San Francisco Bay Conservation and Development Commission
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TO: Commissioners and Alternates

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SUBJECT: Staff Recommendation for Consistency Determination No. C2015.006.00 for the U.S. Army Corps of Engineers' Concept Plan for the South Bay Shoreline Phase 1 Project
(For Commission consideration on December 17, 2015)

Recommendation Summary

The staff recommends that the Commission concur with the U.S. Army Corps of Engineers' (Corps) Consistency Determination (BCDC Consistency Determination No. C2015.006.00) that the Corps' conceptual plan for the South San Francisco Bay Shoreline project is ***generally*** consistent with the Commission's Amended Management Program for San Francisco Bay. This consistency determination is for Phase 1 of a phased consistency determination ***only.*** Because most of the project details are still being developed, the Commission can only evaluate the feasibility study and conceptual plan arising from the South San Francisco Bay Shoreline Phase 1 Feasibility Study. As project details are refined, the Corps will submit subsequent consistency determinations with more project details as part of this phased consistency determination. Without more precise information on project elements that may potentially impact the Bay, the Commission is not in the position to evaluate whether all elements of the project are consistent with its management program for San Francisco Bay.

Implementation of the conceptual plan for the South San Francisco Bay Shoreline Phase 1 Feasibility Study, and subsequent consistency determinations by the Commission, will result in:

1. Constructing 3.8 miles (19,776 feet) of levees to replace existing salt pond berms (the height of the levees will be approximately 10 feet above the existing berms);

2. Installing a flood gate at the Union Pacific railroad tracks and installing a tide gate at Artesian Slough;
3. Constructing an approximately 245-foot-wide ecotone (at a 30:1 slope) bayward of most of the new flood protection levees to create transitional habitat;
4. Installing ditch blocks, excavating pilot channels through fringing tidal marsh, breaching outer levees to allow tidal marsh establishment in the majority of these former salt ponds, and lowering approximately 80% of the outer salt pond berms; and
5. Constructing a multiuse public access trail on the top of the new flood protection levees, constructing new pedestrian bridges across the Union Pacific Railroad tracks and Artesian Slough, installing seating areas with benches and interpretive signs, and connecting the levee trail to adjacent trails.

Staff Recommendation

The staff recommends that the Commission adopt the following resolution:

I. Consistency Determination

A. **Plan Found to Be Consistent**. The Commission concurs with the U.S. Army Corps of Engineers that the following conceptual plan for improving flood protection in northern Santa Clara County from the San Jose Sewage Treatment Plant to the community of Alviso is ***generally*** consistent with the Commission's federally approved coastal management program.

In the Bay, Within the 100-foot Shoreline Band, Within Salt Ponds, and Within Managed Wetlands, in the City of San Jose and unincorporated areas within Santa Clara County: The Conceptual Plan arising from the South San Francisco Bay Shoreline Phase 1 Feasibility Study, proposing 3.8 miles of flood protection levee, a 30:1 sloped ecotone on much of the new flood protection levee face, public access on top of the new levee with a pedestrian bridge over the Union Pacific railroad track and a pedestrian bridge over Artesian Slough, spur trails and overlooks to various is points in the outer ponds, and breaching levees, dredging pilot channels, filling in borrow ditches, installing ditch blocks, and other restoration activities.

B. **Date Consistency Concurrence was Submitted.** This concurrence is generally pursuant to and limited by the request for consistency concurrence dated September 2015 and received in the Commission's office on October 30, 2015, including all accompanying and subsequently submitted exhibits and correspondence. ***This concurrence is for the Conceptual Plan for the South San Francisco***

Bay Shoreline project only and is for phase 1 of a phased consistency determination. Before any work can occur on this project, the project partners will need to submit subsequent consistency determinations and obtain all necessary permits.

C. **Consistency Concurrence Expiration Date**. This consistency determination is for a conceptual plan only**.** No work details were included in the Corps' consistency determination. For this reason, there is no commencement or expiration date for this consistency determination.

D. **Summary of Work Found to be Consistent**. The project found to be generally consistent with the Commission's federally authorized coastal management program is the ***conceptual plan*** arising from the South San Francisco Bay Shoreline Phase 1 Feasibility Study. That plan proposes constructing 3.8 miles (19,776 feet) of levees to replace existing salt pond berms along the most landward edge of former salt ponds, installing a flood gate at the Union Pacific railroad tracks, installing a tide gate at Artesian Slough, constructing an approximately 245-foot-wide ecotone (at a 30:1 slope) bayward of most of the new flood protection levees to create transitional habitat and provide additional flood protection, installing ditch blocks, excavating pilot channels through fringing tidal marsh, breaching outer levees to allow tidal marsh and lowering 80% of the outer berms of these former salt ponds, constructing a multiuse public access trail on the top of the new flood protection levees, constructing new pedestrian bridges across the Union Pacific Railroad tracks and Artesian Slough, installing seating areas with benches and interpretive signs, and connecting the levee trail to adjacent trails.

II. Findings and Declarations

This consistency concurrence is given on the basis of the Commission's findings and declarations that the conceptual plan arising from the South San Francisco Bay Shoreline Phase 1 Feasibility Study is ***generally consistent*** with the McAteer-Petris Act, the *San Francisco Bay Plan*, and the Commission's amended coastal zone management program for San Francisco Bay for the following reasons:

A. **Phased Consistency Determination**. Because the Corps has not submitted plans nor requested a consistency determination for the construction of any project element other than the conceptual plan, this Commission's consistency concurrence is limited to finding that the conceptual plan arising from the South San Francisco Bay Shoreline Phase 1 Feasibility Study is consistent with the Commission's Amended Management Program for San Francisco Bay. As plans are developed for the project, the Corps will submit subsequent consistency determinations for this project.

For the Commission to be able to evaluate and concur that these future consistency determinations are consistent with the Commission's Amended Management Program for San Francisco Bay, the Corps will need to provide information that includes, but may not be limited to:

1. Design details and proposed fill amounts for all improvements, including levee and ecotone dimensions, tide gates, starter channels, ditch blocks and other restoration work;

2. Permit applications from state, local government or other partners for ongoing project responsibilities, such as maintaining public access areas and improvements; monitoring restoration success, and adaptive management;
3. Design details for public access trails, bridges, interpretive facilities, signage, benches and other public access improvements;
4. Ecotone design and management to maximize flood protection benefits, habitat functions, visual appeal, and the distribution of earth material if less material than needed to create a 30:1 slope is obtained;
5. A monitoring program that provides sufficient information for effective adaptive management and proactive adjustments in project design to avoid or prevent problems;
6. A planting and vegetation management program to promote the establishment of desired native vegetation and discourage the establishment of invasive plant species;
7. How the flood protection levee could be adapted to respond to sea level rise beyond the "50 year period of analysis" with sections showing projected sea level rise on the ecotone and levee;
8. Proof of ownership and sufficient property interest in lands where construction would occur;
9. Measures employed to reduce the methylation of mercury as a result of project activities, monitor the presence, bioavailability and biological uptake of methylated mercury, and manage mercury should mercury methylation problems arise; and
10. The number and content of future consistency determinations to be submitted as part of this phased consistency determination.

B. **Fill.** Most of the fill proposed for the project described in the plan would involve fill in salt ponds or in managed wetlands. The tide gate in Artesian Slough would constitute Bay fill, as would the two pedestrian bridges, and while the design details of constructing the pilot channels through tidal marsh are not complete, material from such excavation has been placed in the Bay to create low berms or upland refugia in other wetland restoration projects. The Commission may allow fill in the Bay, certain waterways, salt ponds, or managed wetlands only when the fill meets the requirements identified in Section 66605 of the McAteer-Petris Act, which states, in part, that: (a) the public benefits from fill must clearly exceed the public detriment from the loss of water areas, and fill should be limited to water-oriented uses or minor fill for improving shoreline appearance and public access; (b) no alternative upland location is available (policies (a) and (b) apply to fill in the Bay and certain waterways only); (c) the fill authorized should be the minimum necessary to achieve the purpose of the fill; (d) the fill should minimize harmful effects to the Bay including the

water volume, circulation, fish and wildlife resources, and marsh fertility; and (e) the fill should be authorized when the applicant has valid title to the properties in question (policies (c), (d), and (e) apply to fill in the Bay, certain waterways, salt ponds, and managed wetlands.

The Bay Plan's policies for salt ponds state that, "if the owner of any salt ponds withdraws any of the ponds from their present uses, the public should make every effort to buy these lands and restore, enhance or convert these areas to subtidal or wetland habitat. This type of purchase should have a high priority for any public funds available, because opening ponds to the Bay represents a substantial opportunity to enlarge the Bay and restoring, enhancing or converting ponds can benefit fish, other aquatic organisms and wildlife, and can increase public access to the Bay…. Recognizing the potential for salt ponds to contribute to the moderation of the Bay Area climate, the alleviation of air pollution and the open space character of the Bay, and to maximize potential habitat values, development of any of the salt ponds should provide for retaining the maximum amount of water surface area consistent with the project. Water surface area retained can include a variety of subtidal and wetland habitat types including diked ponds managed for wildlife or restoration of ponds to tidal action…. Development should provide the maximum public access to the Bay consistent with the project while avoiding significant adverse effects on wildlife."

The project would result in the placement of clean earth material on approximately 136 acres of salt ponds to construct approximately 41.6 acres of flood protection levees and 96 acres of ecotone. Once the flood protection levee and ecotone have been constructed and the levees are breached, approximately 2,900 acres of former salt ponds would be returned to tidal action and are expected to become vegetated marsh once sufficient sediment is deposited through natural processes to support marsh vegetation, a process that is expected to take many years.

As stated in the policies cited above, the Commission can authorize fill for protecting shorelines, to create or enhance habitat, and to provide public access. These are the only uses proposed on fill in the South Bay shoreline concept plan. The Commission's policies require that all proposed fills in water-covered areas of the Commission's jurisdiction be the minimum necessary, and be designed to minimize adverse impacts on the Bay's natural resources.

While the size and scope of the fill proposed for shoreline protection, habitat enhancement, and public access with this proposed project is much larger than previous projects authorized by the Commission, the Commission has authorized fill in the Bay and in salt ponds for such water-oriented uses before. Most recently, the Commission concurred with the USFWS that placing dredged material on approximately 15 acres (653,400 square feet) of tidal marsh to create habitat features designed to enhance the productivity, functioning and habitat value of the surrounding marshlands was consistent with Commission law and policies (C2014.004). The Commission also concurred with USFWS's determination that placing dredged materials on approximately 4.0 acres to raise pond bottoms and create marsh

mounds at lower Tubbs Island (San Pablo Bay Wildlife Refuge) was consistent with the Commission's law and policies (C1993.011.01). In BCDC Permit No. M2012.016 and M2014.025.01 to the California Coastal Conservancy, the Commission authorized the placement of a total of 5,000 square feet of fill in tidal marshes to create high tide refugia for the endangered Ridgway's Rail at Belmont Slough in the City of Belmont, Cooley Landing in the City of Menlo Park, and Martin Luther King Jr. Marsh, in the City of Oakland. Creating ecotone habitat has also been an important design feature in large marsh restoration projects in diked baylands (Consistency Determination No. C2004.005 to the U.S. Army Corps of Engineers to construct Hamilton in Marin County, and Consistency Determination No. C2005.007 to USFWS for restoring Cullinan Ranch just north of State Route 37 in Napa County). As with the South San Francisco Bay Shoreline Phase 1 Feasibility Study and Conceptual Plan, these project elements were constructed to provide refugia for Bay marsh species and opportunities for marsh transgression with sea level rise (the inland retreat of tidal marsh to adjoining upland areas with sea level rise).

1. **Priority Use Designation.** The entire project area is designated on Bay Plan Map No. 7 as a wildlife refuge. While the ponds currently provide habitat for many species, the habitat value of the project site is expected to be greatly enhanced by returning tidal action to these ponds and as the ponds evolve from subtidal habitat, to intertidal mudflat, to vegetated tidal marsh. The ecotone constructed along the Bay edge of the flood protection levee is designed to provide high tide refuge for wildlife, as well as a place for marshes to transgress upland with sea level rise. The proposed restoration could not occur without construction of the flood protection levee to protect inland areas from tidal flooding.

2. **Alternative Upland Location.** The Shoreline Study analyzed several project alternatives, including a nonstructural alternative that did not include constructing a flood control structure. Their analysis concluded that even if the community of Alviso was relocated (at much greater cost than the proposed project), San Jose's Wastewater Treatment Facility would still need a levee to protect this costly and vital infrastructure from flooding.

3. **Minimum Amount Necessary.** The amount of fill (41.6 acres) for the flood protection levee was determined by the engineering standards necessary to build a stable barrier to withstand a hundred year storm event with medium range projected sea level rise over the next 50 years. The appropriate size of an ecotone that would provide upland refugia both now and over the 50 year period of analysis the Corps used in evaluating the effects of the proposed project, and hence the amount of fill needed to construct the ecotone, is more subjective. In nature, ecotones vary widely in size, from a few feet to many thousands of feet. The project partners chose a 30:1 sloped ecotone for a number of reasons, including the lack of transitional habitat in the south Bay, the desire to create room for Bay marshes to transgress landward with sea level rise, and the flood control benefits provided by a relatively gentle bayward facing slope. Some ecologists have recommended as much as 100:1 ecotone slopes for this project. With the breaching of the outer pond berms, 66 of the 96 acres

(69 percent of the ecotone) filled to create ecotone habitat will be below five feet Mean Sea Level and can be expected to support intertidal habitat. Above five feet Mean Sea Level, the ecotone would be expected to support a variety of upland grass and shrub species, including many nonnative species. As noted earlier, the project partners intend to convene a design charette to consider different configurations for the ecotone (e.g. perhaps a wider ecotone in areas where greater wave erosion is expected, or a more variable ecotone to promote greater biological diversity and visual interest) as well as how to most effectively use fill and in what configurations if the project partners are unable to obtain the full 1.51 million cubic yards needed to build a 30:1 ecotone. In addition, the project partners may consider ways in which the ecotone can be adapted to rising seas by placing additional fill in response to the actual sea level rise, as opposed to projected sea level rise. *These are some, but likely not all, of the issues to be resolved before the Corps submits the next consistency determination for this phased project*.

4. **Effects on Bay Resources.** As has been stated above, a primary project purpose is to increase the habitat functions and value of the 2,900-acre project area. The primary means by which this would be accomplished is by returning the area to full tidal action once inland areas are protected from tidal flooding with the construction of a flood protection levee. An ecotone for high tide refugia, to provide greater habitat diversity, and to allow marsh transgression inland with sea level rise would be built against the bayward face of the levee. While the scale of this project is much larger than others brought to the Commission, the approach has been tried successfully at smaller scales elsewhere. As the project has not been developed beyond a conceptual plan, it can be expected that as the project is more fully designed, the project's approach to improving habitat function would be better refined and defined. Such plans will reflect the current state of restoration science and should plan for how the site can be adaptively managed over time to increase the likelihood that the marsh restoration efforts are successful.

5. **Valid Title**. Property ownership within the study area is complex. The USFWS owns and manages the 8,000-acre Alviso pond complex within which approximately 2,045 acres of the area included in the South Bay Shoreline Plan are located. Pond A18 (about 856 acres) is owned by the City of San Jose. Both USFWS and the City of San Jose are project partners. The Corps' consistency determinations states that "all necessary property rights will be acquired and evidence of these rights will be provided to BCDC prior to construction."

The Commission finds that the project described in the South San Francisco Bay Shoreline Phase 1 Feasibility Study *I is generally consistent with its law and policies regarding fill in the Bay and in salt ponds.*

C. **Public Access**

1. **Maximum Feasible Public Access.** Section 66602 of the McAteer-Petris Act states that "…existing public access to the shoreline and waters of the…[Bay] is inadequate and that maximum feasible public access, consistent with a proposed project, should be provided." The Bay Plan Public Access policies state that "a proposed fill project should increase public access to the Bay to the maximum extent feasible…," and that "access to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available." Public access to some natural areas should be provided to permit study and enjoyment of these areas. However, some wildlife are sensitive to human intrusion. For this reason, projects in such areas should be carefully evaluated in consultation with appropriate agencies to determine the appropriate location and type of access to be provided. Public access should be sited, designed and managed to prevent significant adverse effects on wildlife.

   The project would result in a net reduction of public access. While direct access between Alviso Slough and the trails along Coyote Creek would be improved by providing a more direct route on top of the new flood protection levee, breaching levees to return the ponds to tidal action would eliminate portions of existing trails. For example, the Corps states, "by breaching the existing A9-A15 pond berms, the project will modify the Alviso Slough Loop Trail. Once all the ponds are restored, the trail length will decrease from an approximately 9 mile loop to a 3.3 mile trail out-and-back trail system on the eastern side of Ponds A12, A13, and A15."

   The project proposes a number of public access improvements to offset the loss of some trails. Trails on the top of the new flood protection levee would be higher, wider, and on an improved trail surface. In addition, the proposed project includes two pedestrian bridges that would provide better connectivity for trail users. On the Wildlife Refuge, a new 380-foot-long pedestrian bridge would be constructed over the Union Pacific Railroad tracks at the northeast corner of Pond A12 and spanning the proposed flood gate to be constructed at this location. A new pedestrian bridge across Artesian Slough would allow connectivity to the new trail to be built on the flood protection levee bordering Pond A18 and eventually connecting to the trails along Coyote Creek. In addition, a 1.6-mile paved section of bicycle trail would be constructed along the western side of State Route 237 to provide bicycle commuters an alternative, more direct route than trails on the refuge. Finally, viewing platforms, interpretive signs, and benches would be installed in areas of the Refuge. *These facilities are planned but not yet designed and will be the subject of future consistency determinations to be submitted by the Corps in this phased consistency approach*.

   In determining whether a project provides "maximum feasible public access to the Bay," the Commission often looks to its past actions on similar projects. The Commission has authorized several large marsh restoration projects in recent

years, primarily in salt ponds and all with significant public access areas and improvements. In fact, some of the access trails to be eliminated with implementation of this project were the subject of previous Commission consistency actions.

The Commission finds that the proposed project described in the South San Francisco Bay Shoreline Phase 1 Feasibility Study *I is generally consistent with the Bay Plan policies regarding public access and that the new plan to provide public access in this area, at the expense of some existing trails, makes sense in light of the proposed tidal restoration in the project area.*

D. **Safety of Fills and Climate Change.** The Bay Plan policies on Safety of Fills state that "[a]dequate measures should be provided to prevent damage from sea level rise and storm activity that may occur on fill or near the shoreline over the expected life of a project…. New projects on fill or near the shoreline should…be built so the bottom floor level of structures will be above a 100-year flood elevation that takes future sea level rise into account for the expected life of the project." The Bay Plan policies on Climate Change state, "within areas that a risk assessment determines are vulnerable to future shoreline flooding that threatens public safety, all projects… should be designed to be resilient to mid-century sea level rise projection" and "[i]f it is likely the project will remain in place longer than mid-century, an adaptive management plan should be developed to address the long-term impacts that will arise…." The Climate Change policies go on to state that, "[u]ntil a regional sea level rise adaptation strategy can be completed, the Commission should evaluate each project proposed in vulnerable areas on a case-by-case basis to determine the project's public benefits, resilience to flooding, and capacity to adapt to climate change impacts." The policies also state that natural resource restoration projects "should be encouraged, if their regional benefits and their advancement of regional goals outweigh the risk from flooding."

A primary project purpose is to protect the community of Alviso, neighboring businesses, and the San Jose Wastewater Treatment Plant from tidally flooding. The Corps states that implementation of the concept plan "…will provide protection from a one-percent annual chance of exceedance (ACE) flood through the end of the 50-year period of analysis, accounting for sea level rise under the USACE high scenario. Additionally, this project will tie into the surrounding FRM [flood risk management] projects, which also provide protection from a one-percent ACE flood." The Corps' consistency further states "the project is consistent with USACE planning policies, which calls for a typical period of analysis of 50 years." "Regardless, USACE conducted an end-of-century analysis (through 2100) using the high sea level rise rate. The analysis showed that even with extremely high sea level rise, the project will be resistant through 2067. As designed, the project could likely obtain right-of-ways to expand [sic] the FRM levee beyond 2067 to 2079; however, beyond this date additional detailed analysis will likely be required and additional right-of-ways obtained."

For the period from 2017 through 2067 (approximately mid-century), the Corps used a low rate of sea level rise of 6.12 inches and a high rate of 31.08 inches. For the period from 2017 through 2100 (end of century), the Corps used a low rate of sea level rise of 31.08 inches and a high rate of 60.6 inches. The Commission, based on the National Research Council projections, currently uses sea level rise projections ranging from 10-17 inches at mid-century (2050) and 31-69 inches through the end of the century. The Corps' Consistency Determination states that the results of the Corps' analysis "indicate that for the low rate, the project will provide a level of risk reduction for the one-percent bayside water level through the year 2100. The current FEMA certification requirement of two feet of freeboard will also be maintained. For the high rate the project will provide risk reduction against the one-percent bayside ACE water level through 2094; however, the 2-foot FEMA certification requirement will only be maintained through 2067.... The project is resilient to 2067 (mid-century). Based on consideration of actionable climate science, the earliest date that would trigger a comprehensive revision of flood risk in the area would be year 2067 if a significant acceleration of sea level rise occurred, resulting in the high sea level rise scenario. The project will have adaptive capacity to elevation 16.0 feet NAVD88…. Beyond this time, additional plans will need to be made."

The Commission finds that that the proposed project described in the South San Francisco Bay Shoreline Phase 1 Feasibility Study *I is generally consistent with the Commission's safety of fills and sea level rise policies.*

E. **Natural Resources**

1. **Tidal Marshes and Tidal Flats.** The Bay Plan policies on tidal marshes and tidal flats state, "where and whenever possible, 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…." The policies also state, "[a]ny ecosystem restoration project should include clear and specific long-term and short-term biological and physical goals, and success criteria, and a monitoring program to assess the sustainability of the project. Design and evaluation of the project should include an analysis of: (a) how the system'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 sediment 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. If success criteria are not met, appropriate adaptive measures should be taken." The policies further state that, "[b]ased on scientific ecological analysis and consultation with the relevant federal and state resource agencies, a minor amount of fill may be authorized to enhance or restore fish, other aquatic organisms or wildlife habitat…."

The project would restore approximately 2,900 acres of tidal marsh habitat to areas long diked off from the Bay and used for salt production. While it will take many years for the area to be fully restored, each step on the way to evolving into a tidal marsh would provide benefits to Bay resources as the site moves from subtidal flats, to intertidal flats, and eventually to tidal marsh. In addition, the ecotone would provide habitat diversity, and a place where tidal marsh can transgress inland with rising seas.

The Corps is proposing a 10-year monitoring program after each project phase is breached so that it can assure the project meets ecosystem restoration objectives and to provide information allowing land managers to adaptively manage the site. Some elements of that monitoring program include: (1) measurements of water levels, sediment accretion rates, and suspended sediment concentrations; (2) tidal marsh habitat acreage; (3) abundance of non-native plants; (4) plant species composition in upland transition zones; and (5) predators of Ridgeway's rail and salt marsh harvest mice. Per Corps policy, the first 10 years after each phase of pond breaching will be cost shared by the Corps and non-federal sponsors. After each 10-year period, the non-federal sponsors would be responsible for continuing any additional monitoring. However, because so much of the project area has subsided, it will likely take several years before sufficient sediments accumulates in many of the ponds sufficient to achieve elevations that will support marsh vegetation. Thus, it is likely that after the 10-year period of cost-shared monitoring and adaptive management, the restored ponds will only be sparsely vegetated. In addition, 10 years is probably too soon for much relevant information to be gathered about how the ecotone functions in the face of sea level rise, information of key interest to other efforts to assure that San Francisco marshlands persist as sea level rises, and the effectiveness of ecotones (AKA horizontal levees) as an adaptive strategy.

2. **Fish, Other Aquatic Organisms and Wildlife.** The Bay Plan policies on Fish, Other Aquatic Organisms and Wildlife state that, "[t]o assure the benefits of fish, other aquatic organisms and wildlife for future generations… the Bay's tidal marshes, tidal flats, and subtidal habitat should be conserved, restored, and increased." These policies also state that "[t]he Commission should consult with the California Department of Fish and Wildlife 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…and give appropriate consideration of (their) recommendations in order to avoid possible adverse impacts of a proposed project on fish, other aquatic organisms and wildlife habitat."

   A primary project purpose is restoring approximately 2,900 acres of former salt ponds to full tidal action and their eventual evolution to tidal marsh habitat. While the population of some species in the area are likely to decline with the loss of pond habitat, breaching the levees is likely to result in immediate benefits to water quality, tidal circulation, and the populations of a great many other species, including most endangered and special status species such as the Ridg-

way's rail, California black rail, salt marsh harvest mouse, steelhead, and green sturgeon. Based on the results of other restoration projects, the benefits to fish and wildlife can be expected to be dramatic and significant, though it will be many years before fully functioning tidal marsh becomes established

The USFWS issued a biological opinion for this concept plan on April 27, 2015. The NMFS issued a not likely to adversely affect concurrence letter on May 19, 2015. Because the CEQA document has not yet been certified, California Fish and Wildlife has not yet issued a California Endangered Species Act incidental take permit.

3. **Water Quality.** The Bay Plan policies on Water Quality state, "Bay water pollution should be prevented to the greatest extent feasible. The Bay's tidal marshes, tidal flats, and water surface area and volume should be conserved and, whenever possible, restored and increased to protect and improve water quality." The policies also state, "[w]ater quality in all parts of the Bay should be maintained at a level that will support and promote the beneficial uses of the Bay as identified in the San Francisco Bay Regional Water Quality Control Board's (RWQCB) Basin Plan and should be protected from all harmful or potentially harmful pollutants." The policies, recommendations, decisions, advice, and authority of the State Water Resources Control Board and the Regional Board should be the basis for carrying out the Commission's water quality responsibilities." Finally, the Bay Plan policies on Water Quality state that "new projects should be sited, designed, constructed, and maintained to prevent or, if prevention is infeasible, to minimize the discharge of pollutants into the Bay by: (a) controlling pollutant sources at the project site; (b) using construction materials that contain non-polluting materials; and (c) applying appropriate, accepted, and effective best management practices; especially where water dispersion is poor and near shellfish beds and other significant biotic resources."

   With the introduction of tidal action into the ponds and the project elements designed to promote tidal circulation (e.g. dredging starter channels, lower outer salt pond berms, placing ditch blocks in former borrow ditches), water quality in the area would improve. With improving on-site circulation and drainage patterns and the establishment of marsh vegetation, these areas would have enhanced wetland functions which, in turn, would increase the natural water-filtering capability of the marsh. There is the potential for temporary impacts to water quality during construction activities, but several measures are proposed to reduce construction impacts on water quality, including the installation of a berm or silt fences around stockpiled soils during construction to minimize erosion and sediment migration, locating construction staging areas in uplands and confining them to as small an area as possible, and providing environmental sensitivity training to contractors working on the project.

   One potential water quality concern is the project's potential to expose fish and wildlife to methyl mercury. Alviso and Artesian Sloughs are known to have relatively high mercury concentrations from sediments washed from historic

mercury mines in the upper watershed. Mercury is taken in by wildlife primarily through prey contaminated with methyl mercury, which readily binds to living tissue and accumulates in aquatic food webs. We are beginning to understand better how mercury becomes methylated and hence, bioavailable. Mercury is converted to methyl mercury in anoxic conditions. Hence, a site with well oxygenated tidal water regularly flushing the site is not expected to methylate mercury as readily as ponds. However, construction activities, such as dredging connecting channels across fringe marshes to connect breaches to adjacent slough may expose some wildlife to mercury buried in the muds. There are studies underway to increase our understanding about how mercury is methylated in wetlands and how best to manage and reduce the methylation of mercury in restored wetlands*. As project plans are developed, the project partners will be required to use the best available science to reduce the risk of mercury exposure, measures likely to be required in future project consistency determinations.*

Water Quality Certification will not be obtained from the San Francisco Bay Regional Water Quality Control Board until the preconstruction engineering and design (PED) phase of the project.

The Commission finds that the proposed project described in the South San Francisco Bay Shoreline Phase 1 Feasibility Study *I is generally consistent with its laws and policies regarding natural resources and water quality.*

F. **Review Boards.** As the Shoreline Plan is still conceptual, and because of the very limited time allowed to review consistency determinations under the CZMA, neither the Engineering Criteria Review Board nor the Design Review Board have reviewed the project to date. Future reviews by these review boards likely will be required to analyze subsequent phases of this phased consistency determination.

G. **Environmental Review.** The CEQA document prepared for the project has not yet been certified, which will occur after final state and agency review of the final EIR and statement of overriding consideration.