report provided information on predicted changes to Bay habitats as a result of sea level rise and changing sediment supply; a history of restoration in the Bay Area and regulatory challenges associated with restoration projects; and the risks of allowing more fill in the Bay and ways to reduce that risk; and

Whereas, the Commission held its first public hearing on the preliminary staff recommendation on June 20, 2019, and kept the public comment period open until July 8, 2019. During the public comment period, 20 agencies provided 21 respective comment letters, and 11 of these organizations provided oral public comment at the public hearing; and

Whereas, on September 24, 2019, staff distributed a final staff planning recommendation and response to comments to all agencies, organizations and individuals interested in the proposed amendment; and on October 3, 2019, the Commission voted on the staff's final recommendation; all in accord with the requirements and procedures set out in Government Code Section 66652 and Title 14 of the California Code of Regulations, Sections 11001, 11003, 11004, and 11005; and

Whereas, the Commission has evaluated the potential environmental impacts of revising the Bay Plan by modifying the Major Conclusions and Policies; Fish, Other Aquatic Organisms, and Wildlife; Tidal Marshes and Tidal Flats; Subtidal Areas; Dredging; and Shoreline Protection findings and policies, as analyzed in the environmental assessment prepared by staff in accordance with the Commission's regulations, which have been certified as a Certified State Regulatory Program pursuant to Public Resources Code section 21080.5 and California Environmental Quality Act (CEQA) Guidelines section 15251(h) (14 C.C.R. § 15251(h). Because the proposed Bay Plan amendments would establish overarching Bay-wide policies, but would not authorize any particular project or physical alteration, or commit the Commission to approve any particular project or physical alteration in the future, the Commission finds that the proposed amendments to the Bay Plan will have no significant environmental impacts; and

Whereas, the proposed Bay Plan amendments would not affect the Commission's authority and ability to require site-specific environmental review of projects proposed in its jurisdiction under CEQA, the McAteer-Petris Act, the Bay Plan, and the Commission's federally approved management program for the San Francisco Bay. However, at this time, it is not known what projects will be undertaken under the Bay Plan amendments, where they will be located, or what impacts they may have. Therefore, any discussion of whether a particular future project would result in different impacts under the proposed amendments as compared to existing Bay Plan policies would be highly speculative. Because each project that could be permitted in a manner consistent with the amended Bay Plan policies in the future will require further environmental review prior to consideration by the Commission, any potential adverse environmental impacts of such a project will be identified and, if necessary, mitigated, at that time through the permitting process; and

Whereas, the amendment to the Bay Plan, including amendments to Major Conclusions and Policies; Fish, Other Aquatic Organisms, and Wildlife; Tidal Marshes and Tidal Flats; Subtidal Areas; Dredging; and Shoreline Protection findings and policies, enacted by this resolution is intended to be a revision in the Commission's coastal management program for the San Francisco Bay segment of the California coastal zone as approved by the U.S. Department of Commerce under the federal Coastal Zone Management Act of 1972, as amended; and

Whereas, these amendments are adopted pursuant to the McAteer-Petris Act (Gov. Code §§66600 et seq.) and the Suisun Marsh Preservation Act of 1977 (Pub. Res. Code §§29000 et seq.), and they are not intended to, and do not, increase or decrease BCDC's jurisdiction or authority under either act.

Now, Therefore, Be it Resolved, that the San Francisco Bay Conservation and Development Commission hereby adopts Bay Plan Amendment No. 1-17 which amends the Bay Plan as follows:

1. Amend the Major Conclusions and Policies

Major Conclusions and Policies

MAJOR CONCLUSIONS AND POLICIES NO. 4:

Justifiable Filling. Some Bay filling may be justified for purposes providing substantial public benefits if these same benefits could not be achieved equally well without filling. Substantial public benefits are provided by:

a. Developing adequate port terminals, on a regional basis, to keep San Francisco Bay in the forefront of the world's great harbors during a period of rapid change in shipping technology.

b. Developing adequate land for industries that require access to shipping channels for transportation of raw materials or manufactured products.

c. Developing new recreational opportunities-shoreline parks, marinas, fishing piers, beaches, hiking and bicycling paths, and scenic drives.

d. Developing expanded airport terminals and runways if regional studies demonstrate that there are no feasible sites for major airport development away from the Bay.

e. Developing new freeway routes (with construction on pilings, not solid fill) if thorough study determines that no feasible alternatives are available.

f. Developing new public access to the Bay and enhancing shoreline appearance over and above that provided by other Bay Plan policies-through filling limited to Bay-related commercial recreation and public assembly.

g. Restoring, enhancing, or creating ecosystems that provide habitat for native fish, other aquatic organisms, or wildlife; enhance coastal resilience; and provide services such as water filtration, ~~and~~ carbon sequestration, **protection of shorelines from flooding and erosion**, **and raising the surface elevation of subsided land**. Fill for these purposes will be especially important to facilitate the adaptation of habitats to rising sea level.

MAJOR CONCLUSIONS AND POLICIES NO. 5:
Effects of Bay Filling. Bay filling that is ~~should be limited to~~ consistent with the purposes listed above can provide substantial benefits to the Bay. H~~h~~owever, ~~because any~~ filling ~~is~~ can be harmful to the Bay~~, and thus to present and future generations of Bay Area residents~~ and thus there are some tradeoffs when fill is used. ~~All~~ Bay filling can have ~~has~~ one or more of the following ~~**harmful**~~ effects**, which projects must balance to maximize benefits**:

a. Filling can negatively affect, and in some cases destroy~~s~~, the habitat of fish, ~~**and**~~ wildlife, and other organisms. ~~**Future**~~ **F~~f~~illing** can **alter** ~~**disrupt**~~ the ecological balance in the Bay, which has already been damaged by past fills, and can endanger the very existence of some species of birds and fish. The Bay, including open water, mudflats, and marshlands, is a complex biological system, in which microorganisms, plants, fish, waterfowl, and shorebirds live in a delicate balance ~~**created by nature,**~~ and in which seemingly minor changes, such as a new fill or dredging project, may have far-reaching and sometimes highly destructive effects.

b. Filling ~~**almost always**~~ **may** increase~~**s**~~ the danger of water pollution by reducing the ability of the Bay to assimilate the ~~increasing quantity of~~ liquid waste~~s being~~ that is discharged into it. Filling reduces both the surface area of the Bay and the volume of water in the Bay; this reduces the ability of the Bay to maintain adequate levels of oxygen in its waters, and also reduces the strength of the tides necessary to flush wastes from the Bay.

c. Filling can reduce~~s~~ the air-conditioning effects of the Bay and increases the danger of air pollution in the Bay Area. Reducing the open water surface over which cool air can move in from the ocean will reduce the amount of this air reaching the Santa Clara Valley and the Carquinez Strait in the summer-and will increase the frequency and intensity of temperature-inversions, which trap air pollutants and thus cause an increase in smog in the Bay Area.

d. Indiscriminate filling will diminish the scenic beauty of the Bay.

e. Filling can restore, enhance, or create valuable habitat for native organisms, which can in turn support healthier populations and communities of fish, other aquatic organisms, and wildlife; increase numbers of protected or endangered species, increase habitat connectivity; increase habitat sustainability; and contribute to regional habitat goals.

f. Filling can be used to facilitate sea level rise adaptation of Bay habitats that are vulnerable to drowning and erosion.

2. Amend the Fish, Other Aquatic Organisms, and Wildlife Findings and Policies

Fish, Other Aquatic Organisms, and Wildlife Findings

FINDING A:
Over the past 200 years, human actions have had a major effect on the form and natural functions of San Francisco Bay, resulting in a significant decrease in the size of the open waters of the Bay-from about 516,000 acres to 327,000 acres, an approximately 40 percent reduction- and notable changes in ~~populations~~ the types, locations, quality, and quantity of habitat for ~~of~~ **native and commercially important** fish, other aquatic organisms (e.g., crabs, shrimp, zooplankton~~, and~~ oysters~~, **plants** **submerged aquatic vegetation, and**~~ seaweed**s, and marsh vegetation**) and wildlife ~~habitat types, locations, quality and quantity~~. Loss or degradation of subtidal areas, tidal flats, tidal marshes and adjacent ~~interconnected~~ upland habitats, such as diked baylands, have been key factors in the population decline of many species of fish, other aquatic organisms and wildlife that depend on the Bay ecosystem for their existence.

FINDING D:
Conserving fish, other aquatic organisms and wildlife depends, among other things, upon availability of: (1) sufficient oxygen in the Bay waters; (2) adequate amounts of the proper foods; (3) sufficient areas for resting, foraging and breeding; ~~**and**~~ (4) proper fresh water inflows, temperature, salt content, water quality, ~~**sediment concentration,**~~ and velocity of the water**; and (5) sufficient sediment supply**. Requirements vary according to the species of fish, other aquatic organisms and wildlife. Conservation and restoration of ~~these~~ complete habitat**s** ~~components~~ is essential to insure for future generations the benefit of fish, other aquatic organisms and wildlife in the Bay.

FINDING F:
The wildlife refuges, some of which are shown on the Bay Plan Maps, include national wildlife refuges, state wildlife areas and ecological reserves, as well as other shoreline sites around the Bay whose primary purpose is: (1) the protection of threatened or endangered native plants, wildlife, and aquatic organisms; (2) the preservation and enhancement of unique habitat types or highly significant wildlife habitat; or (3) the propagation and feeding of aquatic life and wildlife.

FINDING G:
Under the California Endangered Species Act, the Commission must assure that the projects it permits conserve fish, other aquatic organisms, wildlife and plants listed pursuant to the Act and the Commission may not authorize the "taking," as defined in the Act, of certain fish, wildlife or plant species without the authorization of the California Department of Fish and Wildlife ~~Game~~. Further, under the federal Endangered Species Act and Marine Mammal Protection Act the Commission may not authorize a project that would result in the "taking" of fish, other aquatic organisms and wildlife, including marine mammals, identified pursuant to the Acts, without the authorization of the United States Fish and Wildlife Service or the National Marine Fisheries Service.

FINDING H:
Under the federal Magnuson-Stevens Fisheries Conservation and Management Act and the Endangered Species Act, San Francisco Bay is considered essential fish habitat ~~**or**~~ **and** critical habitat for certain fish species, such as Chinook salmon and Delta smelt, by the National Marine Fisheries Service and the United States Fish and Wildlife Service ~~and the National Marine Fisheries Service~~ because the Bay plays an essential role in their life cycles. The Magnuson-Stevens Act requires that the National Marine Fisheries Service provide conservation recommendations to federal and state agencies, such as the Commission, when a proposed project would have adverse impacts on essential fish habitat.

~~FINDING I:~~
~~The Baylands Ecosystem Habitat Goals provides a regional vision of the types, amounts, and distribution of baylands habitats that are needed to restore and sustain a healthy Bay ecosystem, including the improvement of the well-being of many plant and animal species currently at risk of extinction.~~

FINDING I:
Regional frameworks, such as the ~~**2010**~~ **San Francisco Bay** Subtidal Habitat Goals **Project** ~~**R**~~**r**eport **(2010)**, **the USFWS Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California (2013),** the ~~**2015**~~ Baylands Ecosystem Habitat Goals **Science Update** report **(2015)**, and the ~~**2019**~~ **San Francisco Bay Shoreline** Adaptation Atlas **(2019)** detail ~~**wetlands habitat**~~ restoration goals~~**, subtidal for Bay** habitat~~**s restoration goals,**~~ and shoreline adaptation strategies. These frameworks are based on the best available science at ~~**this**~~ **the** time **of publication**, and as ~~**our**~~ knowledge evolves to reflect new data and understanding, new frameworks or updated frameworks may be developed to replace or supplement this work.

FINDING J:
Current models indicate that as sea level rise progresses, many Bay habitats will be degraded or ~~**convert**~~ **will change** to other habitat types. Projects that place fill to **offset habitat loss due to climate change effects and** ensure that fish, other aquatic organisms, wildlife, and plants have habitat into the future may ~~**also**~~ result in the conversion of one type of habitat into another and thus may result in a net loss of some habitat types and associated ecosystem functions. **Habitat loss from project construction may be temporary, and may lead to a long-term net gain that**

ultimately offsets the loss of habitat to rising seas. However, the impacts of large-scale habitat type conversion are not well-understood, and ~~H~~habitat type conversion could **result in unintended negative impacts on existing habitats and species. Therefore, it is necessary to place fill strategically to minimize near-term habitat loss while protecting Bay habitats over the long-term from the impacts of sea level rise. ~~alter the balance of species or habitats locally, within an embayment, or on a regional scale. Large-scale habitat type conversion could reduce the amount of habitat available to certain species, and the impacts of large-scale habitat type conversion are not well-understood.~~**

FINDING K:

Tidal marshes and tidal flats are particularly vulnerable to inundation from sea level rise, **~~reductions~~ changes** in sediment supply, and lack of migration space. Current scientific predictions of sea level rise and declining sediment supply support the likelihood that many marshes and mudflats may not be able to adapt to these changes, and may be **~~inundated~~ lost or degraded** by the end of the century if they are not able to accrete sediment and/or migrate to higher elevations. Placing sediment in appropriate locations will be **necessary ~~needed~~** to ensure that **~~Bay~~** species **dependent on tidal marshes and tidal flats** have sufficient habitat into the future. Placement of **~~significant volumes of~~** sediment will be particularly important in tidal marshes to build transition zones, increase marsh plain elevation, and create high tide refugia **~~for species~~**. Placement of sediment may also be necessary in shallow intertidal or subtidal areas to increase mudflat elevation or to increase **~~the~~** sediment **~~that can be~~** transport**~~ed by natural processes~~** to adjacent marshes to increase marsh plain elevation. Little is known about how subtidal areas will adapt to sea level rise or the need for sediment in these areas. Limited knowledge about deep water habitats makes it difficult to predict how major changes, including sediment placement, in these areas may adversely affect fish, other aquatic organisms, and wildlife.

FINDING L:

Bay habitats are dynamic, ever-evolving systems that are predicted to change even more with sea level rise. **For projects in which fill is proposed, ~~T~~t**he amount of fill required to ensure the persistence of these habitats into the future will depend on the rate of sea level rise and the time horizon of the project. For example, more fill will likely be required to sustain marsh elevations through the year 2100 than through the year 2050. Placement of large volumes of fill to assist habitats in adapting to long-term sea level rise projections may not be immediately necessary and may result in unnecessary **near-term loss of habitat ~~habitat type conversion~~** and other impacts to the Bay. Placing smaller volumes of fill incrementally could serve the function of facilitating habitat adaptation to sea level rise while also minimizing impacts of fill to fish, other aquatic organisms, and wildlife. Smaller environmental perturbations that are similar in scale to a natural disturbance event**~~s~~**, such as sediment deposition following a flood event, are **often** more likely to allow habitats to adapt and rebound than a major perturbation that could take much longer for habitats and species to recover. **However, in some cases, a larger, single placement of fill may be more feasible or result in fewer impacts to Bay natural resources.**

Fish, Other Aquatic Organisms, and Wildlife Policies

POLICY 2:
~~Specific habitats that are needed to conserve, increase or prevent the extinction of **any** **Nn**~~ative species**~~,~~;** ~~species~~ **including candidate**, threatened**, and** ~~**or**~~ endangered ~~**species,**~~; species that the California Department of Fish and Wildlife ~~Game~~, the National Marine Fisheries Service, and**/or** the U.S. Fish and Wildlife Service have **listed** ~~**has determined are candidates for listing as endangered or threatened**~~ under the California or Federal Endangered Species Act~~,~~; ~~**or**~~ **and** any species that provides substantial public benefits, as well as specific habitats that are needed to conserve, increase, or prevent the extinction of these species, should be protected, whether in the Bay or behind dikes. Protection of **fish, other aquatic organisms, and wildlife and their** habitats may entail placement of fill to **enhance the Bay's ecological function in the near-term and to** ensure that they persist into the future with sea level rise.

POLICY 3:
In reviewing or approving habitat restoration projects or programs the Commission should be guided by the best available science, including regional goals, ~~the recommendations in the Baylands Ecosystem Habitat Goals report~~ and should, where appropriate, provide for a diversity of habitats ~~to enhance opportunities~~ for ~~a variety of~~ associated native aquatic and terrestrial plant and animal species.Policy ~~5~~ 6:

POLICY 4:
The Commission should:

a) Consult with the California Department of Fish and Wildlife ~~Game~~, and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, whenever a proposed project may adversely affect an endangered or threatened plant, fish, other aquatic organism or wildlife species;

b) Not authorize projects that would result in the "taking" of any plant, fish, other aquatic organism or wildlife species listed as endangered or threatened pursuant to the state or federal E~~e~~ndangered S~~s~~pecies A~~a~~cts, or the federal Marine Mammal Protection Act, or species that are candidates for listing under these acts ~~California Endangered Species Act~~, unless the project applicant has obtained the appropriate "take" authorization from the U.S. Fish and Wildlife Service, National Marine Fisheries Service or the California Department of Fish and Wildlife~~Game~~; and

c) Give appropriate consideration to the recommendations of the California Department of Fish and Wildlife~~Game~~, the National Marine Fisheries Service or the ~~United States~~ U.S. Fish and Wildlife Service in order to avoid possible adverse effects of a proposed project on fish, other aquatic organisms and wildlife habitat.

POLICY 5:
The Commission may permit ~~a minor amount of~~ fill or a minimum amount of dredging **in wildlife refuges**~~, shown on the Plan Maps,~~ necessary to enhance or restore fish, other aquatic organisms and wildlife habitat; ~~**or a minor amount of fill that is necessary**~~ **or** to provide **appropriately located** public facilities for wildlife observation, interpretation and education.

~~POLICY 6:~~
~~**Habitat restoration or enhancement projects in the Bay that need fill to adapt to rising seas should plan for repeated placements of fill over time to allow habitat to adapt incrementally to sea level rise projections, reducing the need for large scale habitat loss and conversion prior to the onset of future conditions, unless the Commission finds that fewer, larger placements of fill minimize impacts to Bay organisms or that small, repeated fills are not feasible.**~~

POLICY 6 ~~7~~:
Allowable fill for habitat projects in the Bay should (a) **minimize near term adverse impacts to and loss of existing Bay habitat and native species** ~~**not cause substantial negative impacts to existing habitats**~~; **(b) provide substantial net benefits for Bay habitats and native species; and (c)** be scaled appropriately for the project and necessary sea level rise adaptation measures **in accordance with the best available science. The timing, frequency, and volume of fill should be determined in accordance with these criteria.** ~~**; and (c) not significantly alter the balance of species or habitats within an embayment or on a regional scale, unless the project restores areas that have been lost with rising level.**~~

POLICY 7 ~~8~~:
Sediment placement for habitat adaptation should be prioritized in **(1)** subsided diked baylands, tidal marshes, and tidal flats, as these areas are particularly vulnerable to ~~**inundation and**~~ **loss and degradation** due to sea level rise and lack **of** necessary sediment supply**, and/**or in **(2) intertidal and** shallow subtidal areas to support tidal marsh, tidal flat, and eelgrass bed adaptation. ~~**A minor amount of**~~ **In some cases,** sediment placement for a~~**ny**~~ habitat project in deep subtidal areas may be authorized if **substantial ecological benefits will be provided and the project aligns with current regional sediment availability and needs.** ~~**sediment placement will maximize the habitat restoration or enhancement benefits provided by the project.**~~

3. Amend the Tidal Marshes and Tidal Flats findings and policies.

Tidal Marshes and Tidal Flats Findings

FINDING G:
The Baylands Ecosystem Habitat Goals Science Update **report** provides a regional vision of the types, amounts, and distribution of baylands habitats that are needed to restore and sustain a healthy Bay ecosystem, including restoration of 65,000 acres of tidal marsh. These recommendations were based on conditions of tidal inundation, salinity, and sedimentation in the 2010s~~1990s~~. While achieving the regional vision would help promote a healthy, resilient Bay ecosystem, global climate change and sea level rise are expected to alter ecosystem processes in ways that may require new, regional targets for types, amounts, and distribution of habitats.

FINDING K:

Landward marsh migration will ~~may~~ be necessary to sustain marsh acreage around the Bay as sea level rises. As sea level rises, high-energy waves erode ~~inorganic mud~~ sediment from tidal flats and deposit that sediment onto adjacent tidal marshes. Marshes trap sediment and contribute additional material to the marsh plain as decaying plant matter accumulates. Tidal habitats respond to sea level rise by moving landward, a process referred to as transgression or migration. Low sedimentation rates, natural topography, development, and shoreline protection can block wetland migration. Transition zones, depending on the size and slope, provide high tide refugia for organisms as sea level rises, as well as important opportunities for marsh migration upslope and inland as sea level rises, but **these functions and services** are limited in the long-term unless **transition zones are** connected to **uplands with ~~other~~** higher elevation**s ~~areas of land~~**.

FINDING L:

Sedimentation is an essential factor in the creation, maintenance and growth of tidal marsh and tidal flat habitat. ~~**Scientists studying the Bay have observed that T**~~**t**he volume of sediment entering the Bay annually from the Sacramento and San Joaquin Delta ~~**is declining**~~ **exhibited a step decrease in water year 1999.** As a result, the importance of sediment from local watersheds as a source of sedimentation in tidal marshes **has increased** ~~**is increasing**~~**. The Bay sediment load has exhibited no specific trend since that time, and changes in future sediment supply are difficult to predict.** As sea level rise accelerates, the erosion of tidal marshes and tidal flats may also accelerate, thus potentially exacerbating shoreline erosion and adversely affecting the ecosystem and the sustainability of ecosystem restoration projects. ~~**An adequate supply of sediment is necessary to ensure resilience of the Bay ecosystem as sea level rise accelerates.**~~ To ensure that tidal marshes and tidal flats have an adequate supply of sediment, it is important to restore complete tidal wetland systems connected to the physical processes that sustain them. ~~**This includes R**~~**r**econnecting watersheds to intertidal habitats ~~**, and**~~ support~~**ings**~~ organic **sediment production** and inorganic sediment **deposition.** ~~**accretion necessary for these habitats to maintain sufficient elevation to support tidal marsh vegetation as sea level rises. Tidal marshes that are well-connected and established with full functionality are more likely to adapt and provide ongoing benefits if the rate of sea level rise accelerates as current climate models predict.**~~ Further, the reconnection of tidal marshes to local tributaries will likely **allow** re-establish**ment of** lost habitats such as adjacent brackish marsh and willow sausals.

FINDING Q:

Natural site characteristics, including geomorphic setting, suspended sediment concentration, current velocities, water depth, benthic substrate, salinity, light availability, habitat connectivity, and other factors~~,~~ shape which habitats can establish and be sustained in any given part of the Bay. Siting a project in a location where the appropriate natural processes do not exist to sustain it could result in negative impacts on the Bay, project failure, and wasted resources. **However, the natural processes that sustain some existing tidal marshes now may not sustain them in the future due to rising seas and other environmental changes. In some cases, regular management and intervention is justified for habitats that support important ecosystem services (e.g. habitat connectivity, endangered species habitat, or interim habitat).**

FINDING R:
Pilot and demonstration projects provide an opportunity for research and testing concepts and techniques before implementing experimental projects on a large scale.

FINDING S:
Coordinated regional monitoring has the potential to ~~reduce monitoring costs and requirements for individual projects, and~~ improve understanding of regional status and trends, **identify** restoration needs**, ~~and~~ improve** project design**, and reduce monitoring costs and requirements for individual projects** by synthesizing and analyzing information from habitat projects across the region.

FINDING T:
Adaptive management is a cyclic, learning-oriented approach that is especially useful for complex **environments~~al systems~~, which are often** characterized by **relatively** high levels of uncertainty about system processes and the potential for different ecological, social and economic outcomes from alternative management options. Effective adaptive management requires setting clear and measurable objectives, collecting data, reviewing current scientific observations, monitoring the results of actions, ~~policy implementation or management,~~ and integrating this information into future actions. **Through this process, adaptive management also documents best practices and scientific findings that can be shared and used in designing and managing similar projects.** Adaptive management of habitat projects can be particularly useful **in large complex projects, and** when ~~there is uncertainty around~~ project design, ~~potential~~ outcomes, ~~changing~~ conditions, and~~/or for large projects with greater potential for~~ impacts **are uncertain**. In these situations, adaptive management can **respond to evolving conditions and thereby** increase the likelihood of project success and reduce the risk of impacts to Bay organisms and ecosystems.

FINDING U:
The extent of uncertainty about appropriate habitat project design (including likelihood of success and risk of impacts) varies depending on **factors including but not limited to:** the project's goals ~~(e.g. whether the project has a research component)~~, lifespan ~~(e.g. whether the habitat is intended to adapt to sea level rise or not)~~, ~~and~~ scale**, existing condition relative to proposed restored condition, location, and surrounding infrastructure**. ~~Smaller projects and projects constructed using well-vetted techniques will likely involve less uncertainty and/or risk than larger habitat projects anticipated to need adaptation over time, or projects testing new approaches~~. Projects with higher levels of uncertainty or risk may require more intensive monitoring and adaptive management.

Tidal Marshes and Tidal Flats Policies

POLICY 4:
To provide for the restoration of Bay wetlands, state, regional, and ~~L~~local government land use**, ~~and~~** tax**, and funding** policies should not lead to the conversion of restorable lands to uses that would preclude or deter potential restoration. The public should make every effort to acquire these lands for the purpose of habitat restoration and wetland migration.

POLICY 5 4:

Where feasible, former tidal marshes and tidal flats that have been diked from the Bay should be restored to tidal action in order to replace lost historic wetlands or should be managed to provide important Bay habitat functions, such as resting, foraging and breeding habitat for fish, other aquatic organisms, and wildlife. As recommended in the **2015** Baylands Ecosystem Habitat Goals Update report **(2015)**, **around approximately** 65,000 acres of areas diked from the Bay should be restored to tidal action and supported to maintain a healthy Bay ecosystem on a regional scale. Regional ecosystem targets should be updated periodically to incorporate the best available science to guide regionally appropriate conservation, restoration, and climate adaptation. **To the greatest extent feasible, Hhabitat** projects should be **designed to be sustainable sustained** by natural processes**; to the greatest extent feasible. Habitat projects should restore, create, or enhance ecosystem integrity by increasing increase** habitat connectivity **and restoring**; restore hydrological connections**.; provide opportunities for endangered species recovery; and provide opportunities for landward migration of Bay habitats. As conditions change, management measures may be needed to maintain habitat and ecological function in some areas.** and management efforts that result in a Bay ecosystem resilient to climate change and sea level rise. Further, local government land use and tax policies should not lead to the conversion of these restorable lands to uses that would preclude or deter potential restoration. The public should make every effort to acquire these lands for the purpose of habitat restoration and wetland migration.

POLICY 5:

The Commission should support comprehensive Bay sediment research and monitoring to understand sediment processes necessary to sustain and restore wetlands. Monitoring methods should be updated periodically based on current scientific information.

POLICY 6:

Any ecosystem restoration habitat project should include clear and specific long-term and short-term biological and physical goals, and success criteria, and a monitoring program, and as appropriate, an adaptive management plan **to assess benefits, impacts, the likelihood of success, and the sustainability of the project**. Design and evaluation of the project should include an analysis of: (a) how the system's project's adaptive capacity can be enhanced so that it is resilient to sea level rise and climate change; (b) the impact of the project on the Bay's and local embayment's sediment **transport and** budget; (c) localized sediment erosion and accretion; (d) the role of tidal flows; (e) potential invasive species introduction, spread, and their control; (f) rates of colonization by vegetation; (g) the expected use of the site by fish, other aquatic organisms and wildlife; (h) an appropriate buffer, where feasible, between shoreline development and habitats to protect wildlife and provide space for marsh migration as sea level rises; and (i) site characterization; (k) how the project adheres to regional restoration goals; (l) whether the project would be sustained by natural processes; and (m) how the project restores, enhances, or creates connectivity across Bay habitats at a local, sub-regional, and/or regional scale. **If success criteria are not met, benefits and impacts should be analyzed and appropriate adaptive measures should be taken. If substantial adverse impacts to the Bay or species have occurred; the project should be further modified to reduce its impacts.**

POLICY 7:
If **a habitat project's** success criteria ~~**are**~~ **have** not **been** met, benefits and impacts should be analyzed **to determine whether** ~~**and**~~ appropriate adaptive measures should be **implemented** ~~**taken**~~. If substantial adverse impacts to the Bay **and/**or **native or commercially important** species have occurred~~,~~ the project should be further modified to reduce its impacts.

POLICY ~~7~~ 8:
The level of design; amount, duration, and extent of monitoring; and complexity of **the** adaptive management plan required for a habitat project should be consistent with the purpose, size, impact, level of uncertainty, and/or expected ~~**duration (**~~lifespan~~)~~ of the project. Habitat projects should have a funding ~~**plan**~~ **strategy** for monitoring and adaptive management of the project, commensurate with the level of monitoring and adaptive management that **is** ~~**the**~~ required for the project~~.~~ **, to demonstrate that the applicant has considered costs and identified potential funding sources for any necessary monitoring and management.**

POLICY ~~8~~ 9:
The Commission should encourage and support regional efforts to collect, analyze, share, and learn from habitat monitoring data. **Where feasible and appropriate, the Commission should encourage monitoring for habitat restoration projects that coordinates with regional efforts and improves the value and usefulness of data.**

POLICY ~~8 9~~ 10:
Based on scientific ecological analysis, project need, and consultation with the relevant federal and state resource agencies, ~~a minor amount of~~ fill may be authorized for habitat enhancement, restoration, or sea level rise adaptation **of habitat** ~~to enhance or restore fish, other aquatic organisms or wildlife habitat~~ ~~**if the Commission finds**~~ ~~that no other method of enhancement or restoration except filling is feasible~~ ~~**filling is necessary to achieve the habitat restoration, enhancement, or sea level rise adaptation goals of the project.**~~

POLICY ~~10~~ 11:
The Commission should encourage and authorize pilot and demonstration projects **that address sea level rise adaptation of Bay habitats** ~~**when the potential benefits are greater than the potential risks**~~. These projects should include appropriately detailed experimental design and monitoring to inform initial and future work. Project **progress and** outcomes should be analyzed and reported expeditiously~~**, so that findings can be applied to future projects**~~. The size, design, and management of pilot and demonstration projects should be such that it will minimize the project's potential to negatively impact Bay habitats and species.

POLICY ~~11~~ 12:
The Commission should encourage and support research ~~**and action**~~ on ~~**the following topics**~~:

a. Habitat restoration, enhancement, and creation approaches, ~~**especially research that will inform**~~ **including** strategies **for:** ~~**to make Bay habitats more resilient**~~ **increasing resilience** to sea level rise, **placing fill** ~~**fill placement approaches**~~, ~~**impacts of**~~ **evaluating** habitat type conversion, ~~**strategies for**~~ enhancing habitat connectivity, and **improving** transition zone design;

b. ~~**Comprehensive Bay sediment research and monitoring to understand**~~ **The estuary's** sediment processes ~~**necessary to sustain and restore wetlands, including periodic updates to monitoring methods based on current scientific information**~~;
c. Detection and monitoring of invasive ~~**plants and animals, including the establishment of**~~ **species and** regional efforts for ~~**Bay-wide**~~ eradication of specific invasive species

4. Amend the Subtidal Areas Findings and Policies.

Subtidal Areas Findings

FINDING J:
Fill material, such as rock, oyster shells and sediments dredged from the Bay, or hybrid materials **(e.g. mixtures of native sand, shell, and concrete)** ~~**that integrate these materials**~~, can enhance or beneficially contribute to the restoration of subtidal habitat by: (1) creating varied subtidal areas beneficial to aquatic species, such as Pacific herring, and other wildlife including birds; (2) restoring, creating, or enhancing native oyster populations and other nearshore ~~reefs~~ shellfish beds that benefit multiple species; (3) enhancing subtidal plant communities, such as eelgrass beds; and (4) recreating the bathymetry of disturbed areas, such as dredged channels.

FINDING K:
Pilot and demonstration projects provide an opportunity for research and testing concepts and techniques before implementing experimental projects on a large scale.

FINDING L:
Coordinated regional monitoring has the potential to ~~**reduce monitoring costs and requirements for individual projects, and**~~ improve understanding of regional status and trends, **identify** restoration needs**,** ~~**and**~~ **improve** project design**, and reduce monitoring costs and requirements for individual projects** by synthesizing and analyzing information from habitat projects across the region.

FINDING M:
~~**Regional subtidal habitat goals, included in Tt**~~he San Francisco Bay Subtidal Habitat Goals Report (2010)~~**,**~~ incorporate**s** the best available science at the time of publication; establish**es** regional consensus on the science needed to improve our understanding of subtidal areas; and determine**s** specific subtidal habitats that should be conserved, restored, or created. As knowledge of these areas improve, the regional goals report may ~~**should**~~ be updated.

FINDING N:
Adaptive management is a cyclic, learning-oriented approach that is especially useful for complex **environments**~~**al systems, which are often**~~ characterized by **relatively** high levels of uncertainty about system processes and the potential for different ecological, social and economic outcomes from alternative management options. Effective adaptive management requires setting clear and measurable objectives, collecting data, reviewing current scientific observations, monitoring the results of actions, ~~**policy implementation or management,**~~ and integrating this information into future actions. **Through this process, adaptive management also documents best practices and scientific findings that can be shared and used in designing**

and managing similar projects. Adaptive management of habitat projects can be particularly useful **in large complex projects, and** when ~~**there is uncertainty around**~~ project design, ~~**potential**~~ outcomes, ~~**changing**~~ conditions, and~~**/or for large projects with greater potential for**~~ impacts **are uncertain**. In these situations, adaptive management can **respond to evolving conditions and thereby** increase the likelihood of project success and reduce the risk of impacts to Bay organisms and ecosystems.

FINDING O:
The extent of uncertainty about appropriate habitat project design (including likelihood of success and risk of impacts) varies depending on **factors including but not limited to:** the project's goals ~~**(e.g. whether the project has a research component)**~~, lifespan ~~**(e.g. whether the habitat is intended to adapt to sea level rise or not)**~~, ~~**and**~~ scale**, existing condition relative to proposed restored condition, location, and surrounding infrastructure**. ~~**Smaller projects and projects constructed using well-vetted techniques will likely involve less uncertainty and/or risk than larger habitat projects anticipated to need adaptation over time, or projects testing new approaches**~~. Projects with higher levels of uncertainty or risk may require more intensive monitoring and adaptive management.

FINDING P:
Natural site characteristics, including geomorphic setting, suspended sediment concentration, current velocities, water depth, benthic substrate, salinity, light availability, habitat connectivity, and other factors~~,~~ shape which habitats can establish and be sustained in any given part of the Bay. Siting a project in a location where the appropriate natural processes do not exist to sustain it could result in negative impacts on the Bay, project failure, and wasted resources.

Subtidal Areas Policies

POLICY 3 ~~4~~:
Any subtidal habitat ~~restoration~~ project should include clear and specific long-term and short-term biological and physical goals, ~~and~~ success criteria, ~~and~~ a monitoring program, and as appropriate, an adaptive management plan ~~**to assess the benefits, impacts, the likelihood of success, and sustainability of the project**~~. Design and evaluation of the project should include an analysis of: (a) the **ecological** ~~**scientific**~~ need for the project; (b) the effects of relative sea level rise; (c) the impact of the project on ~~**the Bay's**~~ **regional and local** sediment budget **and transport**; (d) localized sediment erosion and accretion; (e) the role of tidal flows; (f) potential invasive species introduction, spread**,** and ~~**their**~~ control; (g) rates of colonization by vegetation, where applicable; (h) the expected use of the site by fish, other aquatic organisms and wildlife; ~~and~~ (i) characterization of and changes to local bathymetric features; (k) how the project will adhere to the best available **and regionally appropriate** science on subtidal restoration and conservation goals; and (l) whether the project would be sustained by natural processes. ~~**If success criteria are not met, benefits and impacts should be analyzed and appropriate adaptive corrective measures should be taken. If substantial adverse impacts to the Bay or species have occurred, the project should be further modified to reduce its impacts.**~~

POLICY 4:
If **a habitat project's** success criteria **~~are~~ have** not **been** met, benefits and impacts should be analyzed **to determine whether ~~and~~** appropriate adaptive **~~corrective~~** measures should be **implemented ~~taken~~**. If substantial adverse impacts to the Bay or **native or commercially important** species have occurred**~~;~~,** the project should be further modified to reduce its impacts.

POLICY ~~4~~ 5:
The level of design; amount, duration, and extent of monitoring; and complexity of **the** adaptive management plan required for a habitat project should be consistent with the purpose, size, impact, level of uncertainty, and/or expected **~~duration (~~**lifespan**~~)~~** of the project. Habitat projects should have a funding **~~plan~~ strategy** for monitoring and adaptive management of the project, commensurate with the level of monitoring and adaptive management that **is ~~the~~** required for the project**~~.~~, to demonstrate that the applicant has considered costs and identified potential funding sources for any necessary monitoring and management.**

POLICY ~~5~~ 6:
The Commission should encourage and support regional efforts to collect, analyze, share, and learn from habitat monitoring data. **Where feasible and appropriate, the Commission should encourage monitoring for habitat restoration projects that coordinates with regional efforts and improves the value and usefulness of data.**

POLICY ~~3 6~~ 7:
Subtidal restoration projects should be designed to: (a) promote an abundance and diversity of fish, other aquatic organisms and wildlife; (b) restore rare subtidal areas; (c) establish linkages between deep and shallow water and tidal and subtidal habitat in an effort to maximize habitat values for fish, other aquatic organisms and wildlife; or (d) expand open water areas in an effort to make the Bay larger

POLICY ~~6 7~~ 8:
Based on scientific ecological analysis and consultation with the relevant federal and state resource agencies, ~~a minor amount of~~ fill may be authorized for habitat enhancement, restoration, or sea level rise adaptation **of habitat** ~~to enhance or restore fish, other aquatic organisms or wildlife habitat~~ if the Commission finds that no other method of enhancement or restoration except filling is feasible.

POLICY ~~8~~ 9:
The Commission should encourage and authorize pilot and demonstration projects **that address sea level rise adaptation of Bay habitats ~~when the potential benefits are greater than the potential risks~~**. These projects should include appropriately detailed experimental design and monitoring to inform initial and future work. Project **progress and** outcomes should be analyzed and reported expeditiously**~~, so that findings can be applied to future projects~~**. The size, design, and management of pilot and demonstration projects should be such that it will minimize the project's potential to negatively impact Bay habitats and species.

POLICY ~~5-9~~ 10:
The Commission should continue to support and encourage expansion of scientific information on the Bay's subtidal areas, including: (a) inventory and description of the Bay's subtidal areas; (b) the relationship between the Bay's physical regime and biological populations; (c) sediment dynamics, including sand transport, and wind and wave effects on sediment movement; **(d) oyster shell transport**; (**e~~d~~**) areas of the Bay used for spawning, birthing, nesting, resting, feeding, migration, among others, by fish, other aquatic organisms and wildlife; ~~and~~ (**f~~e~~**) where and how habitat restoration, enhancement, and creation should occur considering species/habitat needs and suitable project sites; and (**g~~f~~**) if, where, and what type of habitat type conversion may be acceptable.

5. Amend the Dredging Findings and Policies

Dredging Findings

FINDING N:
Continuation of b~~B~~aywide studies would help determine the need for, appropriate locations for, and potential effects of ~~in-Bay disposal~~ the use of dredged sediment for eelgrass or other shallow water habitat enhancement or restoration. **The Commission ~~has~~ approved a pilot project, the Oakland Middle Harbor E~~e~~nhancement Area project, that could help to determine the feasibility of eelgrass or other shallow water habitat creation ~~enhancement or restoration~~ in the Bay.**

Dredging Policies

POLICY 11A:
A project that uses dredged sediment ~~material~~ to create, restore, or enhance Bay or certain waterway natural resources may ~~should only~~ be approved if:

1. The Commission, based on detailed site specific studies, appropriate to the size and potential impacts of the project, that include, but are not limited to, site morphology and physical conditions, biological considerations, the potential for fostering invasive species, dredged sediment ~~material~~ stability, and engineering aspects of the project, determines all of the following:

    a. the project would provide, in relationship to the project size, substantial net improvement in habitat for Bay species;

    b. no feasible alternatives to the fill exist to achieve the project purpose with fewer adverse impacts to Bay resources;

    c. the amount of dredged sediment ~~material~~ to be used would be the minimum amount necessary to achieve the purpose of the project;

    d. beneficial uses and water quality of the Bay would be protected; and

    e. there is a high probability that the project would be successful and not result in unmitigated environmental harm;

2. The project includes an adequate monitoring and management plan and has been carefully planned, and the Commission has established measurable performance objectives and controls that would help ensure the success and permanence of the project, and an agency or organization with fish and wildlife management expertise has expressed to the Commission its intention to manage and operate the site for habitat enhancement or restoration purposes for the life of the project;

3. The project would use only clean sediment ~~material~~ suitable for aquatic disposal and the Commission has solicited the advice of the San Francisco Bay Regional Water Quality Control Board, the Dredged Material Management Office and other appropriate agencies on the suitability of the dredged sediment ~~material~~;

~~**4. The project would not result in a net loss of Bay or certain waterway surface area or volume. Any offsetting fill removal would be at or near as feasible to the habitat fill site;**~~

4 ~~**5**~~. Dredged sediment ~~material~~ would not be placed in areas with particularly high or rare existing natural resource values, such as eelgrass beds and tidal marsh and mudflats, unless the material would be needed to protect or enhance the habitat. The habitat project would not, by itself or cumulatively with other projects, significantly decrease the overall amount of any particular habitat within the Suisun, North, South, or Central Bays, excluding areas that have been recently dredged;

5 ~~**6.**~~ The Commission has consulted with the California Department of Fish and Wildlife ~~Game~~, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service to ensure that at least one of these agencies supports the proposed project; and

6 ~~**7.**~~ The project's design and goals incorporate the best available science on the use of dredged sediment for habitat projects.

7 ~~**8**~~. After a reasonable period of monitoring, if either:

a. the project has not met its goals and measurable objectives, and attempts at remediation have proven unsuccessful, or

b. the dredged sediment ~~material~~ is found to have substantial adverse impacts on the natural resources of the Bay, then the dredged sediment ~~material~~ would be removed, unless it is demonstrated by competent environmental studies that removing the material would have a greater adverse effect on the Bay than allowing it to remain, and the site would be returned to the conditions existing immediately preceding placement of the dredged sediment ~~material~~.

POLICY 11B:
To ensure protection of Bay habitats, the Commission should not authorize placement of more than a minor amount of dredged sediment ~~material disposal~~ for projects that are similar to the Oakland Middle Harbor Enhancement Area project in characteristics including, but not limited to, scale, bathymetric modification, and type of habitat creation, ~~in the Bay and certain waterways for habitat creation, enhancement or restoration, except for projects using a minor amount of dredged material,~~ until the Oakland Middle Harbor Eenhancement Area project is completed successfully.

POLICY 11C:
The Commission should encourage research and well-designed pilot projects to evaluate**: ~~the feasibility of the beneficial reuse of dredged sediment in the Bay and certain waterways for habitat creation, enhancement and restoration~~. ~~Studies should address:~~**

1. **~~The need to use dredged sediment for in-Bay habitat creation, enhancement and restoration in the context of maintaining~~ The** appropriate amounts of all habitat types within the Bay, especially for support and recovery of endangered species;
2. The appropriate biological, hydrological, and physical characteristics of locations in the Bay for **habitat creation, enhancement, and restoration ~~such~~** projects **that use dredged sediment**;
3. The potential **~~of~~ for** direct, indirect**,** and cumulative impacts of such projects; **~~and~~**
4. The effectiveness of different dredged sediment placement strategies for habitat restoration, enhancement, and creation**~~.~~; and**
5. **The feasibility of the beneficial reuse of dredged sediment in the Bay and certain waterways for habitat creation, enhancement, and restoration.**

6. Amend the Shoreline Protection Findings and Policies

Shoreline Protection Findings

FINDING F:
Shoreline protection solutions vary along a spectrum from hardened (grey) structures to natural (green) solutions. ~~Nonstructural~~ Natural and nature-based shoreline protection methods, such as tidal marshes, levees with transitional ecotone habitat, oyster reefs, mudflats, and beaches can provide effective flood protection ~~control~~ and/or wave attenuation when sited properly. In some instances, it may be possible to combine natural and nature-based methods (e.g. habitat restoration, enhancement or protection) with structural approaches to provide protection from flooding and control shoreline erosion, thereby minimizing the shoreline protection project's impact on natural resources~~,~~ and maximizing other ecological benefits. The appropriate solutions and combinations of solutions depend on physical and biological characteristics of the site, in addition to other factors.

FINDING G:
Loose dirt, concrete slabs, asphalt, bricks, scrap lumber ~~wood~~ and other kinds of debris, are generally ineffective in halting shoreline erosion or preventing flooding and may lead to increased fill or release of pollutants. Although providing some short-term shoreline protection, protective structures constructed of such debris materials typically fail rapidly in storm conditions because the material slides bayward or is washed offshore. Repairing these ineffective structures requires additional material to be placed along the shoreline, leading to unnecessary fill and disturbance of natural resources.

FINDING H:
In some cases, natural solutions that support wildlife may conflict with adjacent land uses, such as **airports ~~aviation operations~~**.

FINDING I:
The use of natural and nature-based features provides additional benefits beyond shoreline protection, including habitat, water quality improvement, carbon sequestration, recreation, and more. Because these benefits are provided, natural and nature-based shoreline protection approaches are sometimes considered self-mitigating.

Shoreline Protection Policies

POLICY 1:
New shoreline protection projects and the maintenance or reconstruction of existing projects and uses should be authorized if: (a) the project is necessary to provide flood or erosion protection for (i) existing development, use or infrastructure, or (ii) proposed development, use or infrastructure that is consistent with other Bay Plan policies; (b) the type of the protective structure is appropriate for the project site, the uses to be protected, and the causes and conditions of erosion and flooding ~~conditions~~ at the site; (c) the project is properly engineered to provide erosion control and flood protection for the expected life of the project based on a 100-year flood event that takes future sea level rise into account; (d) the project is properly designed and constructed to prevent significant impediments to physical and visual public access; and (e) the protection is integrated with current or planned adjacent shoreline protection measures. Professionals knowledgeable of the Commission's concerns, such as civil engineers experienced in coastal processes, should participate in the design.

POLICY 4:
~~Whenever feasible and appropriate~~ All shoreline protection projects should evaluate the use of ~~include provisions for nonstructural methods~~ natural and nature-based features such as marsh vegetation, levees with transitional ecotone habitat, mudflats, beaches, and oyster reefs, and should incorporate these features to the greatest extent practicable. Ecosystem benefits, including habitat and water quality improvement, should be considered in determining the amount of fill necessary for the project purpose. Suitability and sustainability of proposed shoreline protection and restoration strategies at the project site should be determined using the best available science on shoreline adaptation and restoration. Airports may be exempt

from incorporating ~~**certain**~~ natural and nature-based features **that could endanger public safety by attracting potentially hazardous wildlife.** ~~and integrate shoreline protection and Bay ecosystem enhancement, using adaptive management. Along shorelines that support marsh vegetation, or where marsh establishment has a reasonable chance of success, the Commission should require that the design of authorized protection projects include provisions for establishing marsh and transitional upland vegetation as part of the protective structure, wherever feasible.~~

POLICY 5:
Adverse impacts to natural resources and public access from new shoreline protection should be avoided. Where significant impacts cannot be avoided, mitigation or alternative public access should be provided. Shoreline protection projects that include natural and nature-based features may be self-mitigating or require less mitigation than projects that do not include any natural or nature-based features.

POLICY 6:
The Commission should encourage pilot and demonstration projects to research and demonstrate the benefits of incorporating natural and nature-based techniques in San Francisco Bay.; and

Be it Further Resolved, that the San Francisco Bay Conservation and Development Commission authorizes the Executive Director to make minor, non-substantive editorial changes to this Resolution, in particular to comply with the determinations of the Office of Administrative Law in its review of the Resolution under the California Administrative Procedures Act.

We certify that this resolution was adopted by a vote of _____ "yes" votes, _____ "no" votes and _____ abstentions at the Commission meeting held October 3, 2019 in San Francisco, California.

Executed on this _____ day of _____, 2019 in San Francisco, California.

_____
R. ZACHARY WASSERMAN
Chair

Executed on this _____ day of _____, 2019 in San Francisco, California

_____
LAWRENCE J. GOLDZBAND
Executive Director

Attachment B: Numbered Public Comment Letters regarding BPA 1-17, the Fill for Habitat Bay Plan Amendment

United States Department of the Interior
FISH AND WILDLIFE SERVICE
San Francisco Bay National Wildlife Refuge Complex
1 Marshlands Road
Fremont, California 94555

July 8, 2019

Mr. Zachary Wasserman, Chair
San Francisco Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

Dear Chair Wasserman and Commissioners,

1 The purpose of this letter is to convey additional detail in response to Commissioner McGrath's questions at the June 20, 2019 public hearing on the *Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies*, specifically in reference to our recommendation that **voluntary fill projects that are solely focused on enhancing or restoring existing tidal marsh habitat should be exempt from the requirement to increase public access to the Bay** (original letter attached).

We fully recognize that the Bay Plan acknowledges the need to balance public access with wildlife compatibility and that BCDC provides recommendations for public access siting design and management strategies that aim to avoid or minimize potential impacts to wildlife. Indeed, the public access findings and policies were supported by a comprehensive review of the best available science and professional knowledge at that time, documented in the Public Access and Wildlife Compatibility Report (2001).

Therefore, it is revealing that now - after nearly 20 years of implementing the revised public use policies that evolved from the 2001 report - there still remains concern over this issue among Bay Area wildlife agencies and conservation organizations. We contend that these concerns arise not from the public use policies themselves, but rather how they have been implemented by BCDC through the permitting and consistency determination process due to the strict linkage between requiring public access (most typically a new trail) when fill is used on a project-by-project basis. This creates an inherent conflict with the primary objectives for habitat restoration and species protection associated with most voluntary tidal marsh habitat enhancement and restoration projects. In practice, wildlife area managers are asked to incorporate public access to the maximum extent feasible regardless of the project purpose and location, rather than being given deference in determining whether public access is feasible or compatible. In our opinion, any public access must be properly and strategically located within the larger landscape (which may or may not be associated with the location of the habitat restoration), and that new public access must meet the land management agency's public use goals and objectives as well as management capacity, as identified in our own Refuge Comprehensive Conservation Plans.

The Public Access and Wildlife Compatibility Report acknowledged the complexity of this issue, for example (page 29):

> "*Furthermore, though better science is obviously needed in order to make better informed decisions about management of public access, science alone will not dictate the existence or design of public access. Rather, science is part of a larger framework that also includes public values and benefits, laws and regulations, and overall management objectives of specific areas. Within this larger public policy framework, some sites may be managed to preclude or severely limit public access, while at other*

sites a variety of uses may be allowed and actively managed to find a balance between resource preservation, education, recreation, and low-impact transportation use. It is within this larger management framework that managers are striving to find the optimal balance between use and protection, and where specific design and management strategies can be employed to avoid or minimize potential impact."

It is worth noting that following the report, the revised Bay Plan public access policies included (page 69): "14. *The Commission should continue to support and encourage expansion of scientific information on the effects of public access on wildlife and the potential of siting, design and management to avoid or minimize impacts. Furthermore, the Commission should, in cooperation with other appropriate agencies and organizations, determine the location of sensitive habitats in San Francisco Bay and use this information in the siting, design and management of public access along the shoreline of San Francisco Bay.*" However, to our knowledge, that coordinated analysis of sensitive habitats has not been conducted to date.

Such an analysis would be well informed by the advancement of knowledge and experience that has accumulated since the 2001 report. The analysis must consider concerns addressed in the U.S. Fish and Wildlife Service's Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California (2013) about human disturbance from recreation and other activities that threaten tidal marsh habitat and species, as well as indirect impacts that public trails present through effects of habitat degradation, fragmentation, loss of buffer areas, and facilitating predator access into marshes. The recovery plan includes a detailed inventory of existing and potential tidal marsh habitats which would inform the identification of sensitive habitats in San Francisco Bay.

In addition, a substantial number of habitat acquisition and restoration projects have been completed, including Phase 1 of the South Bay Salt Pond Restoration Project, Bair Island, Hamilton Field, Cullinan Ranch, Sears Point, and Sonoma Creek, among others, most of which included the addition of new public access trails. Furthermore, the restoration community has a greater understanding of the need for and use of upland refugia by marsh species during high tide and flood events as well as adaptation to rising sea levels, which itself creates an inherent conflict if those upland areas (e.g. levees, berms, transition zones) must also accommodate public access features.

In conclusion, as the Commission considers the proposed Bay Plan Amendment No. 1-17 concerning the fill for habitat policies, we respectfully ask you to also fully consider how the use of fill triggers the requirement for public access, particularly in relation to voluntary tidal marsh habitat projects. Wildlife area managers have a unique challenge in striking an optimal balance between our primary mission for species and habitat protection with our goals – shared with BCDC – of providing public access to the Bay. That balance cannot be realized on a project-by-project basis but rather requires a comprehensive analysis across the entire region that informs more strategic placement of public access going forward.

Thank you again for this opportunity to share our perspective, and we look forward to continuing these important discussions as we all collectively endeavor to protect San Francisco Bay for present and future generations. If you have any questions, feel free to contact me by e-mail at anne_morkill@fws.fws or call 510.792.0222 ext 123.

Sincerely,

Anne E. Morkill
Refuge Complex Manager

United States Department of the Interior
FISH AND WILDLIFE SERVICE

San Francisco Bay National Wildlife Refuge Complex
1 Marshlands Road
Fremont, California 94555

June 20, 2019

Mr. Zachary Wasserman, Chair
San Francisco Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

Re: *Staff Report and Preliminary Recommendations for Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies*

Dear Chair Wasserman and Commissioners,

Thank you for this opportunity to speak on behalf of the U.S. Fish and Wildlife Service's (Service) San Francisco Bay National Wildlife Refuge Complex (Refuge Complex), in regards to the draft findings and policy changes outlined in the *Staff Report and Preliminary Recommendations for Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies* (May 21, 2019).

The Service is the primary Federal agency responsible for conserving, protecting, and enhancing the Nation's fish, wildlife, and plant populations and their habitats for the continuing benefit of the American people. The National Wildlife Refuge System, unlike other Federal lands that are managed under a multiple-use mandate (e.g., National Forests and Bureau of Land Management lands), is managed first and foremost for the conservation, management and restoration of the fish, wildlife, and plant resources and their habitats. We also support six priority wildlife-dependent public uses of refuges where compatible: hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

Our local refuges – the Don Edwards San Francisco Bay National Wildlife Refuge and the San Pablo Bay National Wildlife Refuge - protect a large majority of remaining tidal marsh in the San Francisco Estuary. They also provide outstanding opportunities to further the Baylands Ecosystem Habitat Goals through voluntarily restoring historic tidal marsh that had been converted to hay fields, pasture, and salt production ponds during the late 19th and through the mid-20th centuries. Significant progress has been made in this endeavor on multiple projects that have come before the Commission, including the South Bay Salt Pond Restoration Project, Bair Island Restoration Project, Cullinan Ranch Restoration Project, and Sonoma Creek Enhancement Project. I would be greatly remiss if I did not acknowledge that all of these efforts have been accomplished in large part thanks to our many partners, most notably the State Coastal Conservancy, California Department of Fish and Wildlife, Ducks Unlimited, California Wildlife Foundation, and Audubon California (among others).

1 While all of our projects have ultimately been found to be consistent with the Bay Plan and approved by the Commission, there have been many challenges in navigating the consistency determination process and negotiating with permit staff around both real and perceived policy conflicts, often resulting in changes to project scale and design, time delays, and additional burdens on the projects. Therefore, we
2 applaud the Commission's recognition of these challenges and subsequent processes to amend the Bay Plan in a manner that acknowledges the benefits of fill for voluntary habitat projects, including as a means to facilitate sea level rise adaptation. I was a member of the Policies for a Rising Bay Steering Committee and attended many of the BCDC workshops and presentations on this topic, and I'm pleased to see many of the proposed changes. I have a few general comments for your consideration today:

3 • **We fully support the draft policy changes that eliminate the language of "minor amount of" fill in reference to habitat projects in the Bay and its tidal water**. That in and of itself is a seemingly simple but singularly significant and positive change that will advance the restoration community's efforts to restore tidal marsh habitat in a timely manner. Defining what a "minor amount" of fill is and reconciling that with the "minimum amount necessary to achieve the purpose of the fill" (per Section 66605 of the McAteer Petris Act) has been regularly problematic. It was a major factor that resulted in the reduced size and scope of our Sonoma Creek Enhancement Project, as an example mentioned in the staff report. As acknowledged by staff, the Act's language of "minimum amount necessary…" will still maintain an important protection to ensure there is not an excessive amount of fill beyond what is necessary.

4 • **We recommend that voluntary fill projects that are solely focused on enhancing or restoring <u>existing</u> tidal marsh habitat should be *exempt* from the requirement to increase public access to the Bay.** Fill for habitat is intertwined with the public use policy as prescribed by the McAterr Petris Act and therefore it is reasonable and logical to consider it in the context of the proposed Bay Plan amendments under consideration today. The use of fill in existing tidal marsh is primarily for creating high tide refugia for sensitive species, improving tidal exchange, and assisting the marsh in maintaining elevation to sustain vegetation and keep up with sea level rise. Increasing public access in these sensitive wildlife areas is not compatible with those primary purposes. There has been substantial progress in providing public access to the Bay since passage of the McAteer Petris Act, and there are other opportunities for increasing public access in more appropriate and less sensitive areas as part of the larger multi-benefit restoration projects occurring in salt ponds and managed wetlands. We should not be adding more stressors to our already stressed marsh-dependent wildlife in this highly urbanized region on a project-by-project basis. Instead, we request that the Commission expedite a comprehensive assessment of the current status and gaps in public access across the entire region and revisit its public use policies as they relate to voluntary tidal marsh habitat projects.

5 • **We recommend that the new policy 6 under Fish, Other Aquatic Organisms and Wildlife (page 15) that projects "should plan for repeated placements of fill over time to allow habitat to adapt incrementally…unless the Commission finds that fewer, larger placements of fill minimize impacts to**

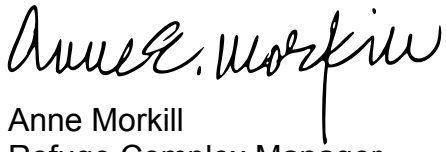
Bay organisms or that small, repeated fills are not feasible" be revised to emphasize the latter - allowing for fewer, large placements of fill as the minimum amount necessary - while considering the former - small, repeated fills - as part of an adaptive management strategy as needed and covered under the main project permit. While this is an important topic for the restoration community to deliberate, study, and develop best management practices around, it should not be a stated policy as written. Short-term impacts are usually greater than long-term impacts, so we would be seeking to complete a project at one time - when funding and resources like sediment are available - and not return repeatedly to re-disturb the wildlife and their habitat. This is an inherent component of adaptive management such that if monitoring indicates that additional placements are necessary to meet project goals, then it should be allowed under the main project permit in that context. We are also concerned how this change as written may conflict with other regulatory agencies' authorities.

6

- **We share many of the same concerns and agree with the specific comments expressed by our restoration partners, including the San Francisco Bay Joint Venture, State Coastal Conservancy, South Bay Salt Pond Restoration Project, San Francisco Estuary Partnership, and Ducks Unlimited, and reiterate by reference here.** We are concerned that some of the proposed findings and policy changes are too prescriptive, and in some cases appear to increase requirements - such as monitoring, research, and funding plans - for project proponents. We ask the Commission and staff to fully consider the suggested edits and continue working with the restoration community to refine the wording of many of the proposed findings and policy changes. These refinements should aim to maximize the Bay Plan's flexibility in facilitating voluntary habitat restoration and enhancement projects in the Bay and its tidal waters, but in turn minimize the regulatory burden and associated costs and time delays.

Thank you for the opportunity to share our comments and concerns.

Sincerely,



Anne Morkill
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PORT OF REDWOOD CITY

Serving Silicon Valley

Port Commissioners
Richard S. Claire
Richard "Dick" Dodge
R. Simms Duncan
Ralph A. Garcia, Jr.
Lorianna Kastrop

July 8, 2019

The Honorable Zachary Wasserman
Chairman and Commissioners
S. F. Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10000
San Francisco, CA 94102

Subject: Comments to BCDC on Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies

Dear Chairman Wasserman and Commissioners,

The Port of Redwood City (Port) commends BCDC's effort to adapt the Bay Plan to integrate the most recent science and regional environmental goals allowing the use of larger volumes of Bay fill for the
1 construction of tidal restoration or enhancement projects. The Policy changes appropriately recognize the value of allowing Bay fill to enable habitat migration as sea level rises; high tide refuge for marsh species; restoration of eroding tidal marshes; and for grey-green shoreline protection.

The Port is the only deepwater port in south San Francisco Bay. Discovered in 1851, the Port is at a pinnacle in its maritime commerce history with cargo trade exceeding over 2 million metric tons annually, and its FEMA designation as a Federal Staging Area (FSA) for the South San Francisco Bay and the Silicon Valley region.

Keeping Redwood City Harbor (RCH), our primary federal shipping channel, regularly dredged to its authorized depth of -30' is critical to the Port and region. Pivotal to the Port's future is the increasing recognition that dredged material is a resource and may be used beneficially to address resilience issues, such as sea level rise, habitat restoration and flood protection.

The Bay Plan amendment will assist to maximize the opportunity to beneficially use RCH dredged material at Eden Landing in Hayward, CA, 8 miles across the Bay. The South Bay Salt Pond Restoration Project (SBSPRP) Eden Landing Phase 2 Final EIR for the 2,000-acre wetland restoration is now certified. The site's restoration will require BCDC and other permits.

We applaud the recent signing of a cost-sharing Memorandum of Agreement (MOA) between the U.S. Army Corps of Engineers' San Francisco District and the South Pacific Division and the California State Coastal Conservancy to enable state budgeted funds to be spent on RCH federal maintenance dredging conditioned on placement at a beneficial use site.

The Eden Landing beneficial use site offers a great opportunity to use large volumes of dredged material for marsh restoration, flood protection, and adaptation to sea level rise in the south Bay.

We have selected three sections in the May 23 Staff Report for specific mention which are directly related to the Port's interests and goals and which we strongly support as follows:

1. **Major Conclusions and Policies**.
   Restoring, enhancing, or creating ecosystems that provide habitat for native fish, other aquatic organisms, or wildlife; enhance coastal resilience; and provide services such as water filtration and carbon sequestration. Fill for these purposes will be especially important to facilitate the adaptation of habitats to rising sea level

2 We wholeheartedly agree with this added language that describes the substantial benefits provided by using fill for ecosystem restoration, enhancement and creation projects, especially considering the need for adaptation to sea level rise.

2. **Fish, Other Aquatic Organisms, and Wildlife Policy 5.**
   Removing language that allows only a "minor amount of fill" for habitat projects. Due to past subsidence and future sea level rise, creating and maintaining valuable bay habitats will potentially require substantial volumes of fill placement.

3 Because the McAteer-Petris Act will still limit fill **to** the minimum amount of fill necessary for the successful completion of a project, the removal of language about a "minor amount of fill" can be safely removed from the policies.

3.11 (a)(1)(c) (Page 33) Dredging: Draft Policy Changes

11.a. A project that uses dredged sediment to create, restore or enhance Bay or certain waterway natural resources may be approved if:

1. The Commission, based on detailed site specific studies, appropriate to the size and potential impacts of the project, that include, but are not limited to, site morphology and physical conditions, biological considerations, the potential for fostering invasive species, dredged sediment stability and engineering aspects of the project, determines all of the following:

   c. the amount of dredged sediment to be used would be the minimum amount necessary to achieve the purpose of the project.

4 We suggest rephrasing c. as follows:

"...the minimum necessary to achieve the purpose of the project, **considering the project purposes may include the creation of high-value habitat, enhancement of ecological functions, and sea-level rise adaptation that require large amounts of fill."**

Thank you for your consideration of our comments.

Sincerely yours,

Kristine A. Zortman
Executive Director

Audubon | CALIFORNIA

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San Francisco, CA 94104

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June 20, 2019

Zachary Wasserman, Chair
San Francisco Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

Dear Mr. Chairman and Commissioners:

On behalf of the Audubon California, a state office of the National Audubon Society and our 300,000 members and supporters, I thank you for the opportunity to provide comments on the proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies.

Audubon California's Richardson Bay Audubon Center and Sanctuary in Tiburon, CA, was established in 1957 specifically to prevent the inappropriate filling of Richardson's Bay to create the Reed Port housing development, which would have destroyed nearly 900 acres of crucial subtidal and intertidal habitat. Since that time, Audubon staff has worked to protect the sanctuary waters, and the tens of thousands of birds that rely on it, for the benefit of wildlife and our community. Given this history, **we are keenly aware of the important role BCDC plays in stopping the indiscriminate diking and filling of the Bay.** In the intervening half century, however, Audubon California and our environmental partners in the Bay (including BCDC, as described in the Staff report "Bay Fill for Habitat Restoration, Enhancement, and Creation in a Changing Bay"), have found that **filling bay waters and baylands for the purposes of habitat restoration is often needed.**

Historically, fill for habitat has been needed in order to undo the impacts of previous development actions in the Bay (e.g., raising elevations at subsided diked baylands, such as Montezuma and Hamilton wetlands). This need will continue as additional North Bay diked baylands are restored and as the South Bay Salt Ponds Project continues. More recently, however, **fill for habitat has become a crucial strategy in our region (and our state's) fight against the impacts of climate change,** including sea level rise, disruptions in sediment supply, and increases in erosion due to changes in the frequency and intensity of storms.

In response to this need, **Audubon California lead the implementation of key pilot projects that used fill to restore habitats and increase climate change resiliency at Aramburu Island (in collaboration with the County of Marin) and through the Sonoma Creek Enhancement Project (in collaboration with the US Fish and Wildlife Service**, among others). The latter of these projects was identified in the Fill for Habitat staff report as the "primary example" of the challenge posed by "Bay Plan policies [that] do not allow more than a 'minor' amount of fill and/or dredged sediment for habitat projects in tidal waters". The design of this project was significantly altered to meet Bay Plan limits for a "minor amount of fill".

Vegetation and shorebird monitoring of the site highlight many project successes at Sonoma Creek, including improvements to marsh drainage and vector control issues, both of which improve habitat for wildlife. However, the limitations of the "minor amount of fill" language potentially limits the functional benefits provided by project's the transitional ecotone (by creating a steeper slope). Additionally, project partners are currently implementing Phase 2 of the Sonoma Creek project to address ongoing drainage issues at the project site, which may have been prevented if the project

was able to implement the full scale marsh channel excavation during original construction. This would have limited potential impacts to the site from repeated intrusions, which (though necessary to address other ongoing threats on the site) simply extend the period of reduced marsh function and increases overall project cost.

1 **We included this background information here to: 1) highlight how existing Bay Plan policies have hindered habitat restoration efforts in the past, 2) to underscore the importance of moving forward with expediency, and 3) to emphasize the need to "get it right" in regards to policy verbiage, as these words will be the standards against which permit applicants are judged for years to come.**

In regards to the proposed changes to existing bay plan findings and policies, please accept the following overarching comments:

2 • We support staff's recommendation to remove language that limits projects to a "minor amount of fill", which serves to limit fill placed in subtidal, intertidal, or upland areas for the purposes of habitat restoration and improved resiliency.

3 • We caution staff on the inclusion of references to increased or enhanced monitoring and adaptive management requirements (including funding plans) as conditions for fill for habitat projects. Existing requirements can already create undue burdens on projects and is being addressed on a region-wide scale through efforts including the Wetlands Regional Monitoring Program (WRMP) and San Francisco Bay Restoration Regulatory Integration Team (BRRIT). Rather than increasing these burdens, we encourage BCDC to coordinate with regional efforts to streamline project monitoring and adaptive management.

4 • We caution staff against prioritizing smaller, repetitive sediment additions over larger, one-time placements. The impacts of these actions (and its cost) will vary by site and strategies should be considered on a site-by-site basis.

5 • We agree with concerns raised about public access requirements associated with fill for habitat projects whose sole purpose is to restore or enhance existing Bay habitats, particularly in sensitive wildlife areas.

6 **For more specific, in-line comments, we encourage you to look closely at comments provided by several of our Bay Area partners**, particularly comments submitted by the California State Coastal Conservancy, the US Fish and Wildlife Service, Ducks Unlimited, Marin Audubon Society, and the South Bay Salt Ponds Project. In general (except as noted below), we agree with these groups' specific recommendations, which speak to ways to address our overarching comments above.

7 The exception to our concurrence with these partner's comments concerns Dredge Policy 11b, and we encourage you to look closely at concerns raised by Save the Bay (STB) in this regard. Specifically, we share STB's concerns about the original intent of the policy and the consequences of moving this language to a Plan Map. Along with many other stakeholders, we are concerned about the delays of the Middle Harbor Enhancement Project (MHEP) in achieving its project goals and believe that the proposed Plan Map change would decrease BCDC's ability to enforce Consistency Determination C2000.014.

8 **While we agree that some verbiage changes to Dredge Policy 11b may be needed in order to advance other Fill for Habitat projects, we do not support simply removing the policy**. We encourage BCDC staff to work with stakeholder to identify appropriate language amendments. We do not completely agree with STB that Dredge Policy 11b should be updated to restrict *all* non-minor subtidal fill for habitat projects pending the completion of the MHEP. However, we do support amended language that would limit projects whose primary driver is the disposal of dredge material rather than habitat restoration and we support language that continues to hold MHEP accountable for its required benefits. We offer our services as a collaborator in this effort to identify and craft

suitable language that will encourage the completion of MHEP while not restricting forward momentum on other subtidal fill for habitat projects.

Again, thank you for the opportunity to provide these comments on the proposed Fill for Habitat changes to the San Francisco Bay Plan. **We applaud BCDC in working proactively to update Bay Plan policies to ease the regulatory burden placed on projects proposing fill for habitat** (including permitting and monitoring requirements). We are likewise hopeful that other state and federal agencies (e.g., California Coastal Commission, U.S. Army Corps of Engineers, etc.) will look to this update process as an example of how to amend regulatory policies for the current era of habitat restoration and improvements in coastal habitat resiliency.

If you have any questions on these proposed comments, please do not hesitate to contact me at rschwartz@audubon.org or 310-433-8410.

Sincerely,

Rebecca Schwartz Lesberg
San Francisco Bay Program Director
Audubon California

inspiring people to protect
Bay Area birds since 1917

Ms. Megan Hall
San Francisco Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102-7019
megan.hall@bcdc.ca.gov

20June2019

re: Bay Plan Amendment No. 1-17 to Update of the Bay Plan Fill for Habitat Policies

Dear Ms. Hall,

On behalf of the Golden Gate Audubon Society (GGAS), please accept comments on the **Bay Plan Amendment No. 1-17 to Update of the Bay Plan Fill for Habitat Policies**.

GGAS is a 102 year old non-profit organization with over 7,000 members who are dedicated to protecting native bird populations and their habitats. GGAS generally supports the Bay plan to revise the policy in support of the use of fill for habitat restoration. Further, GGAS urges the project proponents to undertake all reasonable efforts to avoid the unintended consequence of fill activities that may significantly alter or damage sensitive habitat or cause significant impacts to special-status and listed species. Overall, the proposed fill for habitat amendment to the Bay Plan is consistent with the mission of GGAS to protect native birds and their habitats.

The following comments address specific elements of the proposed update of the Bay plan:

1

1. Removing the "minor fill" requirement for habitat projects
Recognizing the urgency needed to address the threat of sea level rise with many tens of thousands of more acres of habitat needing to be restored by 2030 as recommended in the Baylands Ecosystem Habitat Goals 2015 update, the "minor fill" language is too restrictive for meeting this restoration goal. The McAteer-Petris Act still requires a "minimum amount of fill" be used. Therefore, the "minor fill" language of the Bay Plan is unnecessary for avoiding excess fill beyond the required objective to achieve project success.

2

2. Removing dredging policy 11b
Currently, this policy requires the successful completion of the Middle Harbor Enhancement Area Project before other habitat projects involving the beneficial reuse of dredged material are authorized. Due to this project's protracted timeline and questionable applicability of its success to the fate of other beneficial reuse projects around the bay, removal of this policy seems warranted given the urgency of creating additional habitat in the coming decade.

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3. Encouraging projects to contribute to regional goals and the restoration of complete ecosystems

3 Although GGAS supports regional goals and the restoration of complete ecosystems, these objectives may not be compatible with the needs of certain special status species. There may be instances where project proponents should forego contributing to regional habitat goals because

4 more local opportunities exist to create specific habitat for select species. Therefore, GGAS recommends that adaptive management measures be permitted or possibly encouraged for the purpose of restoring or protecting specific habitat for select species.

5 In general, GGAS urges the project proponents to limit activities and measure impacts so that a reliable basis for determining the scope of allowable fill will derive from the best available science. The Plan should seek to avoid cumulative and significant impacts to sensitive habitat, nesting birds, rare sensitive plants and other wildlife by restricting excessive fill and identifying and enhancing resiliency in sensitive habitats.

Thank you for this opportunity to comment on the Bay Plan Amendment No. 1-17 to Update of the Bay Plan Fill for Habitat Policies.
Please keep GGAS informed about all activities and reports relating to this matter.

Respectfully,

Pam Young

Pam Young
Member, GGAS Board of Directors
Chair, GGAS East Bay Conservation Committee
pamyoung2@mac.com

Sent via electronic mail: No hard copy to follow

June 19, 2019

Bay Conservation and Development Commission
Attn. Megan Hall, Ph.D., Coastal Scientist
455 Golden Gate Ave., Ste. 10600
San Francisco, CA 94102

Subject: Comments on BCDC's Proposed Bay Plan Amendment No. 1-17 to Address Bay Fill in Habitat Projects

Dear Dr. Hall:

Thank you for the opportunity to comment on the Bay Conservation and Development Commission's (BCDC's) proposed Bay Plan Amendment No. 1-17 (Amendment) to address Bay Fill in Habitat Projects. The San Francisco Bay Regional Water Quality Control Board (Water Board) appreciates the time, thought, and effort that you and your colleagues have invested in updating the Bay Plan to reflect both the threats that climate change and sea level rise pose to the resilience of the San Francisco estuary's varied habitats, and the strategies that can help support healthy, diverse, and functional habitats now and into the future. As mentioned in the Staff Report that accompanies the Amendment, Water Board staff are implementing a parallel policy review effort that may result in an amendment to the San Francisco Bay Basin Water Quality Control Plan (Basin Plan). This Basin Plan amendment would likely address many of the same issues as the Amendment, including the development of an updated regulatory framework that would identify the circumstances under which fill in wetlands and waters could benefit estuarine habitats. We appreciate BCDC's efforts to coordinate your Amendment with our potential Basin Plan amendment, and look forward to further engagement.

We broadly agree with the Amendment's goals, the proposed revisions to the findings and policies in the Bay Plan described in the May 21, 2019, BCDC staff recommendation, and the justification for the revisions provided in the May 24, 2019, staff report. This letter proposes specific edits to the revised findings and policies to

improve their clarity and highlight opportunities for improved consistency between the Amendment and a future Basin Plan amendment.

Fish, Other Aquatic Organisms, and Wildlife

Findings

1 (i) Here and throughout the Amendment, we appreciate the inclusion of the San Francisco Shoreline Adaptation Atlas, produced by the San Francisco Estuary Institute (SFEI) and funded by the Water Board.

2 (j) Policies that govern fill placement in baylands must ultimately balance near-term certainties about the impacts of fill placement with long-term uncertainties of its potential benefits, while also considering the potential long-term impacts of taking no action. The proposed language in elements (k) and (l) specifically references the potential future losses of tidal marshes and flats due to sea level rise, as well as the potential role of strategic sediment placement in sustaining these habitats. Please consider editing the language in element (j) to state explicitly that some near-term habitat conversions due to fill may be offset over the long-term by habitat conversions driven by sea level rise. Therefore, the net loss of habitat types and associated ecosystem functions due to fill may be temporary, and may lead to a long-term net gain.

3 (k) The proposed language states that "*… many marshes and mudflats may not be able to adapt to these changes, and may be inundated by the end of the century if they are not able to accrete sediment and/or migrate to higher elevations.*" We suggest using the phrase "drown (e.g., low marsh to mudflat), downshift (e.g., high marsh to low marsh), or erode" instead of "be inundated by" to more accurately reflect the processes that lead to habitat loss. It is not inundation *per se* that impacts marsh and mudflat habitats, rather the frequency, depth, and duration of inundation that can lead to drowning and downshifting.

4 (l) We appreciate the language that references natural disturbance events (e.g., sediment deposition during floods) as potential analogues for gradual fill placement that can maximize benefits to habitats while minimizing impacts. The development and use of such techniques (e.g., thin-lift sediment placement) in the Bay is in the early stages, and would be improved by increased research and development as well as the implementation of experimental pilot projects (addressed in Finding (r) and Policy (10) under "Tidal Marshes and Flats" and elsewhere in the Amendment).

Policy Changes

5 (2) Staff may want to consider amending the statement "*Protection of habitats may entail placement of fill to ensure that they persist into the future with sea level rise*" to mention that placement of fill can also improve ecological functions in the near-term. For example, in the near term, the construction of marsh mounds can improve the

provision of high tide refugia in marsh interiors near the home ranges of listed species such as Ridgway's rail and salt marsh harvest mouse. However, marsh mounds may not be an effective strategy to ensure the long-term resilience of extensive tidal marsh plains.

(6) Same comment as (l), above.

6 (7) Consistent with our comments on (j), above, we suggest amending "*Allowable fill for habitat projects in the Bay should (a) not cause substantial negative impacts to existing habitats…*" to state "should (a) not cause substantial *long-term* negative impacts to existing habitats…" as in some limited cases, near-term impacts from fill placement may be offset by long-term benefits, and those impacts may be less severe than the long-term consequences of no action.

7 (8) Consistent with our comments on (k), above, staff should consider revising language about habitat "*inundation and loss*" to more specifically reference drowning and downshifting (vertical processes), and erosion (lateral process). Staff might also consider including beaches and other coarse shoreforms in this language, as they currently protect marshes in multiple locations (e.g., Bair Island, Point Pinole, and Robert's Landing) and may be an effective strategy to protect marshes in other Bay regions (see the Adaptation Atlas for more information).

Tidal Marshes and Tidal Flats

Findings

8 (l) The text in this finding states that "*…the volume of sediment entering the Bay annually from the Sacramento and San Joaquin Delta is declining.*" The 2018 SF Bay sediment synthesis report from SFEI and the U.S. Geological Survey (USGS) states that "*Since the step decrease in suspended sediment concentrations in WY 1999 (Schoellhamer et al. 2011), there has been no statistically significant trend in sediment supply from the Delta to the Bay.*" It therefore may be more accurate to describe the decline in sediment supply from the Delta to the Bay as a step decrease, and not a decline that is current or constant. Staff may also want to reference the sediment synthesis report to include language that states that trends in future sediment supply to the Bay are uncertain, largely due to the influence of large floods on sediment delivery (and the influence of climate change on the potential frequency, duration, and severity of future flood events).

9 (q) This is a helpful finding that is consistent with many of the principles articulated in the Adaptation Atlas. Staff may want to consider including language that acknowledges that some existing tidal marshes throughout the estuary will likely not be sustained into the future solely through natural processes (for example, isolated urban marshes that cannot be feasibly connected to watershed sediment supplies and have limited opportunities for landward transgression). Because some of these marshes sustain regionally important populations of special-status species, however,

they may justify consistent intervention over time to support regional ecological services.

10 (s) The staff analysis should note that the proposed Wetland Regional Monitoring Program (WRMP) is being developed by multiple entities, including SFEI, the San Francisco Estuary Partnership (SFEP), the SF Bay National Estuarine Research Reserve (NERR), the U.S. Environmental Protection Agency, and the Water Board, with input from a broad Steering Committee that includes BCDC.

Policy Changes

11 (4) Staff should consider expanding "*local government land use and tax policies*" to "*state, regional, and* local government land use*,* tax*, and funding* policies" to include the often-considerable roles of Caltrans, the Metropolitan Transportation Commission and county transportation agencies, and related agencies in land use planning and in setting conditions for project funding that can lead to adverse impacts.

(5) Same comment as (q), above.

(7) Same comment as (s), above.

Subtidal Areas

Policy Changes

12 (9) We suggest amending subsection (c) to state "sediment dynamics, including sand *and oyster shell* transport, and wind and wave effects on sediment movement" to highlight the importance of oyster shell features in the Bay, and how little is currently known about the processes and conditions that support these features.

Shoreline Protection

Findings

13 (i) We agree that natural and nature-based approaches to shoreline protection are preferable due to the many co-benefits they can provide to habitats, water quality, carbon sequestration, recreation, and more, and therefore should in many cases be subject to reduced mitigation requirements, including being considered "self-mitigating." Given that different types of natural and nature-based approaches would be appropriate in different portions of the shoreline (see the Adaptation Atlas), staff may want to consider developing a framework for evaluating mitigation needs for these types of projects on a regional or sub-regional basis, and clarify expectations for the role regional mitigation banks may play in addressing these needs.

Policy Changes

14 General comment: Given the highly modified nature of most of the SF Bay shoreline and the exceptionally high value of Bay Area real estate, there is a risk that future efforts to protect shoreline communities and facilities from rising seas and coastal flooding will in some locations attempt to place protective infrastructure as bayward as possible, which would maximize the amount of baylands protected behind (landward of) the infrastructure. This approach has many potential risks, including, but not limited to: (1) reducing tidal accommodation space within the Bay and therefore increasing the risk of exacerbating sea level rise and tidal flooding hydrodynamics throughout the Bay, (2) isolating tidal and non-tidal bayland wetlands and waters landward of the protective infrastructure, separating them from natural hydrologic processes and accelerating their deterioration, and (3) increasing the likelihood that protective infrastructure will be located on top of deeper Bay Muds, increasing the long-term risks of settlement and the need for continuous maintenance. We therefore recommend that staff include a policy in this section that encourages applicants to "hold the line" as far landward as possible, and minimize the amount of baylands that are isolated behind protective infrastructure. This policy should highlight the role that phased, place-based adaptation pathways can play in identifying opportunities for the long-term landward transgression of defenses from tidal flooding (managed retreat), which can over time create space for the restoration of complete tidal wetland systems and other nature-based adaptation measures. Phased adaptation pathways, which are described in greater detail in the Adaptation Atlas, provide a framework for identifying appropriate suites of action at different SLR thresholds, and create a mechanism for addressing uncertainty and allowing for flexibility over time. Such a policy could be linked to Policy (4) under Tidal Marshes and Tidal Flats, which encourages the public acquisition and restoration of "restorable lands."

Again, we appreciate the opportunity to comment on the Amendment, and look forward to continuing to coordinate with the Commission and staff on this and related initiatives. If you have any questions, please do not hesitate to contact Christina Toms at christina.toms@waterboards.ca.gov or 510-622-2506.

Sincerely,

Keith H. Lichten, Chief
Watershed Management Division

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
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June 18, 2019

R. Zachary Wasserman
Commission Chair
Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, California 94102

Dear Chair Wasserman,

Thank you for the opportunity to comment on the Bay Conservation and Development Commission's (BCDC) proposal for the Bay Plan amendments, No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies. First of all, we understand that BCDC, much like the United States Army Corps of Engineers (Corps), has had a legal duty to carry out the mandates of the Coastal Zone Management Act (CZMA). Our respective legal duties include, inter alia, the need to take into consideration the direct and indirect physical effects of projected future sea-level change on projects. Engineering Regulation (ER), 1100-2-8162, 31 Dec 2013, instructs the Corps to consider the potential relative sea-level change in every USACE coastal activity as far inland as the extent of estimated tidal influence. We applaud your efforts to take on the difficult task of amending the Bay Plan to better accommodate the need for Bay fill to combat sea-level rise. We are supportive of some of the changes being made to Dredging Policy 11a and b and other policies that support in-Bay strategic placement of dredged material. However, we are not supportive of the recommendation adding a new policy note to the Bay Plan Map 4 regarding the Middle Harbor Enhancement Area (MHEA).

1

2

There are a few provisions that we believe could be improved to provide clarity, flexibility, and to acknowledge the utilization of clean dredged material to benefit the public. Those changes are provided in the table below.

Major Conclusions and Policies	
Section	Proposed Changes or Comments
4g.	"Restoring, enhancing, or creating coastal ecosystems that provide habitat for native fish, other aquatic organisms, or wildlife; enhance coastal resilience; and provide services such as water filtration and carbon sequestration. Sourcing clean fill, i.e. dredged material, for these purposes will be especially important to replenish wetlands to facilitate the adaptation of habitats and provide a natural buffer to alleviate the sediment deficit due to rising sea level."

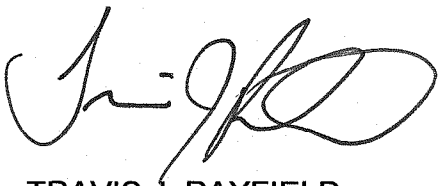
3

5b.	"Filling ~~almost always~~ can increase the danger of water pollution . . ."
Fish, Other Aquatic Organisms, and Wildlife	
Section	Proposed Changes or Comments
i.	These frameworks are based on the best available science at ~~this~~ the time of publication, and as our knowledge evolves to reflect new data and understanding, new frameworks or updated frameworks may be developed to replace or supplement this work.
j.	"Current models indicate that ~~as~~ sea level rise ~~progresses, many Bay habitats~~ will ~~be~~ degrade~~d~~ or convert ~~to other~~ Bay habitat types. However, projects that place fill to ensure that important fish, other aquatic organisms, wildlife, and plants have habitat into the future may also result in the conversion of one type of habitat into another and thus may result in a net loss of some habitat types and associated ecosystem functions. Habitat type conversion could alter the balance of species or habitats locally, within an embayment, or on a regional scale. Large-scale habitat type conversion could reduce the amount of habitat available to certain species, and the impacts of large-scale habitat type conversion are not well-understood. Therefore, fill must be placed strategically to minimize short-term habitat loss while protecting Bay habitats over the long-term from the impacts of sea level rise."
l.	Placement of ~~large volumes~~fill to assist habitats in adapting to long-term sea level rise projections may not be immediately necessary and may result in unnecessary habitat type conversion and other impacts to the Bay.
5.	The Commission may permit fill or a ~~minimum~~ justified amount of dredging necessary to enhance or restore fish, other aquatic organisms and wildlife habitat; or a ~~minor~~ justified amount of fill to provide public facilities for wildlife observation, interpretation and education.
7.	Suggest removal of "not significantly alter the balance of species" because the balance of species can be difficult to measure and changes difficult to predict.
8.	"A ~~minor~~ justified amount of sediment placement for any habitat project in deep subtidal areas may be authorized if sediment placement will maximize the habitat restoration or enhancement benefits provided by the project."
Tidal Marshes and Tidal Flats	
Section	Proposed Changes or Comments
q.	~~Siting a project in a location where the appropriate natural processes do not exist to sustain it could result in negative impacts on the Bay, project failure, and wasted resources.~~

	Replace with: "Projects shall be appropriately sited at suitable elevations where natural processes exist to sustain it."
4.	~~Local government land use and tax policies should not lead to the conversion of restorable lands to uses that would preclude or deter potential restoration. The public should make every effort to acquire these lands for the purpose of habitat restoration and wetland migration~~. Move this paragraph into the "Finding" column rather than the "Policy" column.
Subtidal Areas	
Section	Proposed Changes or Comments
5.	~~The Commission should encourage and support regional efforts to collect, analyze, share, and learn from habitat monitoring data~~. Move this paragraph into the "Finding" column rather than the "Policy" column
7.	"Based on scientific ecological analysis and consultation with the relevant federal and state resource agencies, fill may be authorized for habitat enhancement, restoration, or sea level rise adaptation ~~if the Commission finds that no other method of enhancement or restoration except filling is feasible.~~"
Dredging	
11b. Staff Analysis	When the Middle Harbor Enhancement Project was proposed, there was concern that in-Bay disposal of large columns of dredged sediment ~~purportedly~~ for restoration would become a common occurrence. The word purportedly is unnecessary and does not improve the message.
p. 35	The policy is well-justified in this goal, but some of its language and conditions limit projects that ~~genuinely~~ need sediment to restore habitat as their primary goal. The word genuinely is unnecessary and does not improve the message.
p.36	~~2) Dredging Policy 11b indirectly encourages the completion of the Middle Harbor Enhancement Project. However, area-specific policies and goals are addressed as policy notes in the Bay Plan Maps. Thus, staff recommends adding a new policy note to Bay Plan Map 4 to require that the Middle Harbor Enhancement Area provide the habitat benefits that were intended. . . .etc~~. This language is unnecessary as the Corps has committed to complete the project, through the existing CZMA process.
Bay Plan Map 4	
Section	Proposed Changes or Comments
21 & Staff Analysis	Addressed in separate correspondence. The Corps does not support this amendment. The Corps plans to submit a detailed comment letter specific to this amendment prior to the July 18, 2019 BCDC Commission Meeting. The staff analysis omits that this policy appears to establish new precedent that would require restoration projects to provide mitigation for schedule delays.

We appreciate your efforts to amend the Bay Plan and look forward to continuing our partnership of responsible Bay stewardship into the future. If you have any questions please contact Tom Kendall at (415) 503-6822 or Thomas.R.Kendall@usace.army.mil.

Sincerely,



TRAVIS J. RAYFIELD
Lieutenant Colonel, U.S. Army
Commanding

BAYAREA COUNCIL

June 14, 2019

Zachary Wasserman
Chair, Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

RE: Support for Bay Plan Amendment No. 1-17

Dear Chair Wasserman and Commissioners,

On behalf of the Bay Area Council, I am writing to express our support for proposed Bay Plan Amendment No. 1-17, "Bay Fill for Habitat."

1 Existing language in the Bay Plan is designed to restrict all fill in the San Francisco Bay irrespective of impacts and reflects an outdated perspective that does not capture today's
2 context of climate change and rising seas. The proposed Bay Plan Amendment No. 1-17 would add to the Bay Plan language that reflects the value of bay fill for habitat restoration purposes.

The Ocean Protection Council estimates that sea levels at the Golden Gate will likely rise as much as 13 inches by 2050, and by as much as 40 inches by 2100. Rising seas threaten $46.2 billion in assets located in the Bay Area's 100-year floodplain, which encompasses the entire bay shoreline. Restored wetland habitat can play an important role in defending these assets, as well as providing important benefits for ecosystems and public access to the bay shoreline.

3 While the Bay Area Council is pleased to support the proposed amendments, habitat alone cannot adequately defend the Bay Area shoreline from rising sea levels. The Council therefore respectfully requests BCDC to also consider amendments to the Bay Plan which similarly recognizes the value of fill in defending existing development and critical infrastructure from rising sea levels.

Thank you for your leadership, and for considering our views.

Sincerely,

Jim Wunderman
President & CEO
Bay Area Council

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SFEP

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June 14, 2019

Zachary Wasserman
Chair
SF Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102-7019
ATTN: Megan Hall

RE: Bay Plan Amendment No. 1-17 to address Bay Fill in Habitat Projects

Dear Chair Wasserman:

Thank you for the opportunity to comment on the proposed Bay Plan Amendment No. 1-17 to address fill in habitat projects. I support BCDC's effort to revise the Bay Plan to allow the use of fill for habitat projects and commend your staff for their excellent work in preparing the draft findings and policies for review.

The San Francisco Estuary Partnership (Partnership) led more than 70 organizations to collaborative agreement on long term goals and a suite of actions to be taken over the next five years to protect, restore, and sustain the San Francisco Estuary. The resulting 2016 *Estuary Blueprint* reflects the changing context of Estuary management over the last few decades, focusing on the need to plan and adapt to climate change.

1

In general, the proposed Bay Plan amendment is consistent with the goals, objectives and actions in the *Blueprint*. In addition to advancing the restoration and enhancement of tidal habitats as well as transition zones, the *Blueprint* supports sediment management on a watershed and regional scale to enhance Estuary habitats and shoreline flood protection efforts. The *Blueprint* also promotes projects that demonstrate how natural habitats and nature-based shoreline infrastructure can provide increased resiliency to changes in the Estuary environment. Finally, the *Blueprint* calls for establishing a regional wetland monitoring program (recognizing the need to evaluate effectiveness on a regional scale and acknowledging the potential to reduce monitoring costs and requirements for individual projects), and the Partnership is currently leading the collaborative development of a Wetlands Regional Monitoring Program, as acknowledged in the staff report.

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The Partnership works in close collaboration with myriad organizations to advance a healthy and sustainable Estuary and I encourage the Commission to carefully consider the more detailed comments of our partners on the proposed Bay Plan amendment.

Sincerely,

Caitlin Sweeney, Director

June 14, 2019

Zachary Wasserman
Chair
SF Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102-7019
ATTN: Megan Hall

Re: ***Staff Report and Preliminary Recommendation for Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies***

Dear Chair Wasserman,

The Wetland Regional Monitoring Program Core Team commends BCDC's effort to amend the Bay Plan with the updated Bay Plan Fill for Habitat Policies. The Wetlands Regional Monitoring Program (WRMP), as recently funded by an EPA Region 9 Wetland Program Development Grant, is engaging stakeholders from a broad range of restoration- related backgrounds and expertise to inform a regional monitoring program plan for tidal wetlands in the San Francisco Bay Area. This program plan will initiate implementation of Action 2 in the Estuary Blueprint, and will help local, regional, state, and federal agencies evaluate the effectiveness of efforts to sustain healthy aquatic habitats and resources. The project will be producing a Program Plan by the end of 2019 with close engagement of regulators, land managers and science institutions. The comments below come from our Core Project Team tasked with implementation of the grant deliverables – from chairing our Steering Committee and Science Advisory Team to leading science content and program development.

Key components of the WRMP development process include a collaborative process for development of program and science priorities, and recommendations for funding, governance, and a phased approached to program implementation including the establishment of a benchmark network of monitoring sites across the SF Bay that can reduce the burden on project-specific compliance monitoring. Your recommendations document refers to "surrogate" monitoring locations multiple times – and we assume that may be similar to this benchmark network. We suggest that this term be explicitly defined, or changed to more typical vernacular such as benchmark or reference site.

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During the process of the Fill for Habitat Amendment, the WRMP Core Team were in close coordination with BCDC staff. Our discussions focused on how best to coordinate our efforts, and to share information about the development of both efforts. This engagement is well reflected in the Preliminary Recommendations and Staff Report, and we greatly appreciate the efforts of BCDC staff in this regard.

A few specific comments are noted below:

- Section 8S -- In the staff analysis please revise the sentence to state "The San Francisco Estuary Partnership, San Francisco Estuary Institute, San Francisco Bay National Estuarine Research Reserve, State Coastal Conservancy, Environmental Protection Agency and SF Bay Regional Water Quality Control Board, in partnership with various local, state, and federal agencies, are developing the Wetland Regional Monitoring Program." We also encourage the

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3 recommendation to more specifically call out the Wetland Regional Monitoring Program as an effort to advance coordinated regional monitoring. This statement is repeated on pg. 23.

4 - Section 11L – We suggest that the staff analysis include the addition of the following statement: "…regional monitoring can provide benefits that are different from and complementary to project-based monitoring and may provide opportunities for uses of surrogate monitoring <u>especially when these efforts are linked to management questions.</u>

We appreciate the opportunity for ongoing coordination and look forward to working with BCDC to ensuring the success of the WRMP going forward. Thank you for your consideration of these comments.

Sincerely,

The WRMP Core Team

Heidi Nutters, San Francisco Estuary Partnership (co-PI)

Dr. Joshua Collins, San Francisco Estuary Institute (co-PI)

Jillian Burns, San Francisco Estuary Partnership

Xavier Fernandez, SF Bay Regional Water Quality Control Board

Christina Toms, SF Bay Regional Water Quality Control Board

Jennifer Siu, US Environmental Protection Agency

Luisa Valiela, US Environmental Protection Agency

Dr. Michael Vasey, SF Bay National Estuarine Research Reserve

Aimee Good, SF Bay National Estuarine Research Reserve

Coastal Conservancy

June 14, 2019

The Honorable Zachary Wasserman, Chair
Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

RE: Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies

Dear Chair Wasserman and Commissioners:

The State Coastal Conservancy (the Conservancy) supports the amendment of the San Francisco Bay Plan to allow fill for habitat projects.

The Conservancy is a leader in habitat restoration and enhancement and the development of grey-green shoreline protection techniques in San Francisco Bay. In addition to funding dozens of partners to plan, design and implement habitat projects and leading pilot projects to test living shorelines, we have coordinated regional habitat goal-setting efforts, such as the Bayland Goals Science Update and Subtidal Goals Report. We have also coordinated and provided financial support for sea level rise vulnerability assessments and adaptation strategies. Through this experience, we have repeatedly encountered the need for regulatory changes to allow the use of large volumes of beneficial fill that enable tidal restoration or enhancement projects to be constructed while allowing for habitat migration as sea level rises, for high tide refugia for marsh species, for restoration of eroding tidal marshes, and for grey-green shoreline protection.

The Conservancy has worked closely with Commission staff and the Commission's Bay Fill for Habitat Working Group, and we are pleased to see that the changes we have most strongly supported are included in the staff recommendation. These include the following:

1. **Adding acknowledgment of the benefits of fill for habitat projects** to the Major Conclusions and Policies section, and to the introduction, of the Bay Plan. We encourage use of the term "beneficial fill" to differentiate it from traditional fill for development purposes. We agree with adding language that describes the substantial benefits provided by using fill for ecosystem restoration, enhancement, creation projects, especially in light of the need for adaptation to sea level rise.

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2. **Removing language that allows only a "minor amount of fill" for habitat projects** from Fish, Other Aquatic Organisms, and Wildlife Policy 5. Due to past subsidence and future sea level rise, creating and maintaining a mosaic of valuable bay habitats will potentially require substantial volumes of fill placement. Since the McAteer-Petris Act safeguards against the use of more than the minimum amount of

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fill necessary for the successful completion of a project, we believe that the proposed policy changes will result in the appropriate amount of fill.

3. **Removing Dredging Policy 11b** that requires the Middle Harbor Enhancement Area project to be completed successfully before the Commission authorizes additional projects that involve placement of dredged material in the bay for habitat creation, enhancement or restoration. We agree with staff that "the success of Middle Harbor is not an accurate proxy for the potential success of every other habitat project in the Bay that uses dredged sediment. Thus, it is imprudent to limit the options of all other projects based on this one very specific type of project." Recognizing the need to carry forward the spirit of this policy, we support the staff recommendation to add a new policy note to Bay Plan Map 4 to require that Middle Harbor provide the habitat benefits that were intended.

4. **Amending Shoreline Protection Findings and Policies to describe the benefits of living/natural shorelines and incentivize their use.** We support staff's proposed changes, as described below.

Additional detailed comments are provided below.

Finding or Policy	BCDC Staff Report Text	Coastal Conservancy Comments
Major Conclusions and Policies		
4g (p 6)	Restoring, enhancing, or creating ecosystems that provide habitat for native fish, other aquatic organisms,or wildlife; enhance coastal resilience; and provide services such as water filtration and carbon sequestration. Fill for these purposes will be especially important to facilitate the adaptation of habitats to rising sea level.	As indicated in the first part of this letter, we strongly agree with this addition.
5b (p 7)	Filling almost always increases the danger of water pollution by reducing the ability of the Bay to assimilate the increasing quantity of liquid wastes being that is discharged into it….	In addition to acknowledging benefits of fill for habitat projects in Policy 4, we recommend adding a letter under Section 5 (maybe new letter c after current b) noting that habitat restoration projects use beneficial fill to achieve positive environmental effects, including habitat creation and improved water quality, and, in multi-benefit wetland restoration projects, can include other benefits, such as protection of the

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		shoreline from erosion through wave attenuation, flood protection, and sea level rise adaptation. It is not just an ancillary effect, but the main goal of the beneficial fill in the project.
Fish, Other Aquatic Organisms, and Wildlife		
7 a (p. 8)	Over the past 200 years, human actions have had a major effect on the form and natural functions of San Francisco Bay, resulting in a significant decrease in the size of the open waters of the Bay-from about 516,000 acres to 327,000 acres, an approximately 40 percent reduction-and notable changes in ~~populations~~ the types, locations, quality, and quantity of habitat for ~~of~~ fish, other aquatic organisms (e.g., crabs, shrimp, zooplankton, ~~and~~ oysters, plants and seaweed) and wildlife ~~habitat types, locations, quality and quantity~~.	Add "native" before "fish".
8 i (p. 10)	i. Regional frameworks, such as the 2015 Baylands Ecosystem Habitat Goals Update Report, the 2010 Subtidal Habitat Goals Report, and the 2019 Adaptation Atlas, detail wetlands habitat restoration goals, subtidal habitat restoration goals, and shoreline adaptation strategies throughout Bay. These frameworks are based on the best available science at this time, and as our knowledge evolves to reflect new data and understanding, new frameworks or updated frameworks may be developed to replace or supplement this work.	We generally support this new finding. However, please clarify that the Subtidal and Baylands Goals also include recommendations for intertidal habitats (intertidal shellfish, intertidal aquatic vegetation, rocky intertidal, intertidal beaches, etc.) The language currently makes many references to intertidal as always wetland/mud, and subtidal as always submerged oyster and eelgrass, but these habitats are intertidal as well. Also, please include USFWS Tidal Marsh Recovery Plan (2013) in the list of regional frameworks.
j (p 11)	Current models indicate that as sea level rise progresses, many Bay habitats will be degraded or convert to other habitat types. Projects that place fill to ensure that fish, other aquatic organisms, wildlife, and plants have habitat into the future may also result	As noted in the staff report, "Many habitat restoration, enhancement, or creation projects authorized by BCDC have been considered self-mitigating because they provide greater benefits to the Bay ecosystem overall than detriment by impacting habitat or

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10		in the conversion of one type of habitat into another and thus may result in a net loss of some habitat types and associated ecosystem functions. Habitat type conversion could alter the balance of species or habitats locally, within an embayment, or on a regional scale. Large-scale habitat type conversion could reduce the amount of habitat available to certain species, and the impacts of large-scale habitat type conversion are not well-understood.	habitat type conversion." Habitat restoration projects intended to convert more common and lower-value habitats to scarcer and higher-value habitats should be easier to permit than ones that do the opposite. We suggest adding the following sentence to this finding: "However, habitat projects intended to convert an area from a plentiful habitat type to a scarcer one with higher ecological value or to habitats that will be more critical as sea level rises should be encouraged and should be considered self-mitigating."
11	k (pp. 11-12)	k. Tidal marshes and tidal flats are particularly vulnerable to inundation from sea level rise, reductions in sediment supply, and lack of migration space. Current scientific predictions of sea level rise and declining sediment supply support the likelihood that many marshes and mudflats may not be able to adapt to these changes, and may be inundated by the end of the century if they are not able to accrete sediment and/or migrate to higher elevations. Placing sediment in appropriate locations will be needed to ensure that Bay species have sufficient habitat into the future. Placement of significant volumes of sediment will be particularly important in tidal marshes to build transition zones, increase marsh plain elevation, and create high tide refugia for species. Placement of sediment may also be necessary in shallow intertidal or subtidal areas to increase mudflat elevation or to increase the sediment that can be transported by natural processes to adjacent marshes to increase marsh plain elevation. Little is known about	In addition to sediment placement to benefit tidal marsh and tidal flats, other types of fill placement, including shell and hybrid grey-green structures may be needed for habitat enhancement in intertidal, as well as subtidal areas. After the sentence "Placing sediment in appropriate locations will be needed to ensure that Bay species have sufficient habitat into the future," please add the following sentence: "In addition, placement of oyster reefs or other beneficial fill in intertidal and subtidal areas will also be needed to enhance habitat, and can help with sea level rise adaptation through wave attenuation."

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		how subtidal areas will adapt to sea level rise or the need for sediment in these areas. Limited knowledge about deep water habitats makes it difficult to predict how major changes, including sediment placement, in these areas may adversely affect fish, other aquatic organisms, and wildlife.	
12	l (p 12)	…Placing smaller volumes of fill incrementally could serve the function of facilitating habitat adaptation to sea level rise while also minimizing impacts of fill to fish, other aquatic organisms, and wildlife.	We suggest using the term "beneficial fill" to differentiate it from traditional fill. Placing fill incrementally is not always feasible and will have a higher cost.
13	5 (p 14)	The Commission may permit ~~a minor amount of~~ fill or a minimum amount of dredging ~~in wildlife refuges, shown on the Plan Maps,~~ necessary to enhance or restore fish, other aquatic organisms and wildlife habitat; or a minor amount of fill ~~or~~ to provide public facilities for wildlife observation, interpretation and education.	We recommend removing "minor amount of fill" to provide public facilities for wildlife observation, interpretation, and education. Please make it consistent with other language allowing the placement of fill that is necessary to achieve the objectives of the project.
14	6 (p 15)	Habitat restoration or enhancement projects in the Bay that need fill to adapt to rising seas should plan for repeated placements of fill over time to allow habitat to adapt incrementally to sea level rise projections, reducing the need for large scale habitat loss and conversion prior to the onset of future conditions, unless the Commission finds that fewer, larger placements of fill minimize impacts to Bay organisms or that small, repeated fills are not feasible.	We recommend adding the following sentence: "The Commission will cover smaller repeat placements under a single permit rather than requiring a new permit process for each placement."
Tidal Marshes and Tidal Flats			
15	r (p. 19)	Pilot and demonstration projects provide an opportunity for research and	Please add the sentence "Some pilot demonstration projects may need to

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		testing concepts and techniques before implementing experimental projects on a large scale.	move forward with careful implementation and monitoring, even with data gaps or no information." The purpose of the pilots is to gather this information for the first time.
16	u (p. 20)	The extent of uncertainty about appropriate habitat project design (including likelihood of success and risk of impacts) varies depending on the project's goals (e.g. whether the project has a research component), lifespan (e.g. whether the habitat is intended to adapt to sea level rise or not), and scale. Smaller projects and projects constructed using well-vetted techniques will likely involve less uncertainty and/or risk than larger habitat projects anticipated to need adaptation over time, or projects testing new approaches. Projects with higher levels of uncertainty or risk may require more intensive monitoring and adaptive management.	Consider the appropriate use of the term "monitoring" versus the term "research." They should not be used interchangeably. Monitoring is the functional assessment of the methods and goals of a specific project or projects, whereas scientific research is intended to test a hypothesis. Research may be more long term and its ability to be conclusive depends on project size, number of design replicates, and variability of conditions affecting the outcome. We recommend using the term "monitoring" in the regulatory context, as research should not be required for permitting.
17	6 (p. 22)	Design and evaluation of the project should include an analysis of: …(k) how the project adheres to regional restoration goals; (l) whether the project would be sustained by natural processes; and (m) how the project restores, enhances, or creates connectivity across Bay habitats at a local, sub-regional, and/or regional scale.	Please separate out these requirements in a new sentence that states, "If appropriate to the scale and scope of the project, design and evaluation of the project should also include…" These new analysis requirements should not necessarily be required of projects that may require periodic maintenance, such as protection and enhancement of small eroding tidal marshes in urban areas that provide educational and recreational benefits.
18	7 (p 23)	Habitat projects should have a funding plan for monitoring and adaptive management of the project, commensurate with the level of monitoring and adaptive management that the required for the project.	Delete requirement to "have a funding plan" and replace with "Habitat project proponents should determine the cost of monitoring and adaptive management, commensurate with the size and complexity of the project, and incorporate the cost into the project budget."

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	Subtidal Areas		
19	j (p. 26)	Fill material, such as rock, oyster shells and sediments dredged from the Bay, or hybrid materials that integrate these materials, can enhance or beneficially contribute to the restoration of subtidal habitat…	Change to "…hybrid materials that integrate native shell, native sand, and concrete, for example,…" We suggest using the term "grey-green" or otherwise make sure to define hybrid.
20	o (p. 28)	…Projects with higher levels of uncertainty or risk may require more intensive monitoring and adaptive management.	Some well-vetted techniques like seawalls have major impacts and no monitoring requirements. Improve language so there isn't an undue burden on innovative new projects seeking nature-based solutions.
21 22	3 (p. 29)	3. ~~4.~~ Any subtidal habitat ~~restoration~~ project should include clear and specific long-term and short-term biological and physical goals, ~~and~~ success criteria, ~~and~~ a monitoring program, and as appropriate, an adaptive management plan to assess the likelihood of success, benefits, impacts, and sustainability of the project. Design and evaluation of the project should include an analysis of: (a) the scientific need for the project; (b) the effects of relative sea level rise; (c) the impact of the project on the Bay's sediment budget; (d) localized sediment erosion and accretion; …	Many pilot projects are small and testing concepts that can be scaled up and applied in future. Therefore, they often don't have long-term goals for the project itself. Regarding 3(c), add "if appropriate to scale of project"; for 3(d), info is not always available.
23	4 (p 29)	Habitat projects should have a funding plan to monitor and adaptively manage the project, commensurate with the level of monitoring and adaptive management that the project will require	Same comment as for Tidal Marshes and Tidal Flats Policy 7.
24	5 (p 30)	The Commission should encourage and support regional efforts to collect, analyze, share, and learn from habitat monitoring data.	We support this policy change so long as it doesn't *require* these regional efforts of all individual project applicants. That would be too much of a burden in some cases.

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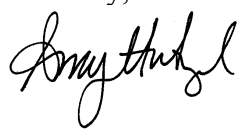
Dredging		
25 n (p 32)	…~~The Commission has approved a pilot project, the Oakland Middle Harbor enhancement project, that could help to determine the feasibility of eelgrass or other shallow water habitat enhancement or restoration in the Bay~~	We support this removal of a finding related to a specific individual project from the Bay Plan.
26 11a (p 32)	A project that uses dredged <u>sediment</u> ~~material~~ to create, restore, or enhance Bay or certain waterway natural resources…	We support this change, if sediment includes all grain sizes from clay to boulders.
27 11(a)(1)(c) (p 33)	the amount of dredged <u>sediment</u> ~~material~~ to be used would be the minimum amount necessary to achieve the purpose of the project;	We suggest rephrasing as follows "…the minimum necessary to achieve the purpose of the project, <u>considering the project purposes may include the creation of high-value habitat, enhancement of ecological functions, and sea-level rise adaptation that require large amounts of fill</u>."
28 11(b)(3) (p 35)	~~The Oakland Middle Harbor enhancement project, if undertaken, is completed successfully.~~	We support the removal of Dredging Policy 11(b) in full for the reasons given in your document. We strongly support the removal of this section of the policy.

29 **Overarching comments**: The language throughout multiple sections (Fish. i, Tidal Marsh l, Subtidal j) makes an artificial separation implying that eelgrass and oyster-related work is always located in the subtidal zone (mostly submerged below mean lower low water (MLLW)), and the majority of references to intertidal habitats are restricted to vegetated wetland or mudflat (above MLLW), but it is key to note most of these habitats have both subtidal and intertidal ranges.

Thank you for your consideration of our comments, as well as your extensive engagement with stakeholders during the development of the proposed amendment. We are hopeful that these changes will help the entire conservation community advance habitat restoration and related shoreline protection and sea level rise adaptation in San Francisco Bay.

Sincerely,



Amy Hutzel, Deputy Executive Officer

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June 14, 2019

BCDC Commissioners
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

SUBJECT: Proposed San Francisco Bay Plan Amendment No. 1-17 Concerning Amendment of Various Sections of the Bay Plan to Address Bay Fill in Habitat Projects, Associated Natural Resource and Dredging Policies, Protection of Shorelines and, Potentially, the Public Access Policies

Dear BCDC Commissioners:

The SFBJV is a partnership of non-governmental organizations, landowners, businesses, and non-voting agencies with a goal to acquire, restore and enhance all types of wetlands, which provide benefits to birds, fish, and other wildlife in the San Francisco Bay Area. The SFBJV is one of the eighteen federally-sponsored habitat Joint Ventures to implement the North American Wetlands Conservation Act and federal bird conservation plans. The SFBJV Management Board consists of 25 agencies and private organizations whose members agree to promote the goals and objectives of SFBJV and who represent the diversity of wetland interests found in the San Francisco Bay region. BCDC was one of our initial members when we were founded 23 years ago, and is still an active and valued SFBJV partner.

The SFBJV Implementation Plan, *Restoring the Estuary,* targets nearly 200,000 acres of wetlands, sub-tidal habitats, seasonal wetlands, and riparian habitats for protection, restoration, or enhancement through our partners' funding and expertise. The tidal wetlands goals with a 2030 timeline are adopted from the 1999 Baylands Habitat Goals, the 2015 Baylands Goals Science update (*Baylands and Climate Change: What We Can Do*), and the Subtidal Goals, all of which BCDC contributed to and concurred with.

1 The SFBJV supports the overall effort to revise the policy to support the use of fill for restoration. As BCDC amends its Bay Plan, we encourage consistency with these adopted regional plans in recognition of the positive nature and multiple benefits provided by habitat restoration projects. The 2015 update to the Baylands Goals identifies the need to restore complete ecosystems and to accelerate restoration to complete as many projects as possible over the next 15 years for marshes to keep pace with sea level rise.

2 We are fortunate in the Bay Area to have a conservation community that has been working collaboratively towards these shared goals for two decades, supported by strong and ongoing scientific research and monitoring, with project managers and land managers dedicated to implementing quality habitat that benefit the wildlife and people of the region. We encourage BCDC to tap into this wealth of expertise and we offer assistance from the SFBJV and its forums within the revision process and with implementation under the revised policy.

3 While the SFBJV comments within this letter will be broad in nature, we strongly encourage close consideration of comments from SFBJV implementing partners. These experts are outlining in detail how BCDC can best help the conservation community overcome the obstacles to bay habitat conservation implementation and increase the

4 pace and scale of these efforts. We encourage stronger acknowledgement of the need to respond to increasingly dynamic conditions.

We are at a critical time for wetland restoration, and BCDC has a tremendous opportunity to facilitate and encourage the implementation of our multiple regional conservation plans. To expedite wetland restoration in pursuit of the 2030 timeline, our partnership needs reduced financial and regulatory burdens. We strongly
5 encourage BCDC to use this amendment for this end. We encourage BCDC to avoid any changes to the Bay Plan that are overly prescriptive or that have the potential to add financial or regulatory complexity, increasing timelines, and slowing progress on implementation of habitat projects. We encourage changes that exempt permitting costs, streamline application processes, and ease post project obligations for those projects that are vetted by a regional process such as the SFBJV project adoption process, implement the goals of the regional conservation plans, and are consistent with current scientific understanding and recommendations.

Here are a few areas we would like to highlight:

6 • We are in an increasingly dynamic environment impacted by a combination of accelerating processes and impacts. The amendment should acknowledge the need to be adaptive and responsive to these changes, and recognize the need to keep up with current scientific understanding and recommendations from regional experts and collaboratives. Proposed policy revisions that add new requirements of permittees (such as preparation of adaptive management plans) should carefully consider potential resulting burdens on permittees such as increases in project costs and delivery times. Again, we recommend attention and response to detailed comments from our partner organizations and agencies for further detail.

7 • We support the acknowledgement that restoration and enhancement to enable marshes to keep pace with sea level rise often requires beneficial fill to occur. We encourage the Commission to promote policy or regulatory changes that will make beneficial use of sediment available in multiple ways for restoration while still precluding fill that would cause detriment to natural habitats where they don't provide net habitat benefits.

8 • Required monitoring should be minimized to be efficient, cost effective, and contribute to or be replaced by regional monitoring efforts as feasible to better inform our collective understanding and ability to adapt. The SFBJV supports and participates in the current effort to establish a regional monitoring program for tidal marsh, with the expectation that this will result in a decrease in agency-specific monitoring requirements. We would like to see the acknowledgement that regional monitoring efforts should result in minimizing the need for agency-specific monitoring requirements.

9 • Public access should take place in appropriate locations. Human impacts to sensitive habitat should be avoided. Public access may need to be re-located as sea levels rise.

10 • Wetland restoration and enhancement projects should be clearly recognized for the multiple benefits they provide, should be considered for their net benefits, and should not have mitigation requirements when net benefits are positive.

We encourage BCDC staff and the Commission to think critically about how to help the restoration community achieve the greatest possible acreage of restoration by 2030.

If you have any questions please contact our Coordinator, Sandra Scoggin.

Sincerely,

Jeff McCreary
Chair

Valley Water

Clean Water • Healthy Environment • Flood Protection

June 17, 2019

The Honorable Zack Wasserman, Chair
SF Bay Conservation & Development Commission
455 Golden Gate Ave., Suite 10600
San Francisco, CA 94102

RE: Public Comments - Background Report: Bay Fill Habitat Restoration, Enhancement, and Creation in a Changing Bay; and Staff Report and Preliminary Recommendation for Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies.

Dear Chair Wasserman and Commissioners,

On behalf of the Santa Clara Valley Water District (Valley Water), I am pleased to express our support for the San Francisco Bay Conservation and Development Commission (BCDC) amendment to the Bay Plan to accommodate the use of fill for habitat restoration and sea-level rise adaptation projects, as well as for most of the specifics of the proposed policy changes.

Valley Water is a special district with jurisdiction throughout Santa Clara County. Our agency is the county's primary water resources agency and acts as the steward for its watersheds, streams, and creeks. We are also the groundwater management agency for Santa Clara County and actively manage two groundwater basins, replenishing them with local and imported water through our percolation ponds and stream beds. Valley Water is a partner in the South San Francisco Bay Shoreline Project (Shoreline Project), a joint effort with the State Coastal Conservancy, and the U.S. Army Corps of Engineers, that aims to restore up to 15,100 acres of former salt ponds, creating tidal marshes and wetlands that will provide protection from a 100-year coastal storm event and sea level rise through natural barriers.

As an agency with interest in permitting of public infrastructure projects, and the environmental improvement and protection of the Bay, we offer the following comments to both the Background Report: Bay Fill Habitat Restoration, Enhancement, and Creation in a Changing Bay; and the Staff Report and Preliminary Recommendation for Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan fill for Habitat Policies for your consideration.

1

- Draft Policy Changes, Major Conclusions and Policies Part 4.g. – We agree with BCDC language that indicates "Restoring, enhancing, or creating ecosystems that provide habitat for native fish, other aquatic organisms, or wildlife; enhance coastal resilience; and provide services such as water filtration and carbon sequestration. Fill for these purposes will be especially important to facilitate the adaptation of habitats to rising sea level." As we have found with the restoration of the former Cargill saltponds, fill for habitat restoration is imperative, without such, the type of restoration being conducted would be impossible.

2

- Draft Policy Changes, Fish, Other Aquatic Organisms, and Wildlife Part 6 (Background Report Sections 4. Challenges for Restoration Implementation and 5. "Bay Fill" and BCDC's Associated Policies) – Placing smaller volumes incrementally could indeed reduce temporal impact while eventually providing the sought valuable functions; however, it would likely significantly add cost, delay the beneficial results of full implementation, and could require permits for each repeated placement of fill.

  One of the major challenges for projects that was not mentioned in Background Report Section 4, but is briefly mentioned in Section 5 (bottom of page 20), is finding, acquiring, transporting, and offloading an adequate amount of clean fill for restoration project use. This currently is a major challenge for existing restoration projects throughout the Bay. Adding limits to the volume of fill placed at one time in any one area will add to the challenges of completing restoration projects and may prove to be cost preventative. This speaks to the lack of sediment available in the region.

3

- Draft Policy Changes, Fish, Other Aquatic Organisms, and Wildlife Part 5; Draft Policy Changes, Tidal Marshes and Tidal Flats Part 9 – Removing limits to "minor amount of fill" is necessary for large restoration/horizontal levee projects. Fill should be limited depending on local appropriateness, likely function, and restoration value, rather than strict volume. As an example, the immense fill volumes required to restore historic South Bay saltwater marshes (especially under sea level rise conditions) to historic function should not be equated and subject to the same rules as fill for development or to create non-historic habitat areas.

4

- Draft Policy Changes, Dredging, Policy 11.a. – The bar set for determining how and when a study is complete and conclusive is not clear. It should be clarified what types of studies would the Commission consider necessary and conclusive in deciding the advisability of disposal for beneficial purposes.

- Draft Policy Changes, Major Conclusions and Policies Part 4.g.; Draft Policy Changes, Shoreline Protection Part 4; Draft Policy Changes, Shoreline Protection Parts 4 and 5; Draft Findings Changes, Shoreline Protection Part f. (Background Report Sections 6.B. A Landscape-Scale Approach/7.D. What's the Alternative?) – The Background Report mentions that completion of vulnerability assessments will highlight areas that are most important for focused sea level rise efforts. Understanding that different parts of the Bay have different habitat needs and that projects will need to be assessed in a regional context, some shoreline areas will require tidal flood protection to increase shoreline resiliency, but conditions in these areas may not support habitat restoration. We

5

suggest that the new Draft Policy Changes address how mitigation would be assigned to these projects. We also suggest that the Draft Policy Changes be clarified to

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demonstrate that fill for necessary shoreline protection projects to protect public health and safety is important to facilitate the adaptation of Bay area communities to rising sea level, including in areas where there are no or very limited opportunities for restoration.

7
- Draft Policy Changes, Shoreline Protection Part 1; Draft Policy Changes, Fish, Other Aquatic Organisms, and Wildlife Part 5 (Background Report Sections 6.C. Recreation/8.A Design) – Sometimes fill that is necessary for shoreline protection, ecotones, and transitional habitat creation could obstruct existing public views, despite potential creation of new public access trails. We suggest that the new Draft Policy Changes address conflicts with other Bay Plan policies regarding existing Bay views.

8
- Draft Policy Changes, Tidal Marshes and Tidal Flats Part 7; Draft Policy Changes, Subtidal Areas Part 4 (Background Report Sections 8.B Monitoring/8.C Adaptive Management) – Depending on the project sponsors and project length, providing a detailed funding plan for future monitoring and adaptive management may be difficult or impossible during the permit application process. For government agencies, uncertainty can exist with regards to the future amounts of funding available from grants, taxes/bond measures, etc. We suggest providing an exemption to this requirement for government agencies.

9
- Background Report Section 9.A Future BCDC Actions – Since BCDC's future guidance documents (i.e. those addressing "minimum" fill, monitoring, use of best available science in assessments of a project's regional context, etc.) will impact permit applicants, we request a public process that includes a sufficient comment period.

10
- Background Report Section 9.A Future BCDC Actions – In order to streamline the permitting process, we suggest expert design review be achieved through BCDC's participation in the Bay Restoration Regulatory Integration Team (BRRIT) as suggested in Section 9.B External Improvements to Restoration Project Permitting.

Again, Valley Water supports BCDC's amendment to the Bay Plan to accommodate the use of fill for habitat restoration and sea-level rise adaptation projects. Thank you for your consideration of the above comments. Please feel free to contact me at (408) 630-2804, should you have any questions.

Sincerely,

Norma J. Camacho
Chief Executive Officer
Santa Clara Valley Water District

South Bay Salt Pond Restoration Project

Restoring the Wild Heart of the South Bay

June 14, 2019

The Honorable Zachary Wasserman, Chair
SF Bay Conservation & Development Commission
455 Golden Gate Ave., Suite 10600
San Francisco, CA 94102

Dear Chair Wasserman and Commissioners,

On behalf of the South Bay Salt Pond (SBSP) Restoration Project, I am pleased to express my support for the BCDC's proposed Bay Plan Amendment Number 1-17 to accommodate the use of fill for habitat restoration and sea-level rise adaptation projects, as well as for most of the specifics of the proposed policy changes.

As the Commission is aware, the SBSP Restoration Project is a multi-agency effort involving the California State Coastal Conservancy, the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife, and other city and county partner agencies and special districts. My comments on the draft *Staff Report and Preliminary Recommendation for Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies* are not intended to speak to the larger interests or comments these entities may have on the proposed Bay Fill policies, but are instead reflect our Restoration Project's view of the proposed changes as well as my own professional perspective on them, as someone who has worked on environmental planning and permitting projects in and around San Francisco Bay since 2007.

Along with my colleagues at the State Coastal Conservancy, I have attended some of the Commission's Bay Fill for Habitat Working Group sessions, and I share the general aspects of the support expressed in the Conservancy's comment letter, including these:

1

1. **Acknowledging the benefits of fill for habitat projects** to the Major Conclusions and Policies section of the Bay Plan. It is important to provide the added description of the substantial benefits of fill for habitat/ecosystem restoration and enhancement, especially in terms of adapting to future sea level rise.

2. **Removing the limits on allowing only a "minor amount of fill" for habitat projects** from Fish, Other Aquatic Organisms, and Wildlife Policy 5. To meet our project's goals of restoring a mix of tidal marsh wetlands and other important habitats, while maintaining or improving flood protection, we expect that substantial volumes of fill will be necessary to keep pace with sea-level rise and offset past subsidence. Because the McAteer-Petris Act will still limit fill to the minimum amount necessary for the successful completion of a project, the removal of language about a "minor amount to" fill can be safely removed from the policies.

3. **Removing Dredging Policy 11b**, which requires the Middle Harbor Enhancement Area Project be completed successfully before the Commission authorizes additional projects that involve the beneficial reuse of dredged material for habitat creation, enhancement or restoration. I concur that "the success of Middle Harbor is not an accurate proxy for the potential success of every other habitat project in the Bay that uses dredged sediment. Thus, it is imprudent to limit the options of all other projects based on this one very specific type of project." More generally, even if Middle Harbor were an appropriate proxy, I would support the removal of successful completion of *any* specific individual project as a prerequisite for beneficial reuse of dredged material in other restoration projects.

In addition to those points, which I share with the Coastal Conservancy, the table below conveys my comments, suggestions, or questions on several specific proposed policy changes, organized by section.

Section	Policy/ Staff Report Text	Response
Major Conclusions and Policies		
4g (p 6)	Restoring, enhancing, or creating ecosystems that provide habitat for native fish, other aquatic organisms, or wildlife; enhance coastal resilience; and provide services such as water filtration and carbon sequestration. Fill for these purposes will be especially important to facilitate the adaptation of habitats to rising sea level.	As indicated in the first part of this letter, I strongly agree with this addition.
5b (p 7)	Filling almost always increases the danger of water pollution by reducing the ability of the Bay to assimilate the increasing quantity of liquid wastes being that is discharged into it….	This wording is too strong. I agree that *artificial* fill generally does this, but many restoration projects can help decrease water pollution by leading to marsh development, establishment of oysters and other filter feeders, or adding more substrate for submerged aquatic vegetation to grow. This beneficial effect of some forms of fill should be acknowledged by adding language to that effect to the policies.
Fish, Other Aquatic Organisms, and Wildlife		

	Section	Policy/ Staff Report Text	Response
6	c (p 9)	The wildlife refuges, some of which are shown on the Bay Plan Maps, include national wildlife refuges, state wildlife areas and ecological reserves, as well as other shoreline sites around the Bay whose primary purpose is: (1) the protection of threatened or endangered native plants, wildlife, and aquatic organisms; (2) the preservation and enhancement of unique habitat types or highly significant wildlife habitat; or (3) the propagation and feeding	Is the implication of the word "primary" here that restoration projects can be permitted without necessarily providing ongoing public access features that will exist in perpetuity or be resilient to long-term sea-level rise? If the "primary purpose" is for wildlife, then I would assert that the standard requirements for requiring trails, etc. in these areas should be lower, even if added fill is necessary for a restoration project. Is that made clear somewhere in these proposed policy changes?
7	j (p 11)	Current models indicate that as sea level rise progresses, many Bay habitats will be degraded or convert to other habitat types. Projects that place fill to ensure that fish, other aquatic organisms, wildlife, and plants have habitat into the future may also result in the conversion of one type of habitat into another and thus may result in a net loss of some habitat types and associated ecosystem functions. Habitat type conversion could alter the balance of species or habitats locally, within an embayment, or on a regional scale. Large-scale habitat type conversion could reduce the amount of habitat available to certain species, and the impacts of large-scale habitat type conversion are not well-understood.	It seems important to make a distinction between conversions from a plentiful habitat type to a scarcer one and ones that go the other way. Or between conversions that would add higher ecological value habitats or ones that will be more critical in the post-SLR world. These types of conversions should be easier to permit than ones that would convert scarce and/or higher ecological value habitats to more common and/or less valuable habitats. I suggest that wording to that effect be added to this policy.

	Section	Policy/ Staff Report Text	Response
8	k (pp. 11-12)	Tidal marshes and tidal flats are particularly vulnerable to inundation from sea level rise, reductions in sediment supply, and lack of migration space. Current scientific predictions of sea level rise and declining sediment supply support the likelihood that many marshes and mudflats may not be able to adapt to these changes, and may be inundated by the end of the century if they are not able to accrete sediment and/or migrate to higher elevations. Placing sediment in appropriate locations will be needed to ensure that Bay species have sufficient habitat into the future. Placement of significant volumes of sediment will be particularly important in tidal marshes to build transition zones, increase marsh plain elevation, and create high tide refugia for species. Placement of sediment may also be necessary in shallow intertidal or subtidal areas to increase mudflat elevation or to increase the sediment that can be transported by natural processes to adjacent marshes to increase marsh plain elevation. Little is known about how subtidal areas will adapt to sea level rise or the need for sediment in these areas. Limited knowledge about deep water habitats makes it difficult to predict how major changes, including sediment placement, in these areas may adversely affect fish, other aquatic organisms, and wildlife.	I support the addition of this policy; however, it would be better if it were extended to include other types of fill placement for habitat purposes. Shells, gravel beaches, oyster reefs, and hybrid grey-green structures are important and worthy habitat enhancements in intertidal and subtidal areas. Please consider adding text to that effect.
9 10	l (p 12)	…Placing smaller volumes of fill incrementally could serve the function of facilitating habitat adaptation to sea level rise while also minimizing impacts of fill to fish, other aquatic organisms, and wildlife.	I concur that the dynamic described in this policy *could* take place, but it may do so at added cost to the project proponent. Also, would the Commission require repeated permitting processes for this smaller repeat placements? Or could they be covered under the initial permitting process? Also, adding the word "beneficial" before "fill" would align this policy item with the rest of these changes by differentiating it from traditional fill types.

	Section	Policy/ Staff Report Text	Response
11	5 (p 14)	The Commission may permit ~~a minor amount of~~ fill or a minimum amount of dredging ~~in wildlife refuges, shown on the Plan Maps,~~ necessary to enhance or restore fish, other aquatic organisms and wildlife habitat; or a minor amount of fill ~~or~~ to provide public facilities for wildlife observation, interpretation and education.	I support this proposed policy change. But I also encourage its expansion to include a minor amount of fill for improvements to existing levees and berms that would allow associated wetland or other habitat restoration projects to proceed. As the Commission likely knows, the existing salt pond berms do provide some of that current protection but are inadequate to allow restoration to proceed now or to resist impacts associated with sea-level rise.
12	6 (p 15)	Habitat restoration or enhancement projects in the Bay that need fill to adapt to rising seas should plan for repeated placements of fill over time to allow habitat to adapt incrementally to sea level rise projections, reducing the need for large scale habitat loss and conversion prior to the onset of future conditions, unless the Commission finds that fewer, larger placements of fill minimize impacts to Bay organisms or that small, repeated fills are not feasible	We recommend adding the following sentence: "The Commission will cover smaller repeat placements under a single permit rather than requiring a new permit process for each placement."
	Tidal Marshes and Tidal Flats		
13	r (p 19)	Staff analysis comment: While these projects can be permitted under BCDC's current policies, their importance as a research and learning mechanism are not acknowledged in the Bay Plan.	Will these projects be made somewhat easier to permit by the current updates and policy changes?
14	6 (p. 22)	Design and evaluation of the project should include an analysis of: …(k) how the project adheres to regional restoration goals; (l) whether the project would be sustained by natural processes; and (m) how the project restores, enhances, or creates connectivity across Bay habitats at a local, sub-regional, and/or regional scale.	Please add a new sentence that states, "If appropriate to the scale and scope of the project, design and evaluation of the project should also include…" This addition would reduce the undue burden on smaller projects that may occasionally need maintenance or other adaptive management actions.

	Section	Policy/ Staff Report Text	Response
15	7 (p. 23)	Habitat projects should have a funding plan for monitoring and adaptive management of the project, commensurate with the level of monitoring and adaptive management that the required for the project.	This is a lot to ask of agencies that are implementing large, long-term habitat restoration or enhancement projects. They generally do not have total control over their own budgets, and their ability to get grant funded is strong but not complete. How certain is this "funding plan" expected to be? What happens if there is a good plan that doesn't get fully realized over the longer term? Please consider eliminating this requirement or adding a definition limiting the " funding plan" to a demonstration that cost estimates for monitoring and management were included in the project budget and that the project proponent has a reasonable expectation (and not a guarantee) of obtaining that level of funding over time.
	Subtidal Areas		
16	4 (p 29)	Habitat projects should have a funding plan to monitor and adaptively manage the project, commensurate with the level of monitoring and adaptive management that the project will require	Please consider changes similar to those I proposed for "Tidal Marshes and Tidal Flats, Policy 7".
17	5 (p 30)	The Commission should encourage and support regional efforts to collect, analyze, share, and learn from habitat monitoring data.	I support this policy change so long as it doesn't actually *require* these regional efforts of all individual project applicants. That could be too much of a burden in some cases.
	Dredging		
18	n (p 32)	…~~The Commission has approved a pilot project, the Oakland Middle Harbor enhancement project, that could help to determine the feasibility of eelgrass or other shallow water habitat enhancement or restoration in the Bay~~	I support this removal of a finding related to a specific individual project from the Bay Plan.
19	11(a) (p 32)	A project that uses dredged sediment ~~material~~ to create, restore, or enhance Bay or certain waterway natural resources…	The word choice in this proposed change seems unnecessarily limiting. Please clarify whether bay muds, cobbles, or other sizes of material are considered sediments. If so, then I have no objection to the terminology change.

	Section	Policy/ Staff Report Text	Response
20	11(a)(1)(c) (p 33)	the amount of dredged <u>sediment</u> ~~material~~ to be used would be the minimum amount necessary to achieve the purpose of the project;	This language seems overly restrictive. There's a "minimum" amount that may be necessary to achieve the very minimal amount of benefits necessary to be considered "successful". But there are many cases in which additional placed fill/dredged material could achieve *greater* benefits in terms of habitat value, sea-level rise resilience, establishment of healthy tidal marsh, how long a restoration project takes to succeed, etc. Why limit it in this way and thus reduce those environmental benefits? I suggest rephrasing to "the amount of dredged sediment allowed to be used would be limited to that which provides additional benefits in terms of habitat values, ecological functions, and sea-level rise adaptation;" or something similar to that.
21	11(b)(3) (p 35)	~~The Oakland Middle Harbor enhancement project, if undertaken, is completed successfully.~~	I support the removal of this policy for the reasons given in the Staff Report. I strongly support the removal of this section of the policy, even if the rest of the policy is retained.
	Shoreline Protection		
22	Entire section (p. 38)	*Suggestion for new policy.*	I strongly suggest adding a policy that allows adding fill that is specifically for improvements to existing levees and berms associated with a habitat restoration project, in order to allow the associated wetland or other habitat restoration work to proceed without decreasing shoreline protection or increasing flood risk. In many places around the Bay, the existing berms of former salt ponds, grazing areas, dredge disposal sites, or other hydraulically isolated areas currently provide protection but are inadequate to allow restoration to proceed now or to resist impacts associated with sea-level rise unless they are raised or otherwise improved. These types of improvements should be formally permissible under the Commission's Bay Fill Policy.

Thank you for your consideration of the above comments. Please feel free to call (650) 814-0588 or email me at dave.halsing@scc.ca.gov if you'd like to further discuss any of these points.

Sincerely,

Dave Halsing, Executive Project Manager
South Bay Salt Pond Restoration Project

DUCKS UNLIMITED

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June 7, 2019

BCDC Commissioners
455 Golden Gate Avenue, Suite 10600
San Francisco, California 94102

RE: Support for Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies

Dear BCDC Commissioners,

Ducks Unlimited is the world's leader in wetland conservation. We are a 501(c)3 organization that specializes in the planning and implementation of wetland conservation projects throughout North America. We work closely with federal, state, local, and private entities to protect, restore, and enhance wetlands that benefit waterfowl, other wildlife, and people. The San Francisco Bay is one of our top 5 continental priority landscapes. As such, our team of conservationists stationed in our Vallejo field office provide valuable financing, planning, and implementation services to Bay Area wetland conservation partners.

Ducks Unlimited supports the Bay Conservation and Development Commission (BCDC)'s desire to update the Bay Plan to allow fill for habitat projects. Ducks Unlimited believes that an update to the Bay Plan to facilitate fill for habitat benefits has the potential to help our and our partners' ability to achieve well established objectives for the restoration and enhancement of San Francisco Bay wetlands, estuarine habitats and associated uplands, and to help make San Francisco Bay more resilient to rising seas. We believe that this potential can only be achieved if carried forward in a manner that both considers the best available science and facilitates conservation of bayland habitats. Conversely, an update to the Bay Plan that adds regulatory
1 burden, lengthens and adds complexity of studies, increases project costs, and fails to recognize the dynamic nature of San Francisco Bay will hinder the restoration community's ability to achieve our shared restoration goals and objectives by the 2030 timeline.

As proposed, Ducks Unlimited has serious concerns that the proposed changes will increase
2 regulatory burdens, extend timelines, and expand BCDC's jurisdictions, all of which will make the restoration of historic baylands much slower and costlier, and render achieving the 2030 timeline impossible. BCDC has a seminal opportunity to help the restoration community
3 achieve its ambitious 2030 timeline to implement voluntary restoration projects funded by public dollars to directly benefit the public. By implementing the recommended changes below, BCDC can implement badly needed policy changes that would aid BCDC's staff and Commission

in authorizing fills that will increase restored habitat value for fish, birds, and other wildlife, and increase the resilience of our bay and by extension, the communities surrounding the bay.

Wetlands provide tremendous societal benefits through the ecosystem services they provide including flood protection, wave attenuation, water filtration, groundwater recharge, nursery grounds for fish, and habitat for endangered species, to name a few. Historically, more than 200,000 acres of tidal wetlands fringed San Francisco Bay. In 1999, the Baylands Ecosystem Habitat Goals project, a multiagency effort to identify what kinds and amounts of wetland habitats around the Bay are necessary to sustain its health, set a goal of restoring 100,000 acres. Yet since then, only 15,000 acres are now restored. The recent climate change update (2015) found that **restoring at least 50,000 is critical to protect the health of the Bay as it faces sea level rise by 2030**. Bold actions and policies promoting wetland restoration are needed to achieve this minimum acreage goal in the time remaining.

4 In order to meet this ambitious timeline we strongly urge the Commission to seek ways to encourage and facilitate restoration and enhancement projects; recognize that bay shoreline
5 and wetland distribution will change through time and so implement policies that both allow for and facilitate managed retreat away from the bay shoreline as sea level rises; limit the
6 amount of new structures at the bay edge requiring fortification, including new public access
7 infrastructure; recognize habitats can have value now and into the future, and that those values
8 can change through time and space; create policies that recognize the vital importance
9 wetlands have to all of us; and create a process that facilitates voluntary wetland restoration and enhancement projects by incentivizing voluntary projects and reducing the regulatory burdens for said projects rather than subjecting conservation projects to the same or more stringent requirements as development projects that degrade, impact or eliminate habitat.

10 Habitat conservation projects are one of the best ways to increase the bay's resilience. BCDC must create flexibility and innovation in its approach to these projects, and incorporate the expertise of practitioners for planning, monitoring, and implementing them for the conservation community to meet regional conservation goals and timelines. As a Board Member of the San Francisco Bay Joint Venture (JV), we know firsthand the varied and extensive habitat conservation expertise of the partnership. The JV prides itself as being a strong technical and scientific resource for its partners, including BCDC. We recommend that
11 the JV partnership is used as a resource to inform, educate, and recommend to BCDC staff of the adequacy and appropriateness of project design level, monitoring needs, and adaptive management plans as they relate to multiple findings in the draft document.

Here are a few specific recommendations that will help achieve the vision laid out in the Baylands Habitats Goals Report (1999) and Goals Report Science Update (2015):

12 -Reduce the financial burden put on restoration and enhancement projects by eliminating
13 permit fees for these projects, by limiting research, studies, and monitoring efforts to the
14 minimum amount needed to verify habitat benefits, and by limiting the BCDC compliance timeline for habitat restoration and enhancement projects.

15 -Develop a BCDC regional permit that is specific to restoration and enhancement projects that authorizes habitat restoration and enhancement projects that have a net benefit to the environment either through creating more waters/wetlands or improving the functions and services of waters/wetlands and their adjacent habitats, regardless of size, in accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies. This will streamline permitting and encourage the restoration of historic baylands. Limitations to use of this regional permit should be based on significant impacts under CEQA or NEPA, rather than a size limitation.

16 - Reduce or remove the current monitoring burdens from projects with successful, proven methodologies, and shorten the time frames for monitoring to periods that are on par with requirements from other agencies.

17 - Add allowances for beneficially re-used dredge sediment to dry out so it can be shaped and used for upland transition zone and upland refugia construction. Defer to the agencies with the expertise to render these decisions (i.e. SWRCB or RWQCB).

DU's comments on the draft update of the Bay Plan fill for habitat policies fall into two main categories, first and most critically, categories where we feel changes need to be incorporated to benefit bay habitats, and second, to reduce implementation timeline, cost, and/or uncertainties. The second category includes draft findings that could be modified to add clarity.

1. Changes that need to be incorporated to benefit bay habitats and reduce implementation timelines and/or uncertainties
    a. 18 Page 11. Section J. Reframe to recognize habitat conversion will happen because of natural processes accelerated by sea level rise, and to recognize positive nature of habitat restoration projects.
    b. 19 Page 12. Section I. Reduce the prescriptions about fill volumes and timing. While I agree that placing small volumes of fill incrementally would result in smaller perturbations, this will be very costly, and in some cases infeasible. It is hard to know what a staff member will consider a "small amount. Relate fill quantities to habitat restoration project goals, objectives, and timelines. While placing small volumes of fill incrementally likely would result in smaller environmental perturbations, this will be far costlier, and in some cases infeasible. We recommend creating more flexibility in this finding so that sediment availability, restoration project demand, and logistics can all be considered. Current, region-specific sea level rise predictions should guide conservation planning and 20 implementation to ensure we have ample bay habitat types, including upland transition and adjacent undeveloped uplands, into the future. Specific mixes of

habitats should be evaluated based on habitat restoration project goals and objectives, sea level rise projections, and other considerations such as feasibility of getting dredge or upland material to the site both now and in the future.

c. Page 13. Section 2. Remove this section and defer to California Department of Fish and Wildlife, National Marine Fisheries Service, and US Fish and Wildlife Service to provide conservation measures for state and federal threatened and endangered species. There are multiple issues with the draft policy, as described below. Creating policies regarding species that overlap with the polices overseen by other agencies creates the potential for conflict where conservation measures differ between agencies. Furthermore, protecting species behind man-made structures, like dikes, both conflicts with the draft policy on siting a project in an appropriate landscape position and would result in an extremely costly and intensive management burden for the landowner. While there may be reasons a landowner would choose to do so in certain circumstances, this should not be policy. The finding as written creates a high potential for conflicts. For example, a species like red-legged frog in diked baylands could be protected under this finding in a historic bay habitat that would not have been historically suitable habitat for red legged frog, is a population sink and will require intensive management to maintain behind dikes.

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d. Page 15. Section 6. Recommend changing text to: "Habitat restoration or enhancement projects in the bay that need fill to adapt to rising seas should use best available and regionally applicable science possible to support recommendations for fill quantities and should relate fill quantities to habitat restoration project goals, objectives, and timelines." As written, the draft text seems overly prescriptive and a one size fits all approach. It is also worth thinking through project size in relation to this question, as well as habitat restoration project goals and objectives, cost, and effort - if we make repeated fills too cumbersome from a cost, permitting, time perspective, they simply won't get done as often. It may be better to allow for repeated placements of fill but also recognize where we can work with natural processes to sustain habitats, we want to do that. Also, it is possible to envision a project that builds all of this into that. Today's marsh is tomorrow's subtidal habitat, and tomorrows wetlands are today's uplands.

22

e. Page 15. Section 7. Recommend changing text to, "Allowable fill for habitat projects in the bay should be scaled appropriately for the project and necessary sea level rise adaptation measures and should not result in the loss of species within an embayment or on a regional scale". At a minimum, recraft to clarify that we are not living in a static environment and to clarify intent. We are living in a changing environment in a period of increasingly rapid change. Balances (number and relative abundance) of species and habitats within embayments or at a regional scale could change through time. Projects may well cause negative impacts to existing habitats, and these might be justifiable. Section 7(a). Amorphous and hard to achieve - recommend removing – there are numerous examples where the benefits of allowing fill for habitat projects in the Bay would

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outweigh negative impacts to existing habitats. Section 7(c). There is no known way to measure this. Clarify who must measure this and when. The way this is written precludes proactive actions to prepare habitats for marsh transgression – we recommend broadening language to reflect managed retreat/moving upslope.

24 f. Page 18. Section I. Recommend incorporating language that allows for multiple approaches to restore and sustain marshes. In the long term, fully connected tidal systems with intact processes are ideal, but in the short-term there may be other ways to help jump start the process, such as subsidence reversal and other actions requiring more intensive management.

25 g. Page 19. Section q. Recommend reframing this finding to recognize the estuary is a very dynamic place, and to recommend that project proponents consider natural processes in siting and planning their projects. It is important to recognize even when habitat restoration and enhancement projects don't achieve their goals and objectives on the timelines we anticipate, that they are providing valuable functions and services as well as habitats for birds, fish and other wildlife. For example, creating managed wetland systems in historic baylands may provide habitats that otherwise would not exist (e.g. Haire Ranch) for the short-term until a longer-term goal is made (such as full tidal restoration option). This doesn't mean that creating hundreds of acres of wetlands from Agricultural ground shouldn't occur and isn't valuable. This practice will halt and possibly reverse subsidence as organic matter builds elevation, as seen at Viansa wetlands.

26 h. Page 19. Section s. Recognize that coordinated regional monitoring will only work well if BCDC is part of the coordinated regional monitoring and does not add additional monitoring requirements. Otherwise, the applicant may choose to forego participation. The obligation to monitor projects for decades is slowly draining the available staff and resources from some of the biggest conservation organizations and agencies in the Bay, thereby slowing down restoration activities. Even with the passage of San Francisco Bay Restoration Authority Measure AA, funding need exponentially outstrips availability. Dedicating additional resources to planning, compliance, and monitoring will decrease the amount of habitat delivery on the ground.

27 i. Page 20. Section u. Recommend changing to frame in term of project goals and objectives, existing condition relative to proposed restored condition, location, and surrounding infrastructure/built environment. Further, risk should not be conflated with project size, therefore we recommend using risk, alone, as the driver for intensive monitoring and adaptive management, rather than project size, lifespan, or uncertainty

28 j. Page 21. Section 4. If this language is incorporated, recommend modifying either to an elevation contour measured from mean higher high water, or connecting with adjacent wetland and aquatic habitats, or consistent with San Francisco Bay Joint Venture Implementation Plan Revision recommendations, in preparation.

29 k. Page 21, Section 5. Recommend reframing to recognize managed retreat, as well as short term benefits.

30 l. Page 22. Section 6. This reflects a substantial number of new requirements (adaptive management plans, additional analyses during design and evaluation) that will add cost and time to project delivery. Recommend removing factors, such as additional analyses and intensive and lengthy monitoring plans, that increase cost, timeline, and complexity of conserving habitat. The more onerous requirements are, the less projects will be implemented by 2030 in accordance with the Goals Report Science Update (2015). Add language that recognizes both short term and long-term benefits of projects.

31 m. Page 23. Section 7. Recommend making amount, duration, extent of monitoring and complexity of adaptive management plan consistent with risk, and inversely proportional to habitat benefits. This is another example to adding planning, design, and monitoring burden to projects that will make them take longer and cost more. Monitoring data that is collected should be limited to the minimum level needed to ascertain a project is meeting its goals and objectives. In our experience state, federal, and private restoration entities do not have a monitoring budget to guarantee funds for a twenty plus year obligation, and some of these entities must comply with legislation that limits their abilities to commit to financial obligations like these. Furthermore, to the extent monitoring data are collected, we recommend that these data are meaningful, and are analyzed to inform future actions on a regional scale.

32 n. Page 25. Section 11. Recommend adding clarifying language to indicate this will be done on a regional scale, such as wetlands regional monitoring program, not individual restoration projects.

33 o. Page 26. Section J. Consider including aged concrete for habitat purposes -- Oyster shells are expensive and challenging to procure. If oyster restoration efforts continue to be scaled up, it may become increasingly difficult to get 'baycrete'

34 p. Page 26. Section k. Recommend BCDC be open to authorizing pilot and demonstration habitat enhancement projects where proof of concept exists from similar landscapes, such as thin layer deposition used on east and gulf coasts.

35 q. Page 27. Section n. Recommend removing size as a consideration for adaptive management. Relate adaptive management to potentially significant impacts to habitats or species rather than size.

36 r. Page 28. Section o. Recommend removing this finding. This is arbitrary. If finding is retained, recommend reframing to recognize beneficial nature of habitat restoration projects rather than asking project proponents to prove their projects are beneficial. See comments under Page 19. Section q.

37 s. Page 29. Section 4. Recommend removing size as a monitoring trigger.

38 t. Page 37. Section 11b. Create flexibility over lifetime of this plan to scale up these projects for beneficial reuse. Recommend adding", and support scaling them up when and if additional information supports doing so."

39 u. Page 39. Section h, Staff Analysis. Change penultimate sentence to reflect that tidal marshes and tidal flats do not attract waterbird species of large enough size to be of concern to airports.

40 v. Page 39. Section i. Beneficial projects are beneficial in nature and do not require mitigation.

41 w. Page 40. Section 4. Do not require projects to evaluate things that are not feasible or appropriate. This is not a cost they should not have to bear.

42 x. Page 40. Section 5. Recommend reframing to recognize natural resources as separate from public access.

43 y. Page 40. Section 6. Recommend adding, "for techniques that have not been tested in similar conditions and support scaling them up when and if additional information supports doing so."

2. Changes recommended for clarity or correctness

44 a. Page 6. Section 4.g. Recommend including waterfowl and other waterbirds; recommend including subsidence reversal in discussion of services provided.

45 b. Page 8. Fish, Other Aquatic Organisms, and Wildlife, draft finding a. Recommend inserting 'native or commercially important' before fish, other aquatic organisms, and wildlife. Also recommend thinking about intent behind adding 'plants and seaweed' and clarifying language around that. Recommend considering habitat types other agencies protect, such as eelgrass, other native Submerged Aquatic Vegetation (SAV), and wetlands.

46 c. Page 13. Section 2. Wording is unclear. Does this include any native species, and threatened and endangered species and species that the CDFW, NMFS, and USFWS have determined are candidates? Is "substantial public benefits" described somewhere? If not, recommend removing this language.

47 d. Page 17. Section k. Last sentence – recommend changing to, "...<u>these functions and services</u> are limited in the long-term unless connected to other higher elevation areas of land."

48 We commend the Commission in the timely amendment of the Bay Plan. The Commission was formed at Save the Bay's urging through passage of the McAteer-Petris Act in 1965 to "prevent indiscriminate Bay fill." The voluntary, publicly-financed wetland restoration projects that come in front of the Commission are not indiscriminate. Rather, they are highly coordinated and planned for maximum societal and environmental benefits.

49 Page 43 references an Environmental Assessment that was prepared. Please provide us with a copy of that document. We request that an EIR/EIS be prepared for the proposed action. The
50 lack of public outreach and involvement has substantially reduced the required transparency of a federal or state agency decision making policies and procedures. Page 43 further states that the Bay Plan amendments themselves do not have significant adverse environmental effects.
51 We feel that as written, the new requirements in this update will significantly reduce the amount of habitat restoration that will occur due to significantly increasing project timelines,

significantly adding project planning and implementation costs, and significantly increasing post project monitoring and adaptive management costs.

52 Page 45 references "self-mitigating" restoration projects. By their nature, they are not mitigation. They are net beneficial projects and describing them as self-mitigating reflects a fundamental mischaracterization of these projects. Why would a beneficial project need to mitigate? How can we reasonably expect to ever get close to restoring the historic footprint of habitat in the San Francisco Bay if we further burden and restrict the voluntary wetland restoration and enhancement activities that the conservation community (including folks like CDFW, USFWS, NOAA NMFS) are trying to move forward.

We ask the Commission to continue a legacy that positioned San Francisco Bay as an innovative world leader of progressive wetland restoration techniques/projects for addressing sea level rise, and to ensure this legacy persists for future generations of Bay Area residents. We appreciate your consideration and will gladly engage further to provide clarification on any of our comments. We look forward to an updated plan that substantially supports, facilitates, and advances restoration efforts in San Francisco Bay.

Best regards,

Mark E. Biddlecomb, Director
Western Regional Office

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JUN 13 2019

Megan Hall
San Francisco Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102-7019

Dear Ms. Hall:

Thank you for the opportunity to comment regarding the **Preliminary Recommendation for the Proposed Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies**. Attached please find USEPA's specific comments to assist in the development and updating of Bay Plan policies for habitat restoration and resiliency to sea level rise.

I was fortunate to work as staff from 1988 – 1992 developing the first Comprehensive Conservation and Management Plan (CCMP) for the San Francisco Estuary. The CCMP under the stewardship of the SF Estuary Partnership (SFEP) and the Regional Monitoring Program for Water Quality (RMP) under the stewardship of the San Francisco Estuary Institute have created a high level of agreement among agencies, scientists, regulated community, environmental advocates and the public for the actions necessary to protect the Bay. Science is now informing us that the appropriate use of fill for habitat is essential to the continued protection and improvement of SF Bay.

EPA is committed to working collaboratively to continue this progress. In addition to supporting SFEP and the *Baylands Ecosystem Goals Project*, we are supporting other activities that are consistent with the purpose of the proposed Bay Plan revisions. We are providing financial and technical support to develop a regional wetland monitoring program. Like the highly successful RMP, we envision a regional approach for wetlands monitoring that will provide high quality information to advance restoration and resiliency. EPA's SF Water Quality Improvement Program has invested over $50 million to restore wetlands, restore water quality, and implement green development practices that use natural hydrologic processes to treat polluted runoff. We remain active partners in the Long-Term Management Strategy for the Placement of Dredged Material (LTMS) and want to see continued progress on the LTMS goal to maximize the use of dredged material as a resource. Dredged material will be an important source for the fill necessary for successful habitat restoration. Finally, we are excited to be assisting the Bay Restoration Regulatory Integration Team (BRRIT) to improve the permitting process for the many habitat restoration projects that are anticipated in the coming years. Related to BRRIT, we are supporting a study to develop an analysis framework to evaluate the conversion between differing wetland habitats, which among other uses could aid the permitting process.

As a BCDC Commissioner on behalf of USEPA and a member of the Bay Fill Policies Working Group, I commend you and your colleagues for preparing these recommendations for public review and subsequent consideration by the Commission. If you have any questions concerning these comments, please contact me (ziegler.sam@epa.gov) or our technical experts Jennifer Siu (siu.jennifer@epa.gov) and Luisa Valiela (valiela.luisa@epa.gov).

Sincerely,

Samuel G. Ziegler
Chief, Wetlands Section

Attachment

EPA Comments on BCDC Proposed Bay Plan Amendment No.1-17 Concerning the Update of the Bay Plan Fill for Habitat Policies (as dated May 21, 2019)

Major Conclusions and Policies

1 **P.6 item 4g.**

Suggest adding following as last sentence:

"There is broad agreement and recognition, including among scientists and resource agencies, that fill will be essential to the successful restoration and expansion of tidal marsh and other aquatic habitat in SF Bay."

Ensure that language added here is consistent, if not the same, as language for draft policy change #9 under Tidal marshes and tidal flats on page 24. This should be a statement that clearly explains that adding fill to tidal marshes and other aquatic habitats is justifiable fill for successful restoration in the long term.

2 **P.6 item 5a.**

After "Filling..." insert the following before "...can negatively affect..."

"not for the purpose of well-designed habitat restoration"

Add "for development" after "Future filling" (2nd sentence)

Replace "..delicate balance created by nature, and.." with "..highly modified and urbanized setting.." (3rd sentence)

Add "non-maintenance" before "dredging project" (3rd sentence)

3 **P.7 item 5b.**

This section does not reflect current science; suggest deleting. At least change "almost always increases" in first sentence to "may increase".

Fish, Other Organisms, and Wildlife

4 **P.8 item b.**

Add "suspended" before "sediment concentration". Water clarity, as a function of suspended sediment concentration and total suspended solids, is assumed to be covered under the "water quality" term. We are unclear of the intent of adding sediment concentration in this section, as it seems to be mixing concepts of turbidity and sediment availability.

5 **P.9 item e.**

Change "or" to "and" as follows" essential fish habitat and critical habitat"

6 **P.11 item j.**

In first sentence delete "convert" and substitute "changed". In addition, delete last two sentence and insert the following:

"The best available science will need to guide decisions that will cause habitat type conversion to ensure the viability of species or habitats locally, within an embayment, or on a regional scale. A Wetlands Regional Monitoring Program would be an appropriate approach to determine the best available science to inform agencies, landowners and interested stakeholders on rates and distribution of change of wetland types so that ecologically appropriate decisions and/or interventions/actions can be made."

7 **P.11-12 item k.**

In second sentence delete "declining sediment supply". Replace with "changing" sediment supply.

Suggest better reflection of current scientific understanding of the Bay's sediment supply in the Staff analysis section and by extension in the Findings, which has summarized the issue as "declining sediment supply". That statement fails to provide the necessary understanding that suspended sediment rates are not expected to decline indefinitely, that the step change being experienced currently is a function of reduced delivery from the Delta (and other factors if more detail is warranted), that a new equilibrium is likely, and that in some sub-embayments, such as the lower south bay, there is still sufficient suspended sediment supply to support tidal wetlands restoration.

8 **P.12 item l.**

This section appears to be establishing a "Finding" that multiple applications of small amounts of fill will always be preferred over placing a large amount of fill based on an assumption of impacts to fish and organisms and type conversion. The assumptions made on impacts should be analyzed on a case by case basis using best available science, especially since it is likely that some places in the Bay will experience impacts from sea level rise more rapidly than others and designs to implement projects should be in response to site specific conditions that may include proposals for placement of large volumes of fill to achieve the project purpose which is long term success of restoration projects.

9 **P.15 item 6**

Current proposed language may over emphasize the use and applicability of thin-layer placement, rather than providing for its use when appropriate for achieving the goals of specific restoration project.

Change "should" to "may" and revise as follows:

Habitat restoration or enhancement projects in the Bay that need fill to adapt to rising seas <u>may</u> plan for repeated placements of fill over time to allow habitat to adapt incrementally to sea level rise projections unless small, repeated fills are not feasible or larger placements of fill achieve more significant habitat and related project goals while minimizing negative impacts to Bay habitats and species.

See comments on item l.

10 **P.15 item 7**

Revise as follows:

Allowable fill for habitat projects in the Bay should (a) maximize net habitat benefits within an embayment or on a regional scale consistent with regional goals; (b) avoid and minimize to the extent practicable negative impacts to existing habitats and species; (c) be scaled appropriately for the project and necessary sea level rise adaptation measures.

Tidal Marshes and Tidal Flats

11 **P.19 item r.**

For clarity it would be helpful to know the distinction between pilot and demonstration projects in this context or if assumed to be used as synonymous.

12 **P.20 item t.**

Adaptive management can be used for restoration projects because they are complex systems and because there is uncertainty, not necessarily due to "high levels of uncertainty."

13 **P.22 item 6**

In first sentence, change "program" to "plan" before "a monitoring" and delete "to assess benefits, impacts, the likelihood of success, and sustainability of the project." As an alternative, end the first sentence after "...monitoring plan." And begin next sentence with "To assess benefits, impacts, the likelihood of success, and sustainability of the project, design and evaluation of the project should include...

14 **P.23 item 7**

Revise second sentence as follows:

"Monitoring and adaptive management plans should have a funding component, commensurate with the level of monitoring and adaptive management required for the project."

15 **P.23 item 8**

Add the following:

"Monitoring required for habitat restoration projects should be coordinated with regional efforts and other monitoring to improve the value and usefulness of data, and if possible reduce the cost of project-based monitoring."

16 **P.25 item 10**

In first sentence, delete "should encourage and" and insert "may".

Delete "when the potential benefits are greater than the potential risks. These projects should..."

Combine first and second sentences then to read as follows: "The Commission may authorize pilot and demonstration projects that include appropriately detailed..."

Delete third sentence "Project outcomes should be analyzed and reported expeditiously, so that findings can be applied to future projects." Replace with "Pilot project outcomes and lessons learned should be analyzed and reported expeditiously and shared widely but are not intended to preclude permitting of other pilots projects."

17 **P.25 item 11**

In first sentence, delete "and action" and insert "which may include pilot and demonstration projects"

18 **P.25 item 11a.**

Insert after "...investigate fill placement approaches" and insert "and the beneficial reuse of dredged sediment"

19 **P.29 item 3(c)**

Delete "Bay's" and insert "local"

20 **p. 30 item 7**

Insert "subtidal" after "authorized for"

At end of sentence delete "that no other method of enhancement or restoration except filling is feasible." and replace with "filling is the best available method of enhancement, restoration or sea level rise adaptation."

21 **p.31 item 8**

Revise, similarly as suggested revision to p.25 item 10, as follows:

Delete "should encourage and" and insert "may".

Delete "when the potential benefits are greater than the potential risks. These projects should..."

Combine sentences then to read as follows: "The Commission may authorize pilot and demonstration projects that include appropriately detailed..."

22 **Dredging**

The draft Findings and Policy Changes should be revised to more accurately represent the broad consensus that significant volumes of dredged sediment will be needed at habitat sites in tidal waters to maximize habitat restoration and sea level resiliency. The current understanding regarding the need for reuse of dredged sediment and where such use is most appropriate is described in the staff analysis but has not been sufficiently incorporated into the draft findings and policies. We agree with the BCDC staff analysis that "The level of detail in this policy may be better accomplished through a guidance document rather than the Bay Plan, or could be captured by simply by referring to the use of the best available science on these matters."

23 **P.32 item n.**

We already are building scientific and technical knowledge that supports the "need for" and "potential effects of" using suitable dredged material for habitat restoration. More studies are certainly warranted to iteratively refine the science. Perhaps modify language to generally state "Continuation of Baywide studies to support the use of dredged sediment for eelgrass or other shallow water habitat enhancement or restoration."

24 **P.32 item 11.a(1)b**

Suggest deleting this sentence as it no longer reflects our current critical need to maximize use of suitable dredged sediment for restoration actions.

25 **P.33 item 11.a(1)d**

Suggest deleting this sentence; water quality may be temporarily impacted from dredged material disposal, but the restoration will have long-term positive impacts on beneficial uses and water quality.

26 **P.33 item 11.a(4)**

Suggest deleting this sentence as it no longer reflects our current critical need to maximize use of suitable dredged sediment for restoration actions and requires mitigation if have net loss of area or volume. Restoration projects, if designed according to all the other policies, will result in net ecological and societal gain, so focusing on volume and area seems short-sighted. Suggest instead focusing on best available science.

27 **General comment on this section:** Changing dredged "material" to "sediment" throughout this section may unnecessarily limit the use of upland soils as potential suitable fill in certain appropriate scenarios.

SFO

San Francisco International Airport

June 6, 2019

Larry Goldzband, Executive Director
Brad McCrea, Regulatory Director
Shannon Fiala, Planning Director
San Francisco Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102-7019

TRANSMITTED VIA EMAIL

Subject: **Staff Report and Preliminary Recommendation for Proposed Bay Plan Amendment No. 1-17 Concerning the Update of the Bay Plan Policies**
(For Commission Consideration on June 20, 2019)

Dear Mr. Goldzband, Mr. McCrea and Ms. Fiala:

The San Francisco International Airport is pleased to comment on the proposed Bay Plan Amendment No. 1-17 before the Bay Conservation and Development Commission (BCDC). BCDC proposes adding finding (h) to its Shoreline Protection Policy to acknowledge that "[i]n some cases, natural solutions that support wildlife may conflict with adjacent land uses, such as aviation operations." BCDC further proposes amending Shoreline Protection Policy No. 4 to read as follows:

> All shoreline protection projects should evaluate the use of natural and nature-based features, such as marsh vegetation, levees with transitional ecotone habitat, mudflats, beaches, and oyster reefs, and should incorporate these features to the greatest extent practicable. Ecosystem benefits, including habitat and water quality improvement, should be considered in determining the amount of fill necessary for the project purpose. Suitability and sustainability of proposed shoreline protection and restoration strategies at the project site should be determined using the best available science on shoreline adaptation and restoration. *Airports may be exempt from incorporating certain natural and nature-based features.*

1 The Airport appreciates BCDC's inclusion of an exemption for airports and its acknowledgment of the "high risks to human life and property posed by potential collision of airplanes with birds (which are attracted by certain natural and nature-based features)." Because of the potentially
2 significant public safety hazard posed by placing wildlife attractants near airports, the exemption should be mandatory where natural and nature-based features might attract wildlife. The Airport proposes updating the exemption language slightly to state:

> 3 Airports shall be exempt from incorporating natural and nature-based features that could endanger public safety, such as by attracting potentially hazardous wildlife.

Post Office Box 8097 San Francisco, California 94128 Tel 650.821.5000 Fax 650.821.5005 www.flysfo.com

If you have any questions or would like to discuss this matter further, please feel free to contact me at Martha.Whetstone@flysfo.com or (650) 821-5032. Thank you for the opportunity to comment and for your consideration.

Sincerely,

Martha Whetstone

Martha Whetstone
Government Affairs Manager

cc: Dave Pine, San Mateo Board of Supervisors
John Ballesteros, SFO External Affairs Director
Cathy Widener, SFO External Affairs
Joe Birrer, SFO Director of Engineering and Construction Services
Nixon Lam, SFO Environmental Affairs Manager

Marin Audubon Society

P.O. Box 599 | Mill Valley, CA 94942-0599 | marinaudubon.org

June 13, 2019

Zack Wasserman, Chair
Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

RE: COMMENTS ON AMENDMENTS TO BAY FILL POLICIES

ATT: MEGAN HALL

Dear Chair Wasserman and Commissioners:

This is to convey Marin Audubon Society's strong support for the proposed Bay Plan amendments to the *Fish, Other Aquatic Organisms and Wildlife, Tidal Marshes and Tidal Flats, Subtidal Areas, Dredging, Shoreline Protection* policies of the Bay Plan. Our comments are based on more than 40 years of advocacy work on behalf of Bay habitats, and also our experience restoring marshes over the last 25 years. During that time, we have obtained many permits from BCDC and other regulatory agencies. To ensure the Bay resources are not lost, it is essential that the Commission move forward quickly to approve the changes that will adapt BCDC to sea level rise and allow permits to be issued that will encourage nature based adaptations.

1 We are particularly pleased with the emphasis on wildlife habitats, and the recognition of the value of natural habitat systems to protect the bay shoreline. It is essential that the permitting process for the amendments encourage projects by moving them forward expeditiously. We have a few specific recommendations to strengthen the Policies:

2 *FISH AND OTHER AQUATIC ORGANISMS Policy* 6 – Repeated applications of fill have the potential to benefit habitats but also could have negative impacts as stated. Other issues could include availability of sediments on ongoing basis, a lack of storage areas where sediments can be stockpiled as necessary to allow repeated applications, or incompatibility with the project design. Instead of "should plan for repeated placement" change to something like "consider repeated placement if it would reduce resource impacts, is compatible with the project design and is feasible."

3 *DREDGING* - A policy to ensure dredgers direct dredged sediments for reuse in marsh restoration projects is critical. It will do no good to encourage beneficial reuse if the reuse material is not available.

4 *TIDAL MARSHES AND TIDAL FLATS Policy* 4 - This policy alerts local governments that their land use and tax policies should not lead to conversion of restorable lands. As BCDC does not have the authority to require local jurisdictions to change their policies or ordinances, it might send a stronger message to change Policy 4 to alert local governments and developers that BCDC will require applicants to demonstrate why their project should take precedent over restoration and/or will not impede future nature based SLR efforts. We agree the public should be purchasing restorable lands.

5 *TIDAL MARSHES AND TIDAL FLATS Policy* 10 - We suggest encouraging both demonstration projects and projects based on proven techniques. While demonstration projects are certainly to be encouraged, giving preference to them could, over time, mean delays for projects based on proven methods. Projects that are using well-vetted methods should also be encouraged, along with demonstration projects. This could be done in Policy 10 or in a separate policy.

6 Policies under various headings call for a funding plan for monitoring and adaptive management. It should be clarified that a requirement for a funding plan does not mean funding must be confirmed, but could consist of possible sources that would be approached and confirmed at a later time. Otherwise, permits for applicants such as Marin Audubon, that are not able have immediately available funding, would have to be denied.

In conclusion, we emphasize the importance of approving these amendments, with our recommended changes, and establishing an expeditious permitting process in keeping with the urgent need to further nature based adaptations to sea level rise.

Thank you for considering our comments.

Sincerely,

Barbara Salzman, Co-chair
Conservation Committee

Phil Peterson, Co-chair
Conservation Committee

2001 Gateway Place, Suite 101E
San Jose, California 95110
(408)501-7864 svlg.org

June 10th, 2019

Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

Re: Support for Bay Plan Amendment No. 1-17

Dear BCDC Commissioners,

On behalf of the more than 330 members of the Silicon Valley Leadership Group, I am writing to express our support for the policy changes titled "Bay Fill for Habitat", Bay Plan Amendment No. 1-17, amending BCDC's *San Francisco Bay Plan*. 1

With sea levels expected to rise by an additional foot or more in the San Francisco Bay area by 2050 putting $100 billion worth of infrastructure, or more at risk, there is a need to expedite policies that promote adaptation to rising waters. We believe that the Commission should direct staff to produce a draft Bay Plan Amendment on Fill for Wildlife Policies as quickly as possible, especially after the years of effort that has gone into this process. 2

The Silicon Valley Leadership Group has helped foster sustainable solutions across different areas benefiting the region and is actively involved in climate adaptation and mitigation efforts for many years. The Leadership Group has advocated for swift and coordinated action in tackling sea level rise across the Bay Area and this proposal by the Commission resonates with this vision of a unified Bay Area rapidly acting to adapt to sea level rise. In short, we believe it is critical that the proposed changes to the San Francisco Bay Plan will help reduce project timelines and costs, and fully support this outcome. 3

Founded in 1978 by David Packard of Hewlett Packard, The Silicon Valley Leadership Group represents over 325 of Silicon Valley's most respected employers on issues, programs, and campaigns that affect the economic health and quality of life in Silicon Valley and California. Leadership Group members collectively provide nearly one in every three private sector jobs in Silicon Valley and generate more than $3 trillion in annual worldwide revenue.

If you have any questions on this issue, please do not hesitate to contact Mike Mielke, Sr. Vice President of Environment & Energy at 408-501-7858 or mmielke@svlg.org.

Respectfully,

Mike Mielke
Senior Vice President, Environment & Energy
Silicon Valley Leadership Group

Bay Planning Coalition

June 12, 2019

San Francisco Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

RE: Staff Report and Preliminary Recommendation for Proposed Bay Plan Amendment Concerning the Update of the Bay Plan Fill for Habitat Policies

Dear Chair Wasserman and Commissioners:

On behalf of the Bay Planning Coalition, a membership-based, public policy organization that advocates for strong economic growth while protecting the environmental sustainability of the San Francisco Bay, I'm pleased to provide input on the proposed amendments to the Bay Plan Fill for Habitat Policies. We applaud the Commission's work to amend the Bay Plan to incorporate the latest science and recognize the importance of fill for restoration and shoreline protection projects throughout the region. 1

Sea level rise poses a severe threat to the Bay Area and its economy, as a significant portion of the region's housing, jobs, and public infrastructure are currently at risk of flooding. A 1.0m sea level rise is estimated to flood up to 1,460 miles of roadways and 140 miles of railways around the San Francisco Bay, which would effectively grind the region to a halt. The estimated cost of replacing structures in the Bay Area ranges from $50-100 billion, and this cost will only rise as the waterfront continues to attract new housing and commercial development. Some of the largest companies in the world are located on the bayshore in Silicon Valley.

We propose that the Bay Plan amendments emphasize the opportunity to use Bay fill to protect critical public infrastructure and other existing and planning shoreline assets around the Bay Area. To this end, we suggest incorporating an additional justifiable use of fill in the *Major Conclusions and Policies* section to include: *h. Protecting existing or planned public infrastructure or shoreline assets*. The existing "justifiable filling" scenarios do not adequately consider the economic impact of fill placement and we urge you to incorporate this consideration. Similarly, we propose adding these economic considerations of fill placement to protect shoreline assets in the *Shoreline Protection* section, as well. 2 3

As sea level rise poses a severe threat to both the built environment and natural habitats in the Bay Area, it is critical that we work quickly and efficiently to restore Bay habitats and protect the array of shoreline assets across our region. Thank you for the opportunity to comment on the proposed amendments and we

Bay Planning Coalition

look forward to continuing to work with you to strengthen the resiliency of the Bay Area.

Sincerely,

John A. Coleman
Chief Executive Officer

May 31, 2019

Zachary Wasserman, Chair
San Francisco Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600
San Francisco, CA 94102

Dear Mr. Chairman and Commissioners:

1 We write with objections to language in the preliminary recommendation for Bay Plan Amendment No. 1-17 concerning the use of fill for creation of habitat in the Bay. As the organization that led the creation of BCDC and the Bay Plan decades ago, Save The Bay strongly supports Plan amendments that strengthen protection and enhance restoration of the Bay's natural resources, that improve protection of the public's right to access the Bay shoreline, and that protect water-dependent uses of the shoreline for commerce and recreation.

2 Save The Bay has for many years encouraged BCDC to recognize the urgency of adapting to climate change by updating Bay Plan policies, including to facilitate accelerated permitting and implementation of tidal marsh habitat restoration projects that require placement of fill. Most of the language recommended by staff this month does advance the goal of increasing habitat restoration using placement of appropriate fill material.

3 However, the suggested changes to dredging policy 11b undercut the original purpose and intent of that policy, which has still not achieved its goal. While few commissioners may know the history of dredging policy 11b, it was itself an amendment to the Bay Plan two decades ago whose sole purpose was to permit the Port of Oakland to place more than 5 million cubic yards of dredged material from its 50-foot channel deepening project as "fill" in the Port's decommissioned Middle Harbor. The Port aimed to reduce the cost of channel deepening by slurrying the dredged material to this adjacent Middle Harbor site, instead of transporting it by barge to a more distant reuse or ocean disposal site. Without the then-new policy 11b, BCDC could not legally approve the Port's project to change a deep hole to a shallow hole and establish eelgrass habitat on top of it. This unprecedented effort was dubbed a "pilot project" that could not be repeated unless and until it was successful, per policy 11b. As the current BCDC staff acknowledges:

> "the Commission amended the Bay Plan in 2000 to ensure that additional large projects using dredged sediment for Bay restoration could not occur until the Middle Harbor project was successfully completed (BPA 3-00.) The Middle Harbor project is currently about 14 years behind schedule in completing the habitat features"[1]

Save The Bay and other stakeholders negotiated that agreement with the Port of Oakland, U.S. Army Corps of Engineers and BCDC. Unfortunately, despite many years of effort and millions of

[1] BCDC Staff Report: "Bay Fill for Habitat Restoration, Enhancement, and Creation in a Changing Bay," May 24, 2019, p.11

dollars, the Middle Harbor Enhancement Area has not yielded successful creation of promised habitat. While the fish and wildlife did endure environmental harm from turbidity and other impacts during the channel's dredging, the Bay has not yet received the required environmental benefits that are now many years overdue. As the staff report underscores:

> While the project has progressed since its initial construction, it is still significantly behind schedule and the regulatory agencies, Save the Bay, the Sierra Club, Audubon Society, and others are concerned that it will not meet its proposed habitat enhancement goals.[2]

BCDC's efforts to secure full achievement of the Middle Harbor Enhancement Area's benefits from the Port of Oakland and the U.S. Army Corps of Engineers have continued without success for many years, and the federal consistency determination used to enable the project (Consistency Determination No. C2000.014.01) has proven challenging to enforce. BCDC continues to seek remedial action from the Corps of Engineers, to make the project consistent with original USACE commitments and to compensate for the temporal loss of habitat benefits during substantial project delays. [See BCDC's detailed letter of November 6, 2018, attached]

4 The incomplete status of the Middle Harbor Enhancement Area and the Commission's continuing efforts to secure the project's promised habitat benefits for the Bay make staff's recommendation to eliminate all of Dredging Policy 11b, and to instead relegate this important requirement to a note on Plan Map 4, inappropriate and counterproductive.

It is disappointing that the staff report, "Bay Fill for Habitat Restoration, Enhancement, and Creation in a Changing Bay," does not even mention Consistency Determination C2000.014, when BCDC efforts to secure required habitat benefits from the USACE and Port of Oakland are still in process. The staff's proposed draft of a Plan map note would weaken those efforts,
5 suggesting merely that the USACE and Port "should provide habitat benefits …[and] complete work as quickly as possible," when in fact <u>those habitat benefits are legally required by C2000.014.01 and are long overdue</u>, as the Commission's November 6, 2018 letter to USACE emphasizes.

6 Bay Plan Amendment No. 1-17 should allow for and encourage the appropriate use of fill material – including dredged material from the Bay and material from upland – for habitat restoration, without eliminating Dredging Policy 11b. Instead, that policy should be updated to reflect the original purpose and intent of the Bay Plan Amendment that created it, and should be strengthened to emphasize that the Middle Harbor Enhancement Project must be completed successfully to provide required benefits. This should be a pre-requisite to the Commission approving any fill project similar to the Middle Harbor Enhancement Project's particular scale, bathymetric modification, and type of habitat creation. It should not remain a pre-requisite to approval of fill for tidal marsh or similar habitat.

7 This outcome can best be accomplished by modifying Dredging Policy 11b to require that "the Commission should not authorize dredged sediment disposal projects in the Bay and certain waterways to create, enhance or restore sub-aquatic habitat in shallow water, except for projects using a minor amount of dredged sediment, until the Oakland Middle Harbor Enhancement project authorized by the Commission is completed successfully and provides the required benefits, including remedial action for temporal loss of benefits.

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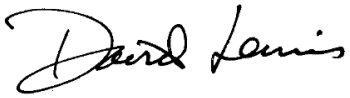
[2] Ibid., p. 19.

8 We have made these suggestions to staff and now make them directly to the Commission in support of the goal Save The Bay has long championed – accelerating Bay habitat restoration to keep pace with rapid climate change and rising sea levels. That goal can and must be accomplished without relieving already-authorized projects and the agencies responsible for them from obligations in BCDC permits and Consistency Determinations, especially projects whose authorization required unprecedented amendment of the Bay Plan itself. The Commission should zealously protect and reinforce those obligations, especially at a time when the integrity of its enforcement regime and the fairness of its enforcement practices is under intense scrutiny in the wake of the State of California's recent audit of the Commission.

We offer our continued assistance to you and your staff on this issue, and look forward to a resolution of this matter that Save The Bay can fully support.

Thank you for your consideration.

Sincerely,



David Lewis
Executive Director

Attachment

San Francisco Bay Conservation and Development Commission
455 Golden Gate Avenue, Suite 10600, San Francisco, California 94102 tel 415 352 3600 fax 415 352 3606

Via US Mail

November 06, 2018

Lieutenant Colonel Travis Rayfield
Commander and District Engineer
United States Army Corps of Engineers
1455 Market Street
San Francisco, CA 94103

SUBJECT: Request for Remedial Action, Oakland Harbor Navigation Improvement Project, Middle Harbor Enhancement Area (BCDC Letter of Agreement for Consistency Determination No. C2000.014.01)

Dear Lt. Col. Rayfield:

Please accept this letter as a formal request for the U.S. Army Corps of Engineers (USACE) to begin remedial action to rectify the temporal loss of habitat due to delays in completing the Middle Harbor Enhancement Area (MHEA) project, a component of the Oakland Harbor Navigation Improvement Project (-50 Foot Deepening Project), authorized under San Francisco Bay Conservation and Development Commission's (Commission) Letter of Agreement for Consistency Determination No. C2000.014 (Letter of Agreement).

1. **Legal Authority to Request Remedial Action.** As you are aware, Section 930.45(b) of Title 15 of the Code of Federal Regulations establishes the legal authority of the Commission to request remedial action to rectify issues related to a Federal consistency determination under the Coastal Zone Management Act. This section states, in part, that:

   The State agency may request that the Federal agency take appropriate remedial action following a serious disagreement resulting from a Federal agency activity, including those activities where the State agency's concurrence was presumed, which was:

   a. Previously determined to be consistent to the maximum extent practicable with the management program, but which the State agency later maintains is being conducted or is having an effect on any coastal use or resource substantially different than originally described and, as a result, is no longer consistent to the maximum extent practicable with the enforceable policies of the management program.

   As described below, the MHEA project is significantly behind schedule in providing several key habitat benefits to which the USACE committed in its consistency determination and, therefore, is substantially different than originally described. The Commission is requesting specific remedial actions, detailed below, to make the project

consistent with original USACE commitments and to compensate for the temporal loss of habitat benefits during substantial project delays.

2. **Brief Project Background.** In December 2000, after amending the Bay Plan through a negotiated agreement among environmental non-governmental organizations, the Port of Oakland (Port) and the USACE, the Commission authorized the minus 50 Foot Deepening Project. This decision enabled the USACE and its local project sponsor, the Port, to widen and deepen the Oakland Harbor Inner, Outer and Entrance channels to minus 50 feet Mean Lower Low Water, and to beneficially reuse the dredged sediment to construct the MHEA and the Montezuma and Hamilton Wetlands Restoration Projects. The Commission concurred that the project was consistent to the maximum extent practicable with its laws and policies in the above-mentioned Letter of Agreement, and issued a permit to the Port for MHEA monitoring and maintenance (BCDC Permit No. 2014.000.00).

   Construction of the MHEA required placing and beneficially reusing 5.8 million cubic yards (cy) of dredged sediment in the Bay at the berthing area and basin formerly deepened and used by the U.S. Navy. This work was supposed to create roughly 180 acres of shallow intertidal and subtidal habitat at the western end of the Harbor Channel. The goal of the MHEA was to restore the area to its historic shallow water habitat and create new habitat features, including intertidal sandy beach and marsh habitat, shallow subtidal shoals with eelgrass beds, shallow and deep channels, subtidal basins, rocky intertidal and subtidal habitat for bird loafing and roosting, and buffers between public access and habitats.

3. **MHEA Commitments, Current Status, and Concerns.** The MHEA Construction Period and Long-term Monitoring, Maintenance, and Adaptive Management Program (3M Program) is part of the consistency determination and also is discussed in the Letter of Agreement to support the Commission's findings that the MHEA project is consistent with the San Francisco Bay Plan's dredging policies[1]. The 3M Program describes the original performance criteria, acreage, and construction period to which the USACE committed when submitting the project for the Commission's concurrence. The nine performance criteria, on which the success of the project is to be evaluated, are summarized in Table 1 below, along with their associated due dates and current status[2]:

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[1] Along with the 3M Program, the other documents comprising the complete consistency determination are the *Second Stage Consistency Determination for the Oakland Harbor Navigational Improvement (-50 Foot) Project,* the *Middle Harbor Habitat Design/65% Design Memorandum,* the *Responses to Comments 65% Design Submittal,* and *Addendum #1 to the Second Stage Consistency Determination on Middle Harbor Commitments.*

[2] Attached are the complete performance criteria and the Schedule of Monitoring and Management Activities from the 3M Program. Please note that while the 3M Program uses relative due dates for performance criteria (e.g. "10 years after initiation of dredging"), we have converted these into absolute years using the original construction schedule and a dredging initiation date of 2002.

Table 1. MHEA Project Performance Criteria from 3M Program

Criteria No.	Criteria, summarized for brevity (due date; current status)
1	Provide a new 3-5 acre marsh for bird foraging and educational opportunities (by 2012; partially complete)
2	Create at least 55 acres of habitat suitable for eelgrass habitat development and 110 acres of other shallow water habitat (by 2007; completed in 2016)
3	Provide a new beach for public access and bird storm refuge (by 2003; partially complete)[3]
4	Provide improved bird habitat by constructing four avian islands and providing a protected area along the shoreline of the Union Pacific (UP) Mole (by 2012; partially complete)
5	Provide 4-8 acres of hard bottom habitat (by 2006; complete)
6	Create at least 15 acres of eelgrass habitat (by 2017; incomplete)
7	Provide a more productive and diverse estuarine community than existing conditions (by 2017; status not assessed)
8	Increase habitat benefits for aquatic birds, particularly the least tern colony (by 2017; status not assessed)
9	Provide a greater number of fish than existing conditions (by 2017; status not assessed)

We understand that the MHEA project has been subject to multiple federal funding delays since its authorization in 2000. These have caused the project to fall significantly behind schedule. Based on the 3M Program, MHEA was scheduled to begin in 2001, but did not start until 2002. Furthermore, according to the USACE's and Port's October 2018 Technical Advisory Committee (TAC) presentation, the project is now in the Habitat Suitability Evaluation/Warranty Period through March of 2019; this period was originally scheduled to end twelve years ago in 2006.

Despite these delays, we recognize the progress the USACE has made on the project, including placing and consolidating 5.8 million cy of dredged material to create shallow water habitat, final sculpting of 400,000 cy of sediment, initial construction of two avian islands and the educational marsh, creating 5.1 acres of hard bottom habitat and 101 acres of habitat suitable for eelgrass, opening the project site to full tidal circulation, and exploratory planting of eelgrass.

[3] As described below, this criterion is not the direct responsibility of the USACE, but was to be completed by the Port under a separate authorization, BCDC Permit No. 1999.007.

Through this work, as indicated in Table 1 above, the USACE has fully met Criteria Nos. 2 and 5, and has partially met Criteria Nos. 1 and 4. However, we are concerned that the project remains significantly behind schedule in fully meeting Criteria Nos. 1, 3, 4, and 6 as described below (Please note that Criteria Nos. 7, 8, 9, while behind schedule, are not addressed here because the verification of these criteria is not due to occur until after the ten-year post-construction monitoring period; this period was originally planned for 2007 to 2017, but has not yet started):

a. **Eelgrass habitat (Criteria No. 6).** As stated in the Letter of Agreement (Page 6), eelgrass is the primary target habitat for the MHEA project. Criteria No. 6 of the 3M Program requires the USACE to establish at least 15 acres of eelgrass habitat within ten years of commencing dredging (i.e., by 2012). This criterion was also included as a required condition in the U.S. Fish and Wildlife Service's Endangered Species Formal Consultation, issued in 1999, to offset for impacts to listed species (including the California Least Tern). However, according to the USACE and Port's October 2018 TAC presentation, only pilot eelgrass plantings have occurred to date, creating a total of 0.45 acres of habitat. Full plantings are not scheduled to occur until Spring 2019 (Phase 1) and 2020-2021 (Phase 2), meaning the 15 acres of eelgrass habitat is at least nine years behind schedule, assuming no further delays occur.

b. **Marsh (Criteria No. 1).** Criteria No. 1 requires the USACE to provide a new three-to-five acre marsh for bird foraging and educational/interpretive benefits within ten years of commencing dredging (i.e. by 2012). According to the USACE's and Port's May 2018 TAC presentation, the USACE has established a 4.7-acre marsh, and there is at least some shorebird use of the marsh. However, we understand that the construction of the marsh did not reach the necessary elevations for plant colonization, and that the area is unlikely to accrete the sediment necessary to meet the project's stated goals through natural processes. Therefore, the marsh is not providing the intended bird foraging and educational benefits and likely will be unable to do so without further intervention. The USACE has not provided an expected date of completion for the marsh and associated benefits, but it is currently at least six years behind schedule.

c. **Improved Bird Habitat (Criteria No. 4).** Criteria No. 4 requires the USACE to provide improved bird habitat by constructing four avian islands and providing a protected area along the shoreline of the UP Mole within ten years of commencing dredging (i.e. by 2012). The project design specified that each island should be no larger than 5,000 sq. ft., and that the four islands combined should be no smaller than 5,000 sq. ft. 4 We understand that the protected area along the shoreline has been created. However, according to the USACE and Port's May 2018 and October 2018 TAC presentations, the USACE created only two avian islands (the Western and Eastern Avian Islands, near the southern border of the project site), totaling just 630 sq. ft.

[4] We understand the original project goals did not specify the tidal elevation at which the area of the islands should be measured. This point is addressed in section IV below.

above Mean High Water, both of which were sinking between 2016 and 2018. Similar to the marsh, the required improved bird habitat is currently at least six years behind schedule.

d. **Public Access Beach (Criteria No. 3).** Criteria No. 3 required creating a new beach for public access and bird storm refuge. It is critical to note that this beach, while listed as a key performance criterion of the MHEA project, is part of a separate Commission authorization for the Port of Oakland to construct Middle Harbor Shoreline Park (among other activities). As such, beach construction and maintenance is the Port's responsibility, and not the USACE's. Nevertheless, due to the ecological connectivity between the beach and other key habitats of the MHEA, the USACE must coordinate with the Port to address these habitats in an integrated fashion. (A separate letter is also being sent to the Port regarding this requirement.)

   Based on the USACE and Port's May 2018 TAC Presentation, while the beach has been constructed, the public is prohibited from entering the water for swimming or recreation due to safety concerns. We understand this is due to an insufficient beach slope resulting in a lack of subtidal water and a substrate of deep, soft mud. Furthermore, we understand that a sandbar has developed off the beach, which was not part of project design and is currently used by birds.

4. **Decisions Taken at the October 3, 2018 TAC Meeting.** At the October 3, 2018 TAC meeting, the TAC made the following important decisions that relate to the four concerns described above:

   a. **Regarding Eelgrass Habitat**: The TAC agreed that the USACE and Port would use an L-scheme planting design for planting eelgrass, and that, because this L-scheme was more efficient than a previously proposed planting method, they would plant an unspecified greater number of L plots in order to reach the required 15 acres as quickly as possible.

   b. **Regarding the Marsh:** The TAC agreed that the USACE and Port would conduct a study to determine the most appropriate method to build the marsh to an elevation high enough for plant colonization, including analyzing various sources of sediment and proposing the best alternative. The TAC also agreed that the USACE and Port would determine how to fund this effort.

   c. **Regarding the Improved Bird Habitat:** The TAC agreed that the USACE and Port would consult with relevant literature and avian experts to determine actions needed on the avian islands, but no specific actions were agreed upon.

   d. **Regarding the Beach**: No decisions were made about the beach, and very little was discussed on this topic.

   Finally, while not a formal decision, the TAC also discussed that, due to the interconnected nature of the habitat features that require attention, it would be beneficial to address these features in an integrated manner. We agree and believe this

approach will be more ecologically appropriate than addressing the habitats individually, and will also ensure the greatest efficiency for all parties involved.

5. **Request for Remedial Action.** To resolve the issues described above and provide compensation for the temporal loss of habitat benefits resulting from significant project delays (at least nine years for eelgrass, and at least six years for the marsh and improved bird habitat), we request that the USACE work with the Port to prepare and submit to the Commission a joint project proposal (Proposal). The Proposal should address each of the habitat features discussed below in an integrated manner. Our requested actions are generally in line with the TAC's decisions taken on October 3, but in certain cases go beyond the original project requirements to compensate for temporal loss of habitat benefits. We request that the Proposal be submitted to the Commission no later than February 28, 2019, and that it incorporate the following elements:

   a. **Additional Planting of Eelgrass.** To determine the value of eelgrass habitat benefits that would have been provided from 2012 to 2021 had the eelgrass been established by 2012 per the Letter of Agreement, BCDC staff examined recent expansion rates of existing eelgrass beds at the nearby sites of Emeryville Shoal and Berkeley Shoal. Using the Merkel and Associates Inc. October 2014 Baywide Eelgrass Inventory, we found that the average compound annual growth rate in these areas was 2.3% from 2003 to 2014. Assuming a similar growth rate at MHEA, we estimate that the 15 acres of eelgrass would have expanded by at least 3.4 ac. from 2012 to 2021. Therefore, to compensate for the lack of planting and subsequent expansion during this period, we request that the USACE's Proposal include planting at least an additional 3.4 ac. of eelgrass in an appropriate location at the MHEA project site, bringing the total minimum eelgrass acreage to 18.4 acres. If USACE disagrees with our estimate for expected expansion during that timeframe, or believes that an alternate means of compensation is more appropriate, please provide and justify an alternate proposal. Please note that we have not attempted to calculate the value of all eelgrass ecosystem services that were absent from 2012 to 2021 (e.g., wave attenuation, carbon sequestration, fish habitat provision), and are not asking for compensation for these lost benefits.

   b. **Elevating and Planting the Marsh.** As described above, the TAC agreed that the USACE and Port would conduct a study to determine the best method for raising the existing marsh area to an elevation suitable for establishment of vegetation. In addition to raising the marsh elevation, we request that the Proposal include planting appropriate vegetation to expedite the establishment of marsh habitat and compensate for the temporal loss of benefits.

c. **Assessing and Enhancing the Improved Bird Habitat.** Based on the information shared with the TAC to date, there are several gaps in our knowledge concerning the past, current status, and expected future of the improved bird habitat. As such, we request that the Proposal include the following:

(1) **Eastern and Western Avian Islands.** A detailed statement on how and when the existing islands were originally built (including the method(s) of construction and the source and volume of material used); data and information on the islands' current bird habitat value as compared to the project's original goals; the originally designed and current surface area of the islands as measured at an appropriate tidal elevation; and, how the islands are expected to evolve in the future if left alone, based on the site's characteristics and coastal processes.

(2) **Protected Area.** A written statement describing the protected area along the shoreline of the UP mole, including its size, location, features, and the extent to which it is providing the originally intended bird habitat.

(3) **Missing Two Avian Islands.** An explanation for why only two of the four avian islands are complete, and when the USACE plans to build the remaining two islands.

(4) **Proposal**. Based on the site characteristics, a proposal that identifies and recommends alternatives to increase the extent and value of improved bird habitat to meet the original project goals, without negatively impacting other parts of the MHEA project site or surrounding habitats. If the proposal does not include building the missing two avian islands, please provide a justification and describe how the USACE plans to compensate for those missing islands. Because, as discussed at the October 2018 TAC meeting, the original project design provided neither specific criteria for evaluating bird habitat value, nor a tidal elevation at which to measure the islands' total area, we recommend the Proposal include defined criteria and elevations for assessing the bird habitat in consultation with appropriate experts, such as Golden Gate Audubon, which appears to have recommendations for creating additional roosting habitat.

d. **Ensuring Safety and Accessibility of the Public Access Beach.** As mentioned above, the Commission staff recognizes that beach construction and maintenance is the Port's responsibility, and not the USACE's. However, we request that the USACE work closely with the Port to propose an approach to address the currently unsafe beach, ensuring any actions are coordinated with those taken on other habitats. As mentioned above, we are also writing separately to the Port to ensure it works closely with you.

Thank you in advance for your cooperation in addressing these issues. Please understand that any proposed actions which differ substantially from what was originally proposed will require the Commission's concurrence, and an amendment to the Consistency Determination or Letter of Agreement may be required. Please contact Schuyler Olsson at (415) 352-3668 or at schuyler.olsson@bcdc.ca.gov with any questions or concerns. We look forward to hearing from the USACE and the Port soon.

Sincerely,

Adrienne Klein

ADRIENNE KLEIN
Chief of Enforcement

For Schuyler Olsson
Coastal Program Analyst

Enc.

SO/jk

cc - Richard Sinkoff, Port of Oakland
Jan Novak, Port of Oakland
Thomas Kendall, U.S. Army Corps of Engineers
Eric Joliffe, U.S. Army Corps of Engineers
Brian Haines, U.S. Army Corps of Engineers
Tessa Beach, U.S. Army Corps of Engineers
Thomas Williams, U.S. Army Corps of Engineers
Beth Christian Regional Water Quality Control Board
David Lewis, Save the Bay

1. Performance goals, criteria for success in achieving the goal, methods to assess the parameter are summarized within Table 1-1. While multiple success thresholds have been established for some project goals, Table 1-1 only addresses the highest threshold for any project element. All of the lower thresholds are identified in Appendix 1 and would only become important in determining the degree to which project commitments have been achieved if project success falls short of the highest objective. A summary of all standards that are lower than the highest imposed by any approvals or commitments is provided in Appendix 1.

To evaluate success, it is essential that both the timeframe(s) of the evaluation and method(s) used be established. In some instances, clear direction has been provided with regards to success assessment. Where these exist, they have been adopted in this program. However, in other instances these have not been specified and appropriate evaluation methods and periods have been selected by the design team.

Table 1-1. Performance standards and commitments for the MHEA.

NO	PERFORMANCE STANDARDS AND COMMITMENTS	WHEN AND HOW DETERMINED
1	Provide a new 3-5 acre marsh to provide bird foraging opportunities and educational/interpretive benefits.	*When:* 1) completion of final construction; 2) 10 years after initiation of dredging. *How:* 1) topographic survey (at construction); 2) assessment of vegetation and avian use (over 10 year)
2	Create a minimum of 55 acres of habitat suitable for eelgrass habitat development, 110 acres of other shallow water,	*When:* 1) completion of final construction 2) completion of site suitability evaluation and warranty period *How:* 1) hydrographic and topographic survey (at construction); 2) measurement and assessment of physical conditions developed, as well as comparison to modeling results
3	Provide new public access beach area that will also provide storm refuge to birds.	*When:* 1) To be completed as part of Berths 55-58/Middle Harbor Shoreline Park work. *How:* 1) Confirm beach construction under Port's project by completion of topographic survey.
4	Provide improved bird habitat, with reduced predators and human disturbance through construction of four avian islands, each being a maximum size 5,000 sq. ft. and by providing a protected area along the shoreline of the UP Mole.	*When:* 1) completion of final construction; 2) 10 years after initiation of dredging. *How:* 1) topographic survey (at construction); 2) assessment of vegetation and avian use (over 10 year)
5	Provide 4-8 acres of hard bottom habitat (approximately 4 acres presently exists)	*When:* 1) completion of final construction. *How:*

		1) site survey at completion.
6	Create a minimum of 15 acres of eelgrass habitat within 10 years after initiation (start of dredging) of project not including that planted in the previous 3 years.	*When:* 1) completion of 10 year post-construction monitoring program. *How:* 1) annually evaluate eelgrass cover and density throughout site and reference areas using side-scan sonar and diver verification; 2) compare eelgrass cover with reference areas to control for natural interannual variability in eelgrass.
7	Provide an estuarine community within MHEA that is of higher productivity and greater diversity than the existing community of Middle Harbor. Provide a habitat that is more highly productive than existing conditions and provides a net increase in habitat value.	*When:* 1) completion of 10 year post-construction monitoring program. *How:* 1) evaluation of plant, invertebrate, fish, and avian communities relative to baseline Middle Harbor conditions reported in prior studies.
8	Increase habitat benefits for aquatic birds and most particularly the least tern colony, by increasing habitat and the productivity of fisheries. Of specific interest is the enhancement of least tern prey species which may improve foraging opportunities for terns.	*When:* 1) completion of 10 year post-construction monitoring program. *How:* 1) evaluate availability of forage species and size classes consumed by avifauna, and specifically least terns.
9	Provide a greater number of fish than existing conditions	*When:* 1) completion of 10 year post-construction monitoring program. *How:* 1) evaluation of fish communities relative to baseline conditions reported in prior studies.

1.4 ADAPTIVE MANAGEMENT

The MHEA is to be implemented and managed through the application of adaptive management principles. This approach has been dictated by the relatively unique nature of the project and limited data on projects of similar scale and complexity in San Francisco Bay from which to draw essential design and performance information. The adaptive management program includes various elements including both construction period adaptive design and implementation as well as long-term adaptive management to address habitat maintenance needs. Construction period adaptive management elements are associated with design assumption verification and design refinement during the initial construction periods that are necessary to support the development of the MHEA in accordance with the project goals as outlined in the prior section. These goals are to be achieved through development of a site for which the design and engineering has been governed by a habitat design criteria model summarized below. The adaptive management elements are further integrated into the monitoring program which measures the progress of the system against references or pre-determined expectations. Based on the outcome of the monitoring and data analysis, decisions may be made regarding the performance of the monitored element relative to expectations, and the need or desirability to alter the site conditions, conceptual model, or the performance goals. The process for adapting the project based on monitoring is addressed in this section.

TABLE 2-1. Schedule of Monitoring and Management Activities

TASK NAME	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20	YEAR 21
	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
PRE-CONSTRUCTION																					
Preliminary Tasks																					
Notice of Award																					
Bond/Insurance/Contract																					
Submittals																					
Mobilization																					
CONSTRUCTION PERIOD																					
PHASE 1: COMPLIANCE MONITORING																					
Construction Restriction Compliance																					
Water Quality																					
Biological Windows and Surveys																					
PHASE 2: DESIGN VERIF./REFINEMENT																					
Monitoring Elements																					
Steepnic Jetty Reflected Waves																					
Fill Stratigraphy and Material Placement																					
Bulk Fill Consolidation and Settlement																					
Hydrodynamic Model Verif. and Adjustment																					
Light, Sediment, Water Quality Environment																					
Reporting and Design Modifications																					
Technical Memoranda																					
Required Plan Revisions																					
Construct Containment Structure																					
Install Sheet Pile																					
Install Rock Jetty to +6 feet																					
Bulk Fill Dredging and Material Placement																					
Cells 86-88 and 90																					
Cells 87, 89, 63, and 62																					
Cells 59-62																					
Cells 52, 54, 59, and 65-66																					
Cells 9, 53, 55, 57, and 64-65																					
Bulk Fill Consolidation/Monitoring Period																					
Bulk Fill Consolidation Period																					
Final Fill Placement																					
Cell 9, Transition Channel and Widening																					
Lower Dike and Install Navigation Aids																					
Lower Sill to -10 ft. MLLW																					
Construct Bird Roosting Islands																					
Place Jetty Cap Stones																					
Dismantle East Temporary Jetty																					
Place Salvaged Gravel Shoal																					
Install Navigation Aids																					
Final Fill Consolidation/Monitoring Period																					
Consolidation and Monitoring Period																					
Final Contours Sculpting																					
Sculpt Final Contours																					
EELGRASS AND MARSH PLANTING PERIOD																					
PHASE 3: SUITABILITY EVAL./WARRANTY PERIOD																					
Monitoring Elements																					
Consolidation/Settlement Assessment																					
Stability and Topographic Suitability for Habitat																					
MHEA Water Column Environmental Conditions																					
Reporting and Design Modifications																					
Technical Memoranda																					
Suitability for Phase I Planting Initiation																					
Required Plan Revisions																					
Pre-Planting Site Stabilization Period																					
Pre-Planting Site Stabilization Period																					
First Phase Planting Program																					
Marsh Planting																					
Eelgrass Transplant, Phase I																					
Second Phase Planting Program																					
Pilot Monitoring and Phase II Planning																					
Eelgrass Transplant, Phase II																					
CONSTRUCTION WARRANTY PERIOD																					
As-Needed Warranty Period Repairs																					
Adjustments to Markers/Navigational Aids																					
High Scour/Deposition Areas																					
Excessive Bird Island/Jetty Deformation																					
Warranty Period Certification of Completion																					
Summary Report of Work Performed																					
Acceptance of Site Work by Corps/Port																					
PHASE 4: ESTABLISHMENT MONITORING PROGRAM																					
Physical Site Conditions Development																					
Bathymetry/Avian Island Surveys																					
Biological Resources Development																					
Eelgrass Habitat Monitoring																					
Salt Marsh Habitat Monitoring																					
Benthic Invertebrate Community Monitoring																					
Fish Community Monitoring																					
Avian Community Monitoring (General Artifacts)																					
Human Use and Public Access																					
Human Use and Public Access Monitoring																					
Reporting and Success Milestone Achievement																					
Report Preparation and Success Milestone Review																					
Eelgrass Bed Recovery																					
Eelgrass Areal Coverage (15+ acres)																					
Establish Salt Marsh Habitat																					
Enhance the Productivity of the MHEA																					
Improved Habitat for Least Terns																					
LONG-TERM SITE MANAGEMENT PERIOD																					
PHASE 5: LONG-TERM SITE MANAGEMENT PERIOD																					
Physical Site Change and Maintenance Needs																					
Bathymetry																					
Avian Islands																					
Habitat Concerns Relative to Management Needs																					
Habitat Degradation due to Public Access																					
Reporting Program																					
Minor Maintenance																					
Site Reviews and Patrols																					
Trash/Debris Removal																					
Signage and Aids to Navigation Maintenance																					
Major Maintenance																					
Maintenance Dredging (approx. 10 year																					
Reconstruction of Avian Islands (approx. 15 year)																					