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

STAFF SUMMARY REPORT (Elizabeth Christian)
MEETING DATE: December 11, 2019

ITEM: 7

SUBJECT: **U. S. Army Corps of Engineers, San Francisco District –** Adoption of Reissued Waste Discharge Requirements and Water Quality Certification for the San Francisco Bay Federal Channel Maintenance Dredging Program 2020 through 2024

CHRONOLOGY: 2015 – Waste Discharge Requirements and Water Quality Certification for Maintenance Dredging Program adopted.

DISCUSSION: The Revised Tentative Order (Appendix A) would reissue Waste Discharge Requirements (WDRs) and Water Quality Certification (WQC) for the U. S. Army Corps of Engineers (USACE) 2020-2024 maintenance dredging program for the federal navigation channels in San Francisco Bay.

Background

The USACE maintenance dredging program involves 11 federal navigation channels, including the dredging activity itself, disposal of dredged material in the Bay at four designated disposal sites, and beneficial reuse of dredged material consisting of beach nourishment offshore of San Francisco's Ocean Beach. Beneficial reuse projects that use USACE dredged material, including restoration of tidal marsh habitat along the Bay margin and levee maintenance, are regulated under separate Board-adopted orders issued to each project site.

The Order's requirements include:

1) Limiting disposal of dredged material at in-Bay disposal sites consistent with the goals of the Long-Term Management Strategy (LTMS) for the placement of dredged material in the San Francisco Bay Region.
2) Continuing to restrict hydraulic suction hopper dredge use in the Bay to one channel (either Pinole Shoal or Richmond Outer Harbor) per year, to fully address potentially significant impacts of hydraulic dredging, i.e., entrainment of fish species listed as threatened or endangered under State and federal endangered species acts. Implementation of other measures to avoid, minimize, and mitigate entrainment impacts are also required.
3) Evaluation of sediment suitability for the proposed placement sites coordinated through the multi-agency Dredged Material Management Office (of which the Board is a member) for each proposed dredging episode.
4) A yearly analysis of alternatives to aquatic in-Bay disposal of dredged sediments pursuant to section 404(b)(1) of the Clean Water Act (CWA) prior to approval of dredging and disposal episodes.

Comments Received and Staff Responses

The initial tentative order was circulated for a 30-day public comment period on October 4, 2019. We received comments (Appendix B) from USACE, San Francisco Baykeeper

(Baykeeper), and California Marine Affairs and Navigation Conference (CMANC). All the comments are addressed in the Response to Comments (Appendix C).

USACE recommended adoption of the Tentative Order. However, USACE commented that, as a federal agency, its project should only be subject to federal law and not to State requirements under the Water Code or WDRs. USACE also objected to the application of State environmental laws to a federal project and maintained that the requirement to reduce hopper dredging in the Bay is unnecessary and inappropriate.

We disagree with USACE's legal arguments in its comments. The Water Board has been issuing WDRs to the Corps for its navigational channel maintenance program since 1990, so we disagree with USACE about any lack of authority to issue WDRs or to regulate dredging to lessen the water quality and environmental impacts, including fish entrainment, of the dredging activities.

Baykeeper's most significant comments requested that the Tentative Order be revised to 1) prohibit hydraulic dredging to prevent entrainment of imperiled native fish species; and 2) require that USACE beneficially reuse a minimum of 40 percent of its dredged sediment, or, at a minimum retain Provision B.2.

We disagree with Baykeeper's requests. The Tentative Order requires implementation of mitigation measures necessary to protect fish habitat beneficial uses as recommended by CDFW, the primary agency charged with responsibility for protecting endangered species in California. Further, it is not logistically practicable to require USACE to beneficially reuse a minimum of 40 percent of the sediment from its maintenance dredging program over the five-year term of the Tentative Order.

CMANC largely asked for clarification about the Tentative Order and about the goals and process for the Long-Term Management Strategy for the Placement of Dredged Sediment in the San Francisco Bay Region (LTMS).

We have provided detailed responses to these comments in Appendix C explaining the State perspective and have made no significant changes to the Order.

In general, revisions to the Order consisted of non-substantive modifications to update language, or clarify language in the Order, correct typographical errors, and make minor editorial and formatting changes. As explained in Appendix C, two staff-initiated changes were also made to the Tentative Order to revise the text to be consistent with Clean Water Act section 404(b)(1) and to move up the due date for the fish entrainment monitoring plan and subsequent annual updates to the plan.

RECOMMEN-DATION: Adopt the Revised Tentative Order

Appendices:
A. Revised Tentative Order
B. Comments Received
C. Response to Comments

APPENDIX A
Revised Tentative Order

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

TENTATIVE ORDER

REISSUED WASTE DISCHARGE REQUIREMENTS and
WATER QUALITY CERTIFICATION for:

U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT
SAN FRANCISCO BAY FEDERAL CHANNEL MAINTENANCE DREDGING PROGRAM, 2020 THROUGH 2024

The California Regional Water Quality Control Board, San Francisco Bay Region (Water Board), finds that:

Purpose

1. This Order constitutes Waste Discharge Requirements (WDRs) and Water Quality Certification (Certification) for the U.S. Army Corps of Engineers, San Francisco District's (USACE) federal navigation channel maintenance dredging program in the San Francisco Bay Area and for disposal of dredged material created by these activities over the January 2020 through December 2024 five-year period. USACE previously implemented San Francisco Bay Area navigation maintenance dredging under WDRs and Water Quality Certification Order No. R2-2015-0023 issued for a five-year period starting in 2015. To fully address potentially significant impacts of hydraulic dredging, i.e., entrainment of fish species listed as threatened or endangered under State and federal endangered species acts, this Order conditions dredging activities to reduce the use of hydraulic suction hopper dredges in San Francisco Bay.

Scope

2. USACE maintains the navigability of federally-authorized channels at the entrance to and in San Francisco Bay. USACE removes accumulated sediment (primarily silt and clay) by hydraulic (e.g., self-propelled hopper, hydraulic cutter head) or mechanical (e.g., clamshell) dredges and typically disposes of the dredged material by either self-propelled hopper, dump scow, or by use of a pipeline to transport material to beneficial reuse sites.

3. This Order applies only to maintenance dredging, which is performed on a periodic basis to previously authorized depths and removes recently deposited materials. This Order does not apply to "new work" dredging, which removes material to new authorized depths and may involve dredging consolidated materials or historically-contaminated materials.

4. For the five-year period covered by this Order, USACE proposes to perform maintenance dredging at several locations in the Bay Area (Figures 1 - 11). Based on the range of volumes that USACE has proposed for planning purposes over the next five years (Tables 1 and 2), the maximum total dredging volume within San Francisco Bay is 12.9 million cubic yards (mcy) and the maximum

total dredging volume in the San Francisco Main Ship Channel (MSC) west of the Golden Gate, outside San Francisco Bay is 2.25 mcy.

Long-Term Management Strategy for Disposal of Dredged Material

5. The Water Board and USACE are agencies that participate in the Long-Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region. Other agencies participating in LTMS are U. S. EPA, the San Francisco Bay Conservation and Development Commission (BCDC), and the California State Lands Commission (CSLC). These LTMS agencies evaluated alternative management options for disposal and reuse of dredged sediment over a 50-year planning horizon in a Policy Environmental Impact Statement/Programmatic Environmental Impact Report (EIS/EIR) completed in October 1998. The EIS/EIR indicated that dredged material disposal may have adverse impacts on the beneficial uses of the waters of San Francisco Bay and that in-Bay disposal should be reduced from historical levels.

6. The LTMS agencies determined that the preferred alternative is to reduce disposal in the Bay to a long-term average of 1.25 mcy or less per year, with approximately 80 percent of dredged sediment to be targeted for beneficial reuse or out-of-Bay disposal and only 20 percent targeted for in-Bay disposal. This long-term goal can be accomplished by maximizing beneficial reuse of dredged material suitable for habitat restoration along the Bay margins and disposing suitable dredged material outside the Bay only when beneficial reuse is not practicable. As the science and knowledge regarding climate change and the resulting rise in sea levels has grown, it is now recognized that the low-lying areas of the Bay, which were once historical marshes, are in jeopardy of being inundated both by rising sea levels and storm surges that are occurring more frequently and at greater intensity than previously experienced. In addition, in the mid-2000s, scientists from the U.S. Geological Survey identified a significant reduction in suspended sediment loading from the Sacramento-San Joaquin river system. Less sediment in suspension and circulation within the Bay impairs the ability of shorelines, mudflats, and tidal wetlands to withstand erosion and inundation, especially as sea level rises. The Water Board therefore finds that it is in the public interest to encourage beneficial reuse of suitable dredged material as one component of regional adaptation to climate change and reduced suspended sediment loading to the Bay.

7. Specific guidance for implementing the LTMS long-term goal of reducing in-Bay disposal is described in the LTMS Management Plan (Management Plan), approved in July 2001 by the LTMS Executive Committee. To achieve the goal, the Management Plan included an in-Bay disposal target of 1.25 mcy or less annually over a three-year period. To allow time for planning, budgeting, and creating alternatives to in-Bay disposal, the Management Plan established a 12-year transition period for achieving the in-Bay disposal target. The transition period's disposal volume limits were voluntary as long as the long-term goal was met overall. Public assurance that in-Bay disposal would in fact decrease was provided by language identifying when strict volume allocations

to individual dredgers would be triggered (i.e., a disposal allocation trigger). The transition period successfully concluded in 2012 with in-Bay disposal targets met every three years as described in the Management Plan.

USACE is the largest dredger in the Bay Area. Efforts by USACE to reduce in-Bay disposal are critical to successful implementation of the LTMS long-term goal. In keeping with the LTMS long-term goal, USACE must reserve sufficient monthly capacity at in-Bay disposal sites for smaller non-USACE projects. The 1.25 mcy annual in-Bay disposal target allocates 0.25 mcy/year to “small” dredging projects, defined in the Management Plan as those projects that generate less than 50,000 cy per year on average with a design depth of less than -12 feet MLLW, leaving the remaining 1.0 mcy of the disposal goal plus a 0.25 mcy “contingency volume” to be split between USACE and the medium-sized maritime industry dredgers. If the total average annual in-Bay disposal volume from the prior three-year averaging period exceeds 1.5 mcy (1.25 mcy target plus 0.25 mcy contingency), both the Management Plan and the Basin Plan direct the Water Board to consider imposition of mandatory in-Bay disposal allocations for all dredgers.

Since transitioning to the final in-Bay disposal target in 2012, USACE’s dredging has accounted for approximately 70 percent of the total volume of sediment dredged in San Francisco Bay by all dredgers. USACE’s combined average annual in-Bay disposal volume over the first two post-2012 LTMS averaging periods (2013 – 2015 and 2016 - 2018) was 0.816 mcy per year. Neither the 1.5 mcy average annual in-Bay disposal allocation trigger nor the 1.25 mcy average annual in-Bay disposal target was exceeded during these averaging periods. For years 2020 through 2024, we expect USACE to continue to maintain an average annual in Bay disposal volume of 0.816 mcy or less without resulting in exceedance of the in-Bay disposal allocation trigger. The total not to exceed in-Bay disposal volume for this Order is therefore 4.08 mcy (calculated as 0.816 mcy times five years).

This Order authorizes the Executive Officer to consider allowing USACE to exceed 4.08 mcy of in-Bay disposal provided that the additional volume will not result in an exceedance of the 1.5 mcy allocation trigger and also that 50 percent of the excess volume will be beneficially reused at an aquatic habitat creation or restoration project. This will ensure that the allocation trigger will not be exceeded. It is also consistent with the LTMS goals of maximizing the use of dredged material as a resource. In addition, it takes into consideration the USACE’s disproportional use of in-bay disposal by providing 10 percent more than the minimum beneficial reuse percentage in the preferred alternative in the EIS/EIR for the LTMS Management Plan (Alternative 3, LTMS EIS/EIR), which included a minimum of 40 percent beneficial reuse (LTMS Management Plan, p. 1-12). USACE’s disproportional use of in-bay disposal reduces the availability of in-bay disposal for other dredgers thereby increasing their burden to achieve a minimum of 40 percent beneficial reuse. Thus, requiring USACE to beneficially reuse 10 percent more than the minimum beneficial use goal for this excess volume will offset the loss of in-

bay disposal volume for other dredgers by providing a greater proportion of dredge material for beneficial reuse.

Dredging Projects Summary

8. USACE's maintenance dredging program provides for maintenance of ten federal navigation channels inside San Francisco Bay, including six channels dredged annually or biennially and four channels with less frequent dredging cycles. These ten channels have a combined surface area that equates to approximately 2.22 percent of the total surface area of San Francisco Bay. During each fiscal year or every other year from 2020 to 2024, USACE plans to dredge the channels most critical to the region's maritime trade and to regional and national economies: Oakland Harbor, Richmond Outer Harbor, Richmond Inner Harbor, Suisun Bay and New York Slough, Pinole Shoal (San Pablo Bay), Redwood City Harbor (not including the San Bruno Channel). Other channels that USACE may dredge once at some point during the next five years, if funding becomes available, include the San Rafael (Inner) Canal and Across the Flats, the Napa River (upper and lower reaches), Petaluma River (upper portion and Across the Flats), and the San Bruno Channel. Each of these channels is either due or overdue for dredging.

   USACE also annually dredges the Main Ship Channel outside San Francisco Bay, which is not part of the LTMS Program. Although the eastern portion of the channel is within the seaward limit of State submerged lands (three nautical miles from the coastline) and is therefore within Water Board jurisdiction, dredging has not taken place in this portion of the channel over the past 20 years and USACE does not expect this condition to change during the next five years.

   The general locations of the channels are depicted collectively in Figure 1. The channel boundaries are more precisely shown on the project maps provided in Figures 2 - 10. Since this Order is a five-year WDR/Certification, the actual shoaling locations are not yet known. Dredging will be confined within the channel boundaries shown in Figures 2 - 10 and shall not exceed the project depth, as shown in Tables 1 and 2, plus an over dredge depth of 2 feet. Placement of dredge material will be confined to the boundaries of the placement sites depicted in Figures 1 - 10.

   Table 1 summarizes USACE's 2020 - 2024 dredging activities under the LTMS Program and Table 2 summarizes USACE's 2020 - 2024 dredging of the Main Ship Channel, including maximum estimated dredging volumes, the Water Board's preferred placement sites, the federal standard placement sites, and alternate placement sites. The volume estimates are based on historical data.

Table 1. 2020 – 2024 San Francisco Bay Dredging Project Summary

Project	Maintenance Depth (feet below MLLW)[1]	Dredge Type	Expected Dredging Frequency in 2020-2024	Maximum Planning Volume per Dredge Episode (cy)	Water Board Preferred Placement Site	Federal Standard Placement Site[2]	Alternate Placement Site
Richmond Inner Harbor	38	Clamshell-Bucket	Annual	350,000	Habitat Restoration Beneficial Reuse	SF-DODS	Upland Beneficial Reuse
Richmond Outer Harbor	45	Clamshell-Bucket or Hopper*	Annual (Biennial)	350,000 (700,000)	Habitat Restoration Beneficial Reuse	SF-11	Other In-Bay Site (SF-10)
Oakland Inner and Outer Harbor	50	Clamshell-Bucket	Annual	950,000	Habitat Restoration Beneficial Reuse	SF-DODS	Upland Beneficial Reuse
Pinole Shoal	35	Clamshell-Bucket or Hopper*	Annual (Biennial)	300,000 (600,000)	Habitat Restoration Beneficial Reuse	SF-10	Other In-Bay Site (SF-11)
Suisun Bay Channel and New York Slough[3,4]	35	Clamshell-Bucket	Annual	200,000	Habitat Restoration Beneficial Reuse	SF-16	Other In-Bay Site (SF-9)
Redwood City Harbor (Harbor Channel)	30	Clamshell Bucket	Twice (2021 & 2023)	300,000	Habitat Restoration Beneficial Reuse	SF-11	SF-DODS

Project	Maintenance Depth (feet below MLLW)[1]	Dredge Type	Expected Dredging Frequency in 2020-2024	Maximum Planning Volume per Dredge Episode (cy)	Water Board Preferred Placement Site	Federal Standard Placement Site[2]	Alternate Placement Site
Redwood City Harbor (San Bruno Shoal)	30	Clamshell or Hopper	Once	16,000	Habitat Restoration Beneficial Reuse	SF-11	SF-DODS
Petaluma River Channel	8	Hydraulic Cutterhead-Pipeline	Once	350,000	Habitat Restoration Beneficial Reuse	Shollenberger Park (Upland Sponsor-Provided Site)	Upland Beneficial Reuse
Petaluma River (Across the Flats)	8	Clamshell Bucket	Once	250,000	Habitat Restoration Beneficial Reuse	SF-10	Upland Beneficial Reuse
Hopper Dredge Sea Trials	NA	Hopper	Up to five times	12,000	Beach Nourishment Beneficial Reuse	SF-11	SF-8
Lower Napa River Channel (Mare Island Strait Causeway to Asylum Slough)	9[5]	Clamshell-Bucket	Once	13,000	Habitat Restoration Beneficial Reuse	Upland (Sponsor-Provided)	Other Upland Site

Project	Maintenance Depth (feet below MLLW)[1]	Dredge Type	Expected Dredging Frequency in 2020-2024	Maximum Planning Volume per Dredge Episode (cy)	Water Board Preferred Placement Site	Federal Standard Placement Site[2]	Alternate Placement Site
Upper Napa River Channel (Asylum Slough to Third Street)	9[6]	Clamshell-Bucket	Once	55,000	Habitat Restoration Beneficial Reuse	Upland (Sponsor-Provided)	Other Upland Site
San Rafael Creek Channel	6 (Inner Canal); 8 (Across the Flats)	Clamshell-Bucket	Once	87,000	Habitat Restoration Beneficial Reuse	SF-10	Other In-Bay Site (SF-11)

Notes:

* Both Richmond Outer Harbor and Pinole Shoal cannot be dredged with a hopper in the same year - see Provision 9.

[1] Typical 2-foot overdredge allowances beyond these depths are not shown.

[2] The federal standard is defined as the least-costly dredged material disposal or placement alternative consistent with sound engineering practices, and meeting the environmental standards established by the 404(b)(1) evaluation process or ocean dumping criteria (33 C.F.R. § 335.7).

[3] Aside from regularly scheduled maintenance of this navigation project, USACE would take urgent action outside the work window, as needed, to remove the hazardous shoaling at Bulls Head Reach.

[4] Due to rapid shoaling at Bulls Head Reach, this portion of the Suisun Bay Channel may be advance maintenance dredged by up to 4 feet, plus an additional 2 feet of allowable overdepth.

[5] The authorized depth is -15 feet MLLW but infrequent maintenance has caused some areas to be as shallow or shallower than -10 feet MLLW. To avoid conversion of delta smelt shallow water habitat (-10 feet MLLW or shallower), the project will be dredging to 9 feet MLLW plus 1 foot of overdepth for its entire length per the terms of the U.S. Fish and Wildlife Service's Programmatic LTMS Biological Opinion.

[6] The authorized depth is -10 feet MLLW but infrequent maintenance has caused some areas to be as shallow or shallower than -10 feet MLLW. To avoid conversion of delta smelt shallow water habitat (-10 feet MLLW or shallower), the project will be dredging to 9 feet MLLW plus 1 foot of overdepth for its entire length per the terms of the U.S. Fish and Wildlife Service's Programmatic LTMS Biological Opinion.

cy = cubic yards

mcy = million cubic yards

SF-9 = Carquinez Strait placement site

SF-10 = San Pablo Bay placement site

SF-11 = Alcatraz Island placement site

SF-16 = Suisun Bay placement site

SF-DODS = San Francisco Deep Ocean Disposal Site (55 miles west of Golden Gate)

Table 2. Main Ship Channel Dredging Summary

Project	Maintenance Depth (feet below MLLW)[1]	Dredge Type	Expected Dredging Frequency in 2020-2024	Maximum Planning Volume per Dredge Episode	Water Board Preferred Placement Site	Federal Standard Placement Site[2]	Alternate Placement Site
San Francisco Harbor – Main Ship Channel	55	Hopper	Annual	450,000	Ocean Beach Onshore	SF 8	SF 17

Notes:

[1] Typical 2-foot overdredge allowances beyond these depths are not shown.

[2] The federal standard is defined as the least-costly dredged material disposal or placement alternative consistent with sound engineering practices, and meeting the environmental standards established by the 404(b)(1) evaluation process or ocean dumping criteria (33 C.F.R. § 335.7).

Ocean Beach Onshore = Onshore Ocean Beach placement site

SF-8 = San Francisco Bar Channel Disposal Site

SF-17 = Ocean Beach placement site (near shore site, includes the Ocean Beach demonstration site)

Placement Sites for Dredged Material

9. It is LTMS' goal that sediment dredged from San Francisco Bay be beneficially reused for a variety of purposes, such as wetland restoration, levee maintenance, or construction fill. Existing fully permitted beneficial reuse sites include the Montezuma Wetlands Restoration Project (regulated by Water Board Order No. R2-2012-0089) and the Cullinan Ranch Restoration Project (regulated by Water Board Order No. R2-2010-0108) with remaining sediment placement capacities of approximately 10 mcy and 1.5 – 1.9 mcy, respectively (Figures 1, 5, 6, and 8). The Eden Landing Ecological Reserve Wetland Restoration Project Phase II and the Bel Marin Keys Unit V expansion of the Hamilton Wetland Restoration Project are two other wetland restoration projects currently in the permitting phase and expected to be ready to receive sediment within the next five years (Figures 7 and 9). The dredged sediment reuse capacities of these two sites are 7.2 mcy and 9.5 mcy, respectively. At their own discretion, dredging contractors or the project sponsors may propose to use other permitted beneficial reuse locations. All necessary environmental documentation must be completed for a site prior to it receiving any dredged material.

   Disposal in the Bay consistent with the goal occurs at four designated aquatic disposal sites (Figure 1): the Alcatraz Island Disposal Site (SF-11), the San Pablo Bay Disposal Site (SF-10), the Carquinez Strait Disposal Site (SF-09), and the Suisun Bay Disposal Site (SF-16). Ocean disposal for Bay dredged material occurs at the San Francisco Deep Ocean Disposal Site (SF-DODS), about 55 miles (48 nautical miles) west of the Golden Gate and thus beyond the three-mile offshore limit of Water Board jurisdiction. Under the federal Marine Protection, Research and Sanctuary Act, U.S. EPA must concur with disposal at SF-DODS.

   Sand dredged from the San Francisco MSC may be placed for beneficial reuse (nourishment of the San Francisco littoral cell to help combat erosion at Ocean Beach) at the easternmost portion of the San Francisco Bar Disposal Site (SF-8) (Figure 2), within the three nautical mile limit of Water Board jurisdiction. Pre-site-designation studies concluded that the area would be dispersive, meaning that waves would spread the sand shoreward to the surf zone and beach at such a rate that accumulation would be minimal. However, surveys indicate that spreading occurs at a much slower rate than expected and that underwater shoals impair safe operation of hopper dredges during rough seas. USACE therefore limits use of SF-8 to the extent feasible. USACE is currently conducting a beach nourishment beneficial reuse pilot demonstration study at the Ocean Beach Near Shore Demonstration Site, which is encompassed by the future SF-17 placement site (SF-17), in waters of the Pacific Ocean adjacent to the south-of-Sloat-Boulevard stretch of Ocean Beach (Figure 2). SF-17 is located where waves can potentially feed sediment toward the southern reach of Ocean Beach, which may ultimately help mitigate ongoing shoreline erosion in the area that threatens significant municipal infrastructure, including segments of the Great Highway and major sewer lines running underneath and alongside it. USACE and the U.S. EPA are in the process of formally designating SF-17 as a permanent nearshore placement site for the beneficial use of clean dredged sand under 40 CFR Part 230.8 for Advance Identification of Disposal Sites and section 404 of the Clean Water Act.

Because placement of dredged sediment at beneficial reuse sites is generally more expensive than in-Bay or deep ocean disposal, the Water Board recognizes that additional funding for beneficial reuse may need to be provided by sources outside USACE such as local project sponsors, State appropriations, or granting agencies like the San Francisco Bay Restoration Authority.

Review of Dredging Episodes

10. The Water Board participates in the Dredged Material Management Office (DMMO); a working group with representatives of the State and federal agencies with regulatory authority over Bay Area dredging projects. Staff representatives of the Water Board, USACE, U.S. EPA, BCDC, and CSLC meet regularly to jointly review dredging projects and make consensus-based recommendations to their respective agencies about the suitability of sediments for proposed placement sites based on sediment testing conducted according to DMMO testing requirements. Material proposed to be dredged and placed at ocean, inland aquatic, or beneficial reuse sites requires sediment characterization to predict the environmental impacts associated with dredging and dredged material placement activities. The objective of the sediment testing requirements is to ensure that disposal of dredged material at designated disposal sites occurs without causing unreasonable degradation to the surrounding environment. Generally, sediments are tested for physical and chemical attributes and/or the potential for biological toxicity.

    Representatives from the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) also participate in the DMMO in an advisory capacity. Each DMMO agency retains its independent decision-making authority, but the group has significantly reduced project review time by concurrent consideration of projects. USACE handles the logistics for the operation of the DMMO.

    This Order requires that dredging episodes carried out under this Order will be reviewed by the DMMO for a recommendation on the suitability for disposal or beneficial reuse of the dredged material. Each dredging episode must be approved in writing by Water Board staff.

Barring and Knock-down Dredging

11. ***Barring as part of a dredging episode*:** USACE plans to implement “barring” as a routine part of dredging episodes to smooth out high spots as needed after dredging has occurred. This method involves using a tug to pull a weighted blade across the channel bottom. As the blade encounters material, it scrapes the material into the adjoining areas with deeper depressions, redistributing the shoaled material within the project area. Barring will be restricted to the channel footprint and the project depth, including the over dredge depth allowance. If barring were not utilized as part of dredging episodes, the vessel operator would likely have to dredge below project depth in certain areas in order to ensure safe navigation, resulting in an increased volume of material dredged and decreasing overall efficiency.

    ***Knock-down performed in lieu of dredging*:** Separate from barring, which is

implemented at the end of dredging episodes, USACE anticipates performing several “knock-down” events in lieu of conducting full dredging episodes. Knock-downs would use the same equipment and procedures as barring but would apply to isolated shoals or high-spots rather than an entire channel. Knock-downs are most useful when time constraints may not allow for normal dredging or when a shoal threatening navigation covers a small area of a project area that is otherwise at or below its permitted depth. Conducting separate knock-down operations is often more efficient than mobilizing dredging equipment and transporting the material to a disposal site. Knock-down events occurring separately from full dredging episodes, or in combination with a dredging episode occurring in a different location within the same channel, will be subject to the same coordination with the DMMO as full dredging episodes. The volume of material above project design depth to be knocked down under these separate operations is not anticipated to exceed 15,000 cy per year in each deep draft channel. Each knock-down that is a stand-alone event, and not associated with a dredging episode, must be approved by Water Board staff. Depending on the volume of sediment, contaminant concentrations, and other project-specific details, water quality monitoring may be required and will be coordinated during the episode approval process described in Provision 3 of this Order.

Advance Maintenance Dredging

12. Advance maintenance dredging is utilized in areas where typical shoaling patterns create navigational restrictions on an ongoing basis. Advance maintenance dredging that does not exceed the yearly maximum volume of dredge material shall be allowed and shall be coordinated through the typical DMMO process. Advance maintenance is restricted to areas that exhibit rapid shoaling and the material shall be characterized through the standard DMMO process. If advance maintenance dredging for any channel is expected to exceed the maximum volume shown in Table 1, or reconfiguration of a channel becomes necessary, USACE will notify the Executive Officer pursuant to Provision 2 of this Order.

Emergency Dredging

13. USACE is required to ensure that all navigation channels are dredged to a safe depth. If an area is found to be an unacceptable hazard to life or navigation or threatens to cause an immediate and unforeseen significant economic hardship if corrective action is not taken quickly, USACE may carry out dredging on a limited basis even though that project is not scheduled for dredging. In such cases, an expedited testing and approval process is often necessary. USACE does not anticipate performing more than three emergency dredging episodes consisting of less than 30,000 cy each per year. The Water Board recognizes the need for expedited review of emergency dredging episodes and expects that USACE will still follow the procedures outlined in Provision 3 of this Order for written approval of emergency dredging episodes.

In atypical conditions, such as after an extraordinary storm event, a shoaling situation may be such an immediate hazard that even an expedited review process is not feasible. The Water Board recognizes that USACE has the

authority to remove the immediate hazard without the Executive Officer's approval pursuant to this Order.

Management of the in-Bay Disposal Sites

14. The in-Bay disposal sites are operated as "dispersive" sites, that is, material disposed of at the sites should be dispersed by currents and tidal flows, and the sites should not accumulate material. USACE is responsible for managing and monitoring the sites. USACE manages the total volume, timing, and locations of disposal at the sites and performs regular bathymetric surveys at the sites to determine whether dredged material is accumulating.

15. In the late 1980s, USACE surveys of the Alcatraz disposal site showed a drastic decline in depth and unexpected bottom topography ("mounding"). USACE changed management practices at the Alcatraz site, directing disposal episodes to specific areas within the disposal site, and reducing the monthly allowable volume of disposal during winter months (USACE Public Notice No. 93-3). Table 3, below, shows the monthly and annual maximum volume targets for all dredgers currently in effect for the in-Bay disposal sites. To minimize water quality impacts associated with in-Bay dredged sediment disposal such as temporary increased suspended solids loading and benthic habitat disruption, Provisions 16 and 17 of this Order require that USACE continue to monitor and manage the disposal sites so that the volume targets in Table 3 are not exceeded.

Table 3. Monthly and Annual Maximum Volume Targets

Designated Disposal Site	Monthly Target Volume (cy)	Annual Target Volume (cy)
Alcatraz Island (SF-11)		
October – April	400,000	NA
May – September	300,000	NA
Carquinez Strait (SF-9) – Any Month	1,000,000	NA
San Pablo Bay (SF-10) – Any Month	500,000	NA
Suisun Bay (SF-16)		200,000
Three-year average of the total in-Bay Disposal Volume		1.25 million[a]

Notes
[a] This volume does not include an allowable contingency volume of 250,000 cy per year but does include the 250,000 cy small dredger allowance

Impacts of Dredging and in-Bay Disposal

16. ***Consultations and Work Windows for Dredging*:** During the preparation of the 1998 LTMS EIS/EIR, the LTMS agencies initiated State and federal endangered

species act (ESA) consultations with CDFW, NMFS, and USFWS for maintenance dredging and disposal projects, covering threatened and endangered species and species of special concern, such as the Pacific herring. These programmatic consultations reduced the need for consultation on each individual dredging project by establishing programmatic work windows. These programmatic work windows are based on presence/absence information for various sensitive species and establish times and locations where dredging and disposal activities may take place without further consultation.

The programmatic consultations resulted in biological opinions issued by NMFS and USFWS that provide federal endangered or threatened species "incidental take" authorization for projects operating in the environmental work window for their area. This "take authorization" protects the dredger from enforcement action in the event of accidental harm to a listed species resulting from the dredging project. The programmatic biological opinions issued by NMFS and USFWS do not address incidental take of State-listed species. Coordination with CDFW is necessary if take of State-listed species is expected. As a federal agency, USACE is not required to obtain authorization from CDFW for incidental take of State-listed species because there has been no waiver of federal sovereignty with respect to the California Endangered Species Act (CESA). The Water Board, however, as explained further in Finding 18, must comply with CESA when issuing WDRs and water quality certifications.

Beginning in 2011, USFWS required USACE to annually consult on impacts to delta smelt during dredging of Suisun Bay Channel and New York Slough due to documented occurrences of entrainment during monitoring of hopper dredge use in 2011. USACE has not used a hopper dredge in the Suisun Bay Channel and New York Slough since 2014, as required by USFWS in biological opinions it has issued from 2015 forward. USACE proposes using only mechanical clamshell dredges in the Suisun Bay Channel and New York Slough in 2020 through 2024.

In July 2015, NMFS updated its programmatic LTMS biological opinion to include green sturgeon, which was listed as threatened under the federal ESA in 2006. The updated biological opinion also expanded the salmonid work window to year-round if dredging is conducted with a clamshell dredge and the sediment is placed at a beneficial reuse site, such as a tidal wetlands restoration, that NMFS agrees will provide aquatic habitat benefits for salmonids. Under the updated biological opinion, USACE may opt to dredge certain federal navigation channels with a clamshell dredge outside the work windows and place sediment at a beneficial reuse site without additional consultation with NMFS. All other dredging outside the work window (i.e., hydraulic dredging or clamshell dredging with placement at a non-beneficial reuse site) requires consultation with NMFS and, if applicable, the other resource agencies.

This Order requires that USACE comply with the programmatic LTMS work windows established through consultation with CDFW, NMFS, and USFWS. If USACE proposes dredging outside the established work windows, it must notify the Water Board and implement all applicable mitigation measures established in the programmatic LTMS consultations or individual project consultations.

17. ***Entrainment of Special-Status including Longfin Smelt and Delta Smelt*:** All forms of dredging have the potential to incidentally remove fish and other aquatic life from the environment with the dredged material, a process referred to as entrainment. Animals and plants on top of or embedded in the sediment as well as those in the water column near the dredging apparatus may be entrained. In general, smaller organisms with limited or no swimming capabilities are more susceptible to entrainment. Mechanical dredging is generally accepted to entrain far fewer fish than hydraulic dredging, because much less water is removed along with the sediment. However, it still may remove demersal fish and crustaceans that live in or on the sediment. Entrained fish are likely to suffer mechanical injury or suffocation during dredging, resulting in mortality. Longfin smelt and delta smelt are not strong swimmers and are presumed susceptible to entrainment in the flow fields created around the intakes of hydraulic suction dredges. Longfin smelt have the potential to occur in any of the project areas in any season. Delta smelt have potential to occur in the portions of the San Francisco Estuary that include the Napa River Channel, San Pablo Bay/Mare Island Strait, and Suisun Bay Channel dredge areas during certain seasons. Delta smelt occur in San Pablo Bay in lower numbers than in the Napa River or Suisun Bay; however, they may be present in San Pablo Bay in increased numbers during high water outflow years. Delta smelt are not expected to occur in the other federal channels.

***Entrainment Study*:** Over the past two decades, according to CDFW survey data, abundance indices for various life stages of delta smelt have hit record lows, indicating that the species is in imminent danger of extinction. In response, the State elevated its listing status from threatened to endangered in 2010. USFWS listed delta smelt as threatened on March 5, 1993, and designated critical habitat for this species on December 19, 1994. On April 7, 2010, USFWS submitted a 12-month petition finding to reclassify delta smelt as endangered. They found that reclassification is warranted but precluded by other higher-priority listing actions. Similarly, CDFW longfin smelt annual abundance indices from the fall mid-water trawl surveys show that the population has declined 99 percent or more in the last 45 years, with record lows in the past decade. On March 9, 2009, the State Fish and Game Commission listed longfin smelt as threatened under CESA. On April 2, 2012, USFWS released a 12-month review of longfin smelt status in which it concluded that the listing of the longfin smelt as a threatened species is warranted but is currently precluded by other higher-priority listing actions. As a result, longfin smelt is currently a candidate species for listing under the federal ESA.

In 2013, the United States Army Engineer Research and Development Center (ERDC) prepared a modeling study of entrainment of longfin and delta smelt in San Francisco Bay by hydraulic dredges. In the study, the risk of smelt entrainment was assessed by comparing fish abundances in the environment (CDFW monthly trawls described above) to fish collections in entrainment monitoring samples (screened sub-samples of dredged material) collected during dredging by the hopper dredge *Essayons* in San Francisco Bay in 2010 and 2011. Due to the technical and logistical limitations of sampling on board

the working vessel, only a very small fraction, less than one percent of the total volume dredged, was actually sampled.

Modeled estimates of longfin smelt entrainment during hydraulic dredging in 2011 based on 2011 abundance indices are 3,848 for the low entrainment scenario, 6,528 for the medium entrainment scenario, and 10,260 for the high entrainment scenario (up to approximately 8 percent of the median annual population abundance). Modeled estimates of delta smelt entrainment during hydraulic dredging in 2011 based on 2011 abundance indices are 394 for the low entrainment scenario, 1,444 for the medium entrainment scenario, and 3,694 for the high entrainment scenario (up to approximately 29 percent of the median annual population abundance). Many factors are associated with the accuracy of these projections. The small sample size of entrained fish (18 longfin smelt and 4 delta smelt), combined with the low percentage of dredged material sampled, result in a high degree of uncertainty as to the accuracy of the entrainment estimates.

***2016-2019 Entrainment Monitoring*:** Entrainment monitoring aboard the hopper dredge *Essayons* took place under the previous Order R2-2015-0023 in June, September, and October 2016; June and November 2017; June and October 2018; and in August 2019. No delta smelt were entrained in the monitoring apparatus during these monitoring events, most likely because the *Essayons* dredged in areas where the salinity exceeded the tolerance limit of delta smelt. However, monitoring during this period demonstrated that entrainment of longfin smelt occurred.

18. ***Compliance with CESA*:** As a federal agency, USACE is not required to obtain authorization from CDFW for incidental take of State-listed species because there has been no waiver of federal sovereignty with respect to CESA. The Water Board, however, must comply with CESA when issuing WDRs and water quality certifications. In a letter to CDFW dated February 13, 2014, the Water Board requested guidance on the significance of entrainment impacts to special status fish species and on appropriate mitigation measures. In its March 14, 2014, reply to the Water Board (attached), CDFW indicated that impacts would be significant. It noted the ERDC estimates of entrainment and stated that “the Project, as proposed, would substantially reduce the number of an endangered, rare, or threatened species.” To reduce dredging-related impacts to special status fish species to a less-than-significant level, CDFW recommended reducing hopper dredging to a minimum in San Francisco Bay and implementing the avoidance, minimization, and mitigation measures listed below.

Fish and Game Code section 2053 states "the policy of the State that State agencies should not approve projects … which would jeopardize the continued existence of any endangered species … if there are reasonable and prudent alternatives available consistent with conserving the species.” This Order includes the measures identified by CDFW to avoid, minimize, and mitigate for entrainment impacts, consistent with conserving the species.

Avoidance, Minimization, and Mitigation Measures for Entrainment

***Impacts*:** Based on the ERDC entrainment study and guidance from CDFW, the Water Board has determined that implementation of the following measures combined with minimization of hopper dredge use in San Francisco Bay and compensatory mitigation, as required under Provisions 9 and 10, will mitigate potential entrainment impacts to a less-than-significant level:

a. No dredging will occur in water ranging from 0 to 5 parts per thousand salinity between December 1 and June 30.

b. USACE will coordinate with the appropriate regulatory and resource agencies to perform compensatory mitigation for hydraulic dredging anywhere when water temperature is below 22.0 degrees Celsius.

c. USACE will implement a worker education program for listed fish species that could be adversely impacted by dredging. The program will include a presentation to all workers on biology, general behavior, distribution and habitat needs, sensitivity to human activities, legal protection status, and project-specific protective measures.

d. Pump priming, drag head clearing, and suction of water at the beginning and end of each hopper load will be conducted within three feet of the seafloor.

e. Hopper drag head suction pumps will be turned off when raising and lowering the drag arms from the seafloor.

f. Hydraulic hopper dredging in Suisun Bay will be completed between August 1 and September 30 to avoid impacts to spawning adult longfin and delta smelt.

g. Hydraulic hopper dredging in Central Bay (Richmond Outer Harbor) and San Pablo Bay (Pinole Shoal) will be completed between August 1 and November 30 to avoid impacts to young-of-the-year and spawning adult longfin smelt.

h. The drag head, cutterheads, and pipeline intakes will remain in contact with the seafloor during suction dredging.

i. The drag head water intake doors will be kept closed to the maximum extent practicable in locations most vulnerable to entraining smelt. In circumstances when the doors need to be opened to alleviate clogging, the doors will be opened incrementally (i.e., the doors will be opened in small increments and tested to see if the clog is removed) to ensure that doors are not fully opened unnecessarily.

19. The Water Board has implemented the San Francisco Estuary Regional Monitoring Program for Trace Substances (RMP) since 1992. The RMP is a coordinated and comprehensive long-term monitoring program with the goal of monitoring water and sediment quality to provide the scientific foundation for managing and improving the health of the San Francisco Bay aquatic ecosystem. Additionally, the RMP provides for special and pilot studies of interest to program participants. USACE is a participant in the RMP and contributes to the program by funding the United States Geological Survey (USGS) to monitor suspended sediments at an array of locations in the Bay. This monitoring has and will continue to improve understanding of sediment transport processes and create a comprehensive database for various numerical modeling efforts.

CEQA

20. ***California Environmental Quality Act (CEQA)*:** The Board, together with the USACE, prepared a joint Final Environmental Assessment/Environmental Impact Report for Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay Fiscal Years 2015 – 2024 (FEIR). The Board adopted and certified the FEIR on May 13, 2015, when it adopted waste discharge requirements and water quality certification Order No. 2015-0023 for the 2015 to 2019 period of maintenance dredging activities. The FEIR analyzed maintenance dredging activities and disposal through 2024 and the project authorized by this Order is within the scope of the FEIR. The Board has considered the FEIR, which considered four alternatives:

- No Project Alternative - USACE would conduct maintenance dredging practices for the projects it maintains in the Bay, which include hydraulic suction hopper dredging in three channels inside the Bay (Suisun Bay/New York Slough, Pinole Shoal, and Richmond Outer Harbor) with implementation of all but four of the avoidance, minimization, and mitigation measures for entrainment impacts to longfin smelt and delta smelt listed in Finding 18 and Provision 11.
- Proposed Project Alternative - Dredging and placement would be conducted as under the No Project Alternative. Also, USACE would implement four additional avoidance, minimization, and mitigation measures for entrainment impacts to longfin smelt and delta smelt (measures f, g, h, and i in Finding 18 and Provision 11) and purchase 0.92 acre mitigation credit at the Liberty Island Conservation Bank, or other approved site, annually for potential impacts to listed species. Provision 10 includes the details on calculation of this mitigation credit.
- Reduced Hopper Dredge Use Alternative 1 (MSC and One In-Bay Channel) -The government hopper dredge *Essayons*, or similarly-sized hopper dredge, would only be used to dredge the MSC and a maximum of one in-Bay federal channel, either the Richmond Outer Harbor or the Pinole Shoal Channel, annually. The channel not selected as the additional hopper dredge channel (i.e., either Pinole Shoal or Richmond Outer Harbor) would be dredged with a mechanical dredge. Suisun Bay/New York Slough Channel would be dredged with a mechanical dredge under this alternative, instead of a hopper dredge. USACE would purchase mitigation credit for entrainment impacts to listed smelt species during hopper dredging in Pinole Shoal or Richmond Harbor as described in the Proposed Project Alternative.
- Reduced Hopper Dredge Use Alternative 2 (MSC only, No In-Bay channels) - The government hopper dredge *Essayons*, or similarly-sized hopper dredge, would be used to dredge the MSC. Pinole Shoal, Richmond Outer Harbor, and Suisun Bay/New York Slough Channel would be dredged with a mechanical dredge under this alternative, instead of a hopper dredge. All other dredging, placement activities would be as described for the Proposed Action/Project.

The FEIR concluded that the Proposed Project Alternative would have significant effects related to the entrainment of delta smelt and longfin smelt. A public

agency may not approve a project for which an environmental impact report has been prepared unless either the project will not have a significant effect on the environment or the agency has eliminated or substantially lessened all significant effects where feasible and determined that any remaining unavoidable significant effects are acceptable due to overriding concerns. (Cal. Code Regs., tit. 14, § 15092, subd. (b).) Information in the record indicates that both Alternative 1 and Alternative 2, which entail reduced hopper dredging, will substantially lessen the significant environmental effects of the Proposed Project Alternative analyzed in the FEIR. The FEIR concludes that both of these alternatives will reduce the impacts to delta smelt and longfin smelt to a less than significant level; all other impacts would be less than significant with mitigation. This is also consistent with CDFW's March 14, 2014, memorandum to the Water Board stating that impacts could be made less than significant by reducing hopper dredging to a minimum, implementing the other avoidance, minimization, and mitigation measures identified in Finding 18 and Provision 11, and implementing the compensatory mitigation approach described above. There is no information in the record that indicates either Alternative 1 or Alternative 2 is infeasible. For this reason, this Order permits either Alternative 1 or 2.

Since this Order authorizes Alternatives 1 and 2, it will not have a significant impact on the environment. Specifically, the following potential significant impacts to delta smelt and longfin smelt have been reduced to less than significant as follows:

Impact 3.6-5: Potential Substantial Adverse Effects and Cumulative Impacts to Delta Smelt from Entrainment

Entrainment of delta smelt could occur during hopper dredging. They are not strong swimmers and are presumed susceptible to entrainment in the flow fields created around the intakes of hydraulic suction dredges. Delta smelt have potential to occur in the portions of the San Francisco Estuary that include the Napa River Channel, San Pablo Bay/Mare Island Strait, and Suisun Bay Channel dredge areas during certain seasons.

Findings: Changes or alterations have been required in, or incorporated into, this Order that avoid or reduce the environmental effect identified in the FEIR to less than significant.

Facts Supporting the Findings:

- This Order requires minimization of hopper dredging inside San Francisco Bay consistent with what the FEIR found would reduce impacts to less-than-significant levels. At a maximum, a hopper dredge would be used to maintain one federal channel inside the Bay and possibly urgent action removal of a hazardous shoal at Bulls Head Reach in the eastern approach to the Benicia-Martinez Bridge in Suisun Bay Channel if a mechanical dredge is not available (Provision 9).
- This Order requires compensatory mitigation for delta smelt entrainment in the form of mitigation credit purchase at a resource agency-approved habitat conservation bank. The amount of mitigation credit is calculated from an equation (3.0 million acre-feet/800 acres = volume dredged/X acres of

mitigation habitat) that was developed by resource agencies to determine mitigation requirements for other projects with entrainment impacts resulting from pumping water (Provision 10).

- This Order requires implementation of specific avoidance, minimization, and mitigation measures, which combined with minimization of hopper dredge use, mitigates potential entrainment impacts to a less-than-significant level (Provision 11).

Impact 3.6-6: Potential Substantial Adverse Effects and Cumulative Impacts to Longfin Smelt from Entrainment

Entrainment of longfin smelt could occurring during hopper dredging. They are not strong swimmers and are presumed susceptible to entrainment in the flow fields created around the intakes of hydraulic suction dredges. Longfin smelt have the potential to occur in any of the project areas in any season.

Findings: Changes or alterations have been required in, or incorporated into, this Order that avoid or reduce environmental effect identified in the FEIR to less than significant.

Facts Supporting the Findings:

- This Order requires minimization of hopper dredging inside San Francisco Bay consistent with what the FEIR found would reduce impacts to less-than-significant levels. At a maximum, a hopper dredge would be used to maintain one federal channel inside the Bay and possibly urgent action removal of a hazardous shoal at Bulls Head Reach in the eastern approach to the Benicia-Martinez Bridge in Suisun Bay Channel if a mechanical dredge is not available (Provision 9).
- This Order requires compensatory mitigation for longfin smelt entrainment in the form of mitigation credit purchase at a resource agency-approved habitat conservation bank. The amount of mitigation credit is calculated from an equation (3.0 million acre-feet/800 acres = volume dredged/X acres of mitigation habitat) that was developed by resource agencies to determine mitigation requirements for other projects with entrainment impacts as a result of pumping water (Provision 10).
- This Order requires implementation of specific avoidance, minimization, and mitigation measures, which combined with minimization of hopper dredge use, mitigates potential entrainment impacts to a less-than-significant level (Provision 11).

This Order also imposes those mitigation measures that the FEIR identified are necessary to reduce to less than significant levels impacts to other marine species and the disturbance of archaeological resources, human remains, and paleontological resources (see Provisions 11, 13, 15 and 21).

Basin Plan

21. ***San Francisco Bay Basin Water Quality Control Plan (Basin Plan)***
California Water Code section 13240 authorizes the Water Board to develop a Water Quality Control Plan for the San Francisco Bay Basin, which is the Water

Board's master water quality control planning document (the Basin Plan). The Basin Plan designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan was duly adopted by the Water Board and approved by the State Water Board, U.S. EPA, and the Office of Administrative Law where required. The latest version can be found on the Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml. Requirements in this Order implement the Basin Plan.

The existing beneficial uses of San Francisco Bay in the vicinity of the dredging and disposal areas are:

- Industrial service supply
- Industrial process supply
- Commercial and sport fishing
- Shellfish harvesting (Central Bay only)
- Estuarine Habitat
- Fish migration
- Preservation of rare and endangered species
- Fish Spawning
- Wildlife habitat
- Water contact recreation
- Noncontact water recreation
- Navigation

Notification

22. USACE and interested persons have been notified of the Water Board's intent to issue requirements for USACE and have been provided with the opportunity to submit their written comments.

The Water Board, in a properly noticed public hearing on December 11, 2019, heard and considered all comments pertaining to the project.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder and other State regulations, as applicable, and to the provisions of the federal Clean Water Act, as amended, and regulations and guidelines adopted thereunder, that USACE shall comply with the following:

A. RECEIVING WATER LIMITATIONS

1. The dredging and disposal activities shall not create a nuisance as defined in section 13050(m) of the California Water Code.

2. The discharge shall not cause a violation of any applicable water quality objectives for receiving waters adopted by the Water Board and the State Water Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to section 303 of the Clean Water Act, or amendments thereto, the Water Board will revise and modify this Order in accordance with such more stringent standards.

B. PROVISIONS

Project and Project Changes

1. This Order authorizes:

   a. San Francisco Bar Channel - Placement of approximately 2.25 mcy of sand at SF-8, OBDS/SF-17, and, if approved by applicable regulatory and resource agencies, the Ocean Beach onshore placement site.

   b. San Francisco Bay - Dredging up to 12.9 mcy of sediment (based on dredging volumes in Table 1, assuming that Redwood City Harbor is dredged biennially and that the smaller, non-annual projects [Napa River Channel, Petaluma River Channel, and San Rafael Creek Channel] are dredged once each between 2020 and 2024) with disposal of a maximum of 4.08 mcy at the in-Bay disposal sites. Placement of dredged material at beneficial reuse locations within the Water Board's jurisdiction is regulated through site-specific Water Board orders for each location. Disposal of dredged material may also occur at the Deep Ocean Disposal Site, SF-DODS, beyond the jurisdiction of the Water Board.

2. The District Engineer shall inform the Executive Officer in writing of any changes to the project plan in Table 1 of this Order. The Executive Officer shall determine whether such a proposed change requires modification of the WDRs and Certification issued herein, in which case the District Engineer shall submit a request for revised WDRs and Certification for action by the Board. Proposed changes that would require modification to this Order include but are not limited to any changes that may result in an increased threat to water quality. The Executive Officer may approve minor project changes that do not require modification to this Order and will not result in an increased threat to water quality.

   To gain approval for in-Bay disposal above 4.08 mcy, USACE must submit a written proposal, acceptable to the Executive Officer, that documents how (a) the additional in-Bay disposal will not result in an exceedance of the 1.5 mcy allocation trigger for total in-Bay disposal from all dredgers combined in any three-year averaging period, and (b) at least 50 percent of the excess volume will be beneficially reused at an aquatic habitat creation or restoration project.

Episode Approval

3. Dredging and disposal episodes, including knock-down events, shall not commence until authorized in writing by Water Board staff. At least 45 days prior to a dredging episode, USACE shall provide an episode approval request package to Water Board staff for each proposed dredging project. USACE may

also group several projects together in a single episode approval request package. This package shall include the following information specific to each dredging project: (a) the estimated volume to be dredged, with overdepth volume identified separately from the volume of sediment above design depth; (b) the proposed disposal or beneficial reuse (placement) site/s, and (c) a discussion of sediment quality explaining why the sediment is suitable for the proposed placement site(s), including a summary of the most recent sediment testing results.

Criteria for granting episode approvals:

- Sediment proposed for dredging is suitable for proposed placement sites based on results of physical, chemical, and biological testing program that follows the protocols and evaluation criteria specified in the DMMO guidance, "Guidelines for Implementing the Inland Testing Manual in the San Francisco Bay Region" (USACE Public Notice 01-01 or most current version). For upland sites and wetland beneficial reuse placement sites, the requirements of individual site-specific permits issued by the Water Board will be considered. The Water Board's May 2000 draft staff report, "Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines," or most current revised version, may also be considered, as appropriate.
- The proposed sediment placement sites for each dredging project are consistent with the approved evaluation of alternative disposal sites for all USACE dredging projects described in Provision 8.
- The cumulative in-Bay disposal volume is consistent with the limits specified in Provision 2.

***Episode Approval Package Due Date*:** A minimum of 45 days prior to anticipated dredging start date.

4. USACE conducts a pre-dredge survey within 30 days to two weeks before the dredge start date. The estimated volumes based on the pre-dredge survey shall be evaluated against the volumes estimated from the condition survey. If there is a 15 percent or greater increase in the estimated dredge volumes, USACE shall notify Water Board staff immediately. This notification shall include the new estimated volume and USACE's proposal for placement of that material if the volume has increased. USACE shall notify Water Board staff of any changes in material placement location, regardless of any volume changes.

Dredging and Disposal Operations

5. Dredging at each project location shall be limited to the project depths shown in Tables 1 and 2 with no more than two feet of over-dredge allowance.

6. Return water overflow from hopper-type suction dredges shall be limited to no longer than 15 minutes at the dredge site for each hopper load except in channels where the shoaled material contains greater than 80 percent sand. There is no overflow restriction if the dredged material is greater than 80 percent sand.

7. During transportation from the dredging site to the placement site, no dredged material shall be permitted to overflow, leak, or spill from barges, bins or dump scows.

Alternatives Analysis

8. USACE shall, as part of the episode approval process, submit to the Water Board an evaluation of alternative disposal sites pursuant to section 404(b)(1) of the Clean Water Act. This type of evaluation, also known as an "Integrated Alternatives Analysis," or IAA, shall incorporate all USACE dredging projects (annual and non-annual) over as many years/dredging cycles as possible, up to a maximum of five years, and shall evaluate the practicability of the following beneficial reuse and disposal options:

   a. Habitat Restoration Beneficial Reuse: USACE shall evaluate the practicability of placing dredged sediment from the federal navigation channels at tidal marsh and other appropriate types of habitat restoration sites within the San Francisco Bay Region and USACE shall take dredged sediment to those sites where it is practicable. USACE shall make good faith efforts to coordinate with habitat restoration projects that are seeking dredged sediment.

   b. Levee Restoration Beneficial Reuse: USACE shall evaluate the practicability of placing dredged sediment from the federal navigation channels at levee restoration sites within the San Francisco Bay Region and USACE shall take dredged sediment to those sites where it is practicable. USACE shall make good faith efforts to coordinate with levee restoration projects that are seeking dredged sediment.

   c. Other Beneficial Reuse Sites and Rehandling Sites: USACE shall evaluate the practicability of placing dredged sediment from the federal navigation channels at other types of beneficial reuse sites and dredged sediment rehandling sites within the San Francisco Bay Region and USACE shall take dredged material to those sites where it is ~~feasible~~ practicable.

   d. Coordination with other USACE Projects: USACE shall evaluate the ~~feasibility~~ practicability of combining placement of dredged sediment from the federal navigation channels with material from other USACE projects implementing beneficial reuse when both projects will occur at similar times or locations or will be performed by the same contractor.

   USACE shall submit the initial IAA by January 31, 2020, and subsequent annual updates by January 31 of years 2021 through 2024.

Protection of Special Status Species

9. ***Minimization of Hydraulic Suction Hopper Dredging Inside San Francisco Bay*:** According to CDFW, minimization of hopper dredging inside San Francisco Bay, combined with the measures described in Provision 11, is necessary to mitigate potential entrainment impacts to longfin and delta smelt to a less-than-significant level. Therefore, USACE shall minimize hydraulic dredging inside San Francisco Bay by the government hopper dredge *Essayons*, or

similarly sized hopper dredge, by implementing one of the following options on an annual basis:

a. *MSC and One In-Bay Channel:* Limit hopper dredge use to a maximum of one in-Bay federal channel, either the Richmond Outer Harbor or the Pinole Shoal Channel, but not the Suisun Bay Channel. Certain conditions, including rough seas, strong currents, fog, heavy rain, strong winds, heavy vessel traffic, or a combination of these factors may preclude safe dredging with a hopper dredge at the MSC. Dredging an in-Bay channel, whereby the dredge would move into San Francisco Bay and work on the identified channel, then return to the MSC as soon as conditions allow, would maximize efficient use of the hopper dredge.

   The MSC, Pinole Shoal Channel, and Richmond Outer Harbor are not within the typical range of the delta smelt; therefore, the potential adverse effects to delta smelt resulting from dredge entrainment would be largely eliminated under this alternative. Because urgent action dredging of the Bulls Head Reach may occur at any time of year, it is likely that some longfin smelt and delta smelt would be entrained during some dredging episodes if a mechanical dredge is unavailable and a hopper dredge must be used. The potential for entrainment would be reduced with the use of a mechanical dredge. Because the extent and frequency of critical dredging episodes at Bulls Head Reach cannot be predicted, appropriate mitigation for these episodes, if warranted based on expected impacts, would be determined in coordination with regulatory agencies at time they occur.

b. *MSC Only, No In-Bay Channels*: Limit hopper dredge use to the MSC and urgent action removal of any hazardous shoal at Bulls Head Reach in the eastern approach to the Benicia-Martinez Bridge in Suisun Bay Channel if a mechanical dredge is not available. Due to the strong currents and waves in the MSC, a hopper dredge is the only equipment that can safely dredge the channel. Because this option avoids and minimizes entrainment take of longfin and delta smelt to the maximum extent practicable, no compensatory mitigation or further entrainment monitoring is required.

   Because urgent action dredging of the Bulls Head Reach may occur at any time of year, it is likely that some longfin smelt and delta smelt would be entrained during some dredging episodes if a mechanical dredge is unavailable and a hopper dredge must be used. The potential for entrainment would be reduced with the use of a mechanical dredge. Because the extent and frequency of critical dredging episodes at Bulls Head Reach cannot be predicted, appropriate mitigation for these episodes, if warranted based on expected impacts, would be determined in coordination with regulatory agencies at time they occur.

10. ***Compensatory Mitigation for Implementation of Reduced Hopper Dredging Option 9a.*:** The mitigation credit formula (3.0 million acre-feet/800 acres = volume dredged/X acres of mitigation habitat) was developed by the resource agencies to determine mitigation requirements for other projects with entrainment impacts resulting from pumping water, including the State Water Project.

Available government hopper dredge total sediment and water volume throughput for the 2006 through 2012 period were reviewed and the highest volumes for Pinole Shoal and Richmond Outer Harbor were used in the calculation, resulting in 0.19 acre mitigation credit is for Pinole Shoal and 0.34 acre mitigation credit s for Richmond Outer Harbor.

USACE shall purchase no less than 0.19-acres mitigation credit at the Liberty Island Conservation Bank, or other CDFW-approved conservation bank providing habitat benefitting listed smelt species if Pinole Shoal is dredged with a hopper, and no less than 0.34 acre mitigation credit if Richmond Outer Harbor is dredged with a hopper. If the total annual volume dredged for either project is greater than the volume used to calculate the minimum required mitigation credit, USACE shall purchase additional credits corresponding to the additional volume dredged and document the purchase of additional credits per Provision 19 (post-dredge reporting).

11. ***Avoidance, Minimization, and Mitigation Measures for Entrainment Impacts*:** USACE shall implement the following measures to mitigate potential entrainment impacts to a less-than-significant level:

    a. No dredging shall occur in water ranging from 0 to 5 parts per thousand salinity between December 1 and June 30.

    b. USACE shall coordinate with the appropriate regulatory and resource agencies to perform compensatory mitigation for hydraulic dredging anywhere when water temperature is below 22.0ºC.

    c. USACE shall implement a worker education program for listed fish species that could be adversely impacted by dredging. The program shall include a presentation to all workers on biology, general behavior, distribution and habitat needs, sensitivity to human activities, legal protection status, and project-specific protective measures.

    d. Pump priming, drag head clearing, and suction of water at the beginning and end of each hopper load shall be conducted within three feet of the seafloor.

    e. Hopper drag head suction pumps shall be turned off when raising and lowering the drag arms from the seafloor.

    f. Hydraulic hopper dredging in Suisun Bay shall be completed between August 1 and September 30, to the extent feasible[1], to avoid impacts to spawning adult longfin and delta smelt.

    g. Hydraulic hopper dredging in Central Bay (Richmond Outer Harbor) and San Pablo Bay (Pinole Shoal) shall be completed between August 1 and November 30, to the extent feasible[1], to avoid impacts to young-of-the-year and spawning adult longfin smelt.

    h. The drag head, cutterheads, and pipeline intakes shall remain in contact with the seafloor during suction dredging.

[1] Feasibility is contingent upon the availability of federal funds (e.g., timing of Congressional appropriations) to execute the dredging work, as well as by the availability of dredging equipment to perform the dredging work at the referenced time and locations.

i. The drag head water intake doors shall be kept closed to the maximum extent practicable in locations most vulnerable to entraining smelt. In circumstances when the doors need to be opened to alleviate clogging, the doors shall be opened incrementally (i.e., the doors shall be opened in small increments and tested to see if the clog is removed) to ensure that doors are not fully opened unnecessarily.

12. ***Entrainment Monitoring for Implementation of Reduced Hopper Dredging Option 9 a.*:** By ~~March~~January 31, 2020, USACE shall submit a five-year entrainment monitoring plan, acceptable to the Executive Officer, for collecting data to increase the accuracy of existing entrainment rate estimates for delta smelt, longfin smelt, and other special status fish species in hydraulic hopper dredges during maintenance dredging in San Francisco Bay. Annual monitoring reports are due by January 31 of the year following dredging activity monitored. At a minimum, the plan shall include the following elements:

    a. On-board monitoring during active dredging.

    b. Sampling during all phases of the dredging cycle.

    c. Sampling associated with flood/ebb tides and spring/neap tides.

    d. Visual monitoring of vessel hold for fish that are not captured by sampling screens during active dredging.

    e. Procedures for evaluating the effectiveness of the avoidance, minimization, and mitigation measures required by Provision 11.

    By ~~March~~January 31 of years 2021 through 2024, USACE shall submit an annual update to the plan (or an acceptable rationale justifying that no update is necessary or proposed).

13. Dredging and disposal activities shall be limited to the work windows set out by CDFW, NMFS, and USFWS in their most recent programmatic consultations on the LTMS. If USACE proposes dredging outside the established work windows, it shall notify Water Board staff in writing and implement all applicable mitigation measures established in the programmatic LTMS consultations or individual project consultations.

14. This Order does not allow for the take, or incidental take, of any special status species. USACE shall use the appropriate protocols, as approved by the CDFW, NMFS, and/or USFWS, to ensure that project activities do not adversely impact preservation of rare and endangered species, a beneficial use of San Francisco Bay and its tributaries as set forth in the Basin Plan.

15. USACE shall comply with the Conservation Measures set forth in the June 9, 2011, Programmatic Essential Fish Habitat (EFH) Consultation Agreement between USACE, U.S. EPA, and NMFS. The Conservation Measures are intended to enhance the environmental protectiveness of the LTMS program for EFH, which the Magnuson-Stevens Fishery Conservation and Management Act defines as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity,” for all managed fish species.

Management and Monitoring of Dredging and Disposal of Dredged Material

16. USACE shall continue bathymetric monitoring of the in-Bay disposal sites (monthly surveys at the Alcatraz disposal site, quarterly surveys elsewhere). USACE shall keep a record of these surveys on file and shall make them available for inspection by the Water Board, other regulatory agencies, and interested members of the public upon written request to USACE staff.

17. USACE shall maintain administrative controls on disposal volumes at the in-Bay disposal sites for all navigation dredging projects under the LTMS so that target volumes in Table 3 of this Order are not exceeded. USACE shall manage overall disposal volumes and disposal locations within each site to prevent build-up of dredged material at the sites.

18. ***Post-Dredge Survey*****:** USACE shall ensure that post-dredge bathymetric surveys for federal dredging projects are conducted within 30 days of completion of dredging in all federal navigation channels, regardless of whether they are dredged by a contractor or by a federal government dredge.

19. ***Post-Dredge Report*****:** For each calendar year covered by this Order, USACE shall provide an annual post-dredge report shall to Water Board staff and the USACE DMMO database manager within 60 days of completion of all federal dredging projects in that calendar year. For each dredging project, the report shall contain the dates of dredging, maps of the dredging footprint, the calculated final dredging volume, the placement location or locations and volumes per location if more than one site was used, and documentation of purchase of the appropriate number of mitigation credits for hydraulic hopper dredging calculated per Provision 10.

20. USACE shall provide a technical report that documents monitoring efforts designed to evaluate the water quality impacts of the dredged material discharge on waters of the State, pursuant to California Water Code (Water Code) section 13267.

    Regional Monitoring Program**:** Provision 20 is a requirement for a technical report. The Water Board requires dischargers of waste materials to the Bay, including those who dispose of dredged material, to monitor the impacts of their discharges pursuant to Water Code section 13267. This monitoring provides necessary information about ambient Bay water quality and potential long-term impacts of dredged material disposal. USACE may elect to participate in the San Francisco Estuary Regional Monitoring Program for Trace Substances (RMP) to fulfill this requirement or provide comparable data on an individual basis. The RMP is a coordinated and comprehensive long-term monitoring program with the goal of monitoring water and sediment quality to provide the scientific foundation for managing and improving the health of the San Francisco Bay aquatic ecosystem.

    USACE has historically participated in the RMP by funding the U.S. Geological Survey (USGS) to monitor suspended sediment concentrations (SSC) at an array of locations in the Bay on an annual basis. Suspended sediment monitoring has and will continue to improve understanding of sediment transport processes and

create a comprehensive database for various numerical modeling efforts. According to the RMP 2017 - 2019 Dredger Fee Schedule, USACE's annual contribution to USGS should be no less than $400,000.

Implementation or funding of the RMP study program or other Water Board-approved study will constitute fulfillment of this provision.

Disturbance of Historical or Unique Archaeological Resources, Human Remains, or Significant Paleontological Resources

21. In the unlikely event that any of the resources listed above are discovered during maintenance dredging in the federal channels, USACE will immediately cease dredging, notify Water Board staff, and consult a qualified expert for the particular resource discovered (e.g., archeologist, paleontologist, local coroner, Native American Heritage Commission).

Standard Provisions

22. The discharge of dredged materials to the waters of the State shall cease immediately whenever violations of this Order are detected by USACE or by Water Board staff, and the discharge shall not resume until compliance can be assured to the Executive Officer's satisfaction.

23. USACE shall provide the Water Board or its authorized representative, in accordance with Water Code section 13267(c), with the following:

    a. Entry upon premises in which any required records are kept.

    b. Access to copy any records required to be kept under terms and conditions of this order.

    c. Access to inspect monitoring equipment or records.

    d. Access to sample any discharge.

    e. Small craft transport to offshore locations or vessels for the purpose of inspection, provided that it is within normal business hours.

24. This Order does not remove liability under federal, State, or local laws, regulations or rules of other programs and agencies, nor does this Order authorize the discharge of wastes without appropriate permits from other agencies or organizations.

25. This Order supersedes Order No. R2-2015-0023. Order No. R2-2015-0023 is hereby rescinded.

C. CERTIFICATION

1. The Water Board hereby certifies that any discharge from the referenced project will comply with the applicable provisions of Clean Water Act sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards), and with other applicable requirements of State law. Clean Water Act section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the Clean Water Act and with any other appropriate requirement of State law. Section 401 further provides that State certification conditions shall become conditions of any federal license or permit for the project. The provisions conditioning this Certification must be met to ensure that the project will comply with water quality standards, any applicable effluent limitation, standard of performance, prohibition, effluent standard, or pretreatment standard required pursuant to the Clean Water Act sections listed above and to ensure that the project will comply with any other appropriate requirements.

2. This Order applies to the project as proposed in application materials and conditioned and approved in this Order. Failure to implement the project as proposed, conditioned, and approved is a violation of this Order. Violation or threatened violation of the conditions of this Order is subject to remedies including, but not limited to, penalties or injunctive relief as provided under applicable State or federal law.

3. This Order is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and 23 CCR section 3867. The Water Board may add to or modify the conditions of this Order, as appropriate, to implement any new or revised water quality standards and implementation plans adopted and approve pursuant to the Water Code, or section 303 of the Clean Water Act, or in response to new information concerning the conditions of the project.

4. This Order is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

I, Michael Montgomery, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on December 11, 2019.

MICHAEL MONTGOMERY
EXECUTIVE OFFICER

ATTACHMENTS:

CDFW Memorandum dated March 14, 2014

Figure 1. Federal Navigation Projects and Dredged Material Placement Sites

Figure 2. San Francisco Main Ship Channel

Figure 3. Oakland Harbor

Figure 4. Richmond Harbor

Figure 5. Suisun Bay Channel and New York Slough

Figure 6. Pinole Shoal

Figure 7. Redwood City Harbor

Figure 8. Napa River Channel

Figure 9. Petaluma River Channel

Figure 10. San Rafael Creek Channel

State of California
Department of Fish and Wildlife

Flex your POWER

Memorandum

Date: March 14, 2014

To: Bruce H. Wolfe, Executive Officer
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1500
Oakland, CA 94612

From: Craig Shuman, Regional Manager
Marine Region
1933 Cliff Drive, Suite 9
Santa Barbara, CA 93109

Scott Wilson, Regional Manager
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558

Subject: California Department of Fish and Wildlife Response to Request for Guidance on CEQA Issues Related to Take of State-Listed Fish Species under the U.S. Army Corps of Engineers San Francisco Bay Navigational Dredging Program

The California Department of Fish and Wildlife (Department) has reviewed your memorandum dated February 13, 2014 requesting input from the Department regarding the significance of impacts to biological resources and proposed mitigation for the U.S Army Corps of Engineers (USACE) Operation and Maintenance Dredging of Federal Channels in San Francisco Bay for ten years (Project) as it is evaluated in the Administrative Draft Environmental Impact Report (EIR) being prepared by the Regional Water Quality Control Board (RWQCB). In addition, the Department has reviewed portions of the EIR and the USACE Risk Assessment for Hopper Dredging in San Francisco Bay, and has participated in the Interagency Longfin Smelt Working Group since 2010 to assess the impacts of the Project on protected fish species and proposals for minimization and mitigation measures.

Under Fish and Game Code (FGC) section 711.7, the Department is designated as trustee for the State's fish and wildlife resources. The Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (FGC §1802). The Department administers the California Endangered Species Act (CESA) (FGC §2050, et seq.) and other provisions of the FGC that conserve the State's fish and wildlife public trust resources. The Department also serves as a trustee agency in the California Environmental

Quality Act (CEQA) process, as a state agency with jurisdiction over the fish and wildlife resources affected by the Project, specifically Delta smelt, listed as endangered, and longfin smelt, listed as threatened under CESA [14 C.C.R. §§ 670.5(a)(2)(O), (b)(2)(E)]. It is in our role as a trustee that we have participated in the Interagency Longfin Smelt Working Group and are providing our recommendations.

Your memorandum dated February 13, 2014 asked five questions about the significance of impacts from USACE hopper dredging and mitigation and monitoring for those impacts. The Department has prepared the following responses for your consideration:

1. *Consistent with CEQA Guidelines section 15065 (a) (1), Mandatory Findings of Significance, is it CDFW's opinion that ongoing hopper dredging as proposed by the Corps (in light of the administrative record) will substantially reduce the number of an endangered, rare or threatened species (defined in CEQA Guidelines section 15380?*

    - The Department recognizes that the determination of Significance is at the discretion of the Lead Agency.

    - The USACE estimated the range of take from the Project in 2011 as 3,848 to 6,058 longfin smelt and 394 to 2,822 Delta smelt. Entrainment of these fish is "take" as defined in the Fish and Game Code (FGC §86). The Project includes ten years of dredging operations. It is the Department's belief that the Project, as proposed, would substantially reduce the number of an endangered, rare, or threatened species. In addition, the combined cumulative impact associated with this Project and the effects of other projects causing related impacts would be significant.

    - Due to uncertainty in the sampling data to date, it is prudent to take a precautionary approach and assume that the estimates of take are low for State-listed species that are potentially impacted by the dredging activity. In addition, a Significance determination should consider the overall population abundance of these species, which is currently very low compared to historic levels.

2. *If the impact is considered significant because of the substantial reduction in the number of threatened or endangered species, what potentially feasible mitigation does CDFW recommend to avoid or substantially reduce the impact to a less-than-significant level, assuming the worst-case take scenario?*

    - The Department offers the following recommendations to reduce the impacts of USACE dredging on state-listed species.

        - Reduce hopper dredging to a minimum in San Francisco Bay. The Reduced Hopper Dredge Alternative 1 in the Administrative Draft EIR would reduce hopper dredging to only one channel inside the Bay per year. All other navigational channels would be dredged annually using mechanical methods. The Department will review all alternatives that are developed and comprehensively evaluated in the Draft EIR, in order to consider potential impacts to all fish and wildlife resources.

- Dredge in Central Bay later in the year from August 1--November 30 to allow young-of-the-year longfin smelt to grow larger and spawning adults to return upstream.
- Dredge in Suisun Bay earlier during the dredging window from August 1--September 30 to avoid spawning adults.
- Keep water intake ports on drag-heads closed at all times during dredging in San Francisco and Suisun bays.
- Turn off drag-arm pumps when vessel is repositioning, moving to other locations, and drag-heads are off-bottom.
- Follow the minimization measures currently in place for the navigational dredging in San Francisco Bay according the Department's 2011 letter to the USACE.

- The Department has recommended that the USACE mitigate for its take of both longfin and Delta smelt by purchasing appropriate credits from an approved mitigation bank.

- Currently, the USACE has calculated its mitigation for hopper dredging using the State Water Project mitigation equation, using the highest pump volume over the past eight years. This provides a compensatory mitigation of 0.92 acres per year of the Project.

3. *What is CDFW's opinion of the effectiveness of the mitigation proposed by the Corps to avoid or substantially reduce the impact to a less-than-significant level?*

   USACE proposed 0.92 acres of restored and managed tidal wetlands per year as compensatory mitigation to reduce impacts to less-than-significant level. The amount and type of mitigation appropriate to reduce an impact to a less-than-significant level depends on the level of impact. While additional Project monitoring would provide a more accurate level of impact to State-listed fish, the mitigation proposed by USACE is generally consistent with mitigation applied to other projects that cause take of longfin smelt and Delta smelt associated with water diversion or extraction. Therefore, in the Department's opinion, it would not be inappropriate for RWQCB to rely on the identified minimization measures and the identified compensatory mitigation approach to reduce Project impacts to a less-than-significant level.

4. *What monitoring, if any, does CDFW recommend?*

   The Department believes that further monitoring should occur to evaluate the effectiveness of the proposed minimization measures, more specifically quantify the level of take, and determine whether additional minimization measures or mitigation measures are warranted. On-board monitoring has only occurred during two years of dredging (2010 and 2011) and encompassed a very small fraction of the dredge volume both years (<1%). To increase understanding of the impact of dredging on State-listed species and develop adaptive management measures, the Department recommends the following:

   - On board monitoring during active dredging.

- Sampling during all phases of the dredging cycle.
- Sampling both drag-arms to capture a greater percentage of the pump volume during active dredging.
- Sampling associated with flood/ebb tides and spring/neap tides.
- Visual monitoring of vessel hold for fish that are not captured by sampling screens during active dredging.
- Presence/absence fish monitoring in the bay around the dredge during active dredging to understand if sampling is effective.

If implemented, monitoring should be conducted for the two years following Project approval. This data compiled in a final report would provide guidance on future minimization measures related to dredging efforts conducted in the San Francisco Bay and Estuary for both federal, State, and private dredging efforts.

5. *What adaptive management or remedial measures does CDFW recommend in response to monitoring results?*

- Refinement of current minimization and monitoring measures.
- If necessary, additional minimization measures such as additional work window restrictions and/or a further reduction in hopper dredge use.

We appreciate the opportunity to assist RWQCB with the assessment of CEQA considerations for this Project. The Department is available to discuss our responses in more detail. If you have any questions, please contact Ms. Becky Ota, Environmental Program Manager-Marine Region, at (650) 631-6789 or Becky.Ota@wildlife.ca.gov; or Mr. Jim Starr, Environmental Program Manager-Bay Delta Region, at (209) 234-3440 or Jim.Starr@wildlife.ca.gov.

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(Becky.Ota@wildlife.ca.gov)

Jim Starr
California Department of Fish and Wildlife
(Jim.Starr@wildlife.ca.gov)

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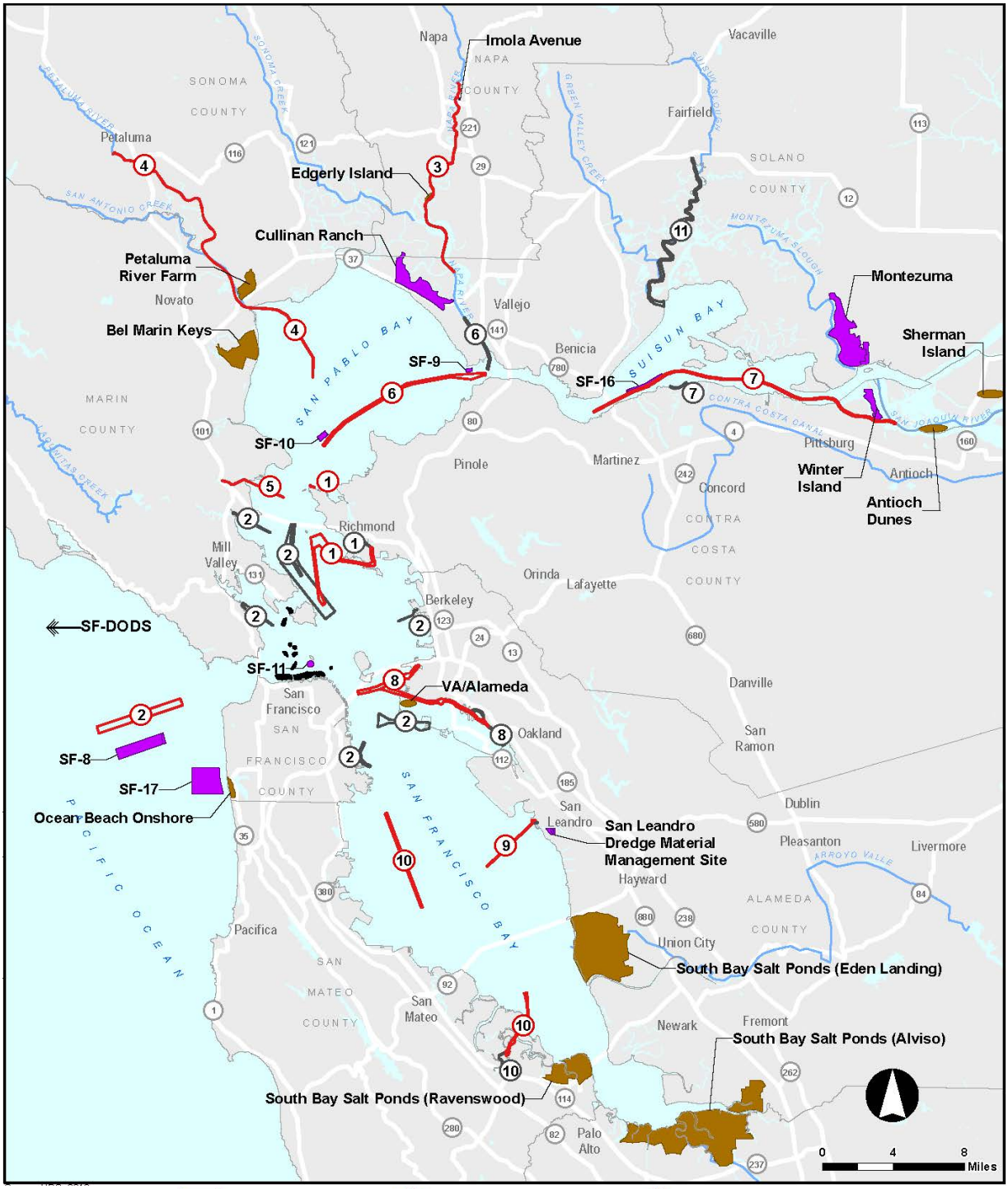

Figure 1. Federal Navigation Projects and Dredged Material Placement Sites

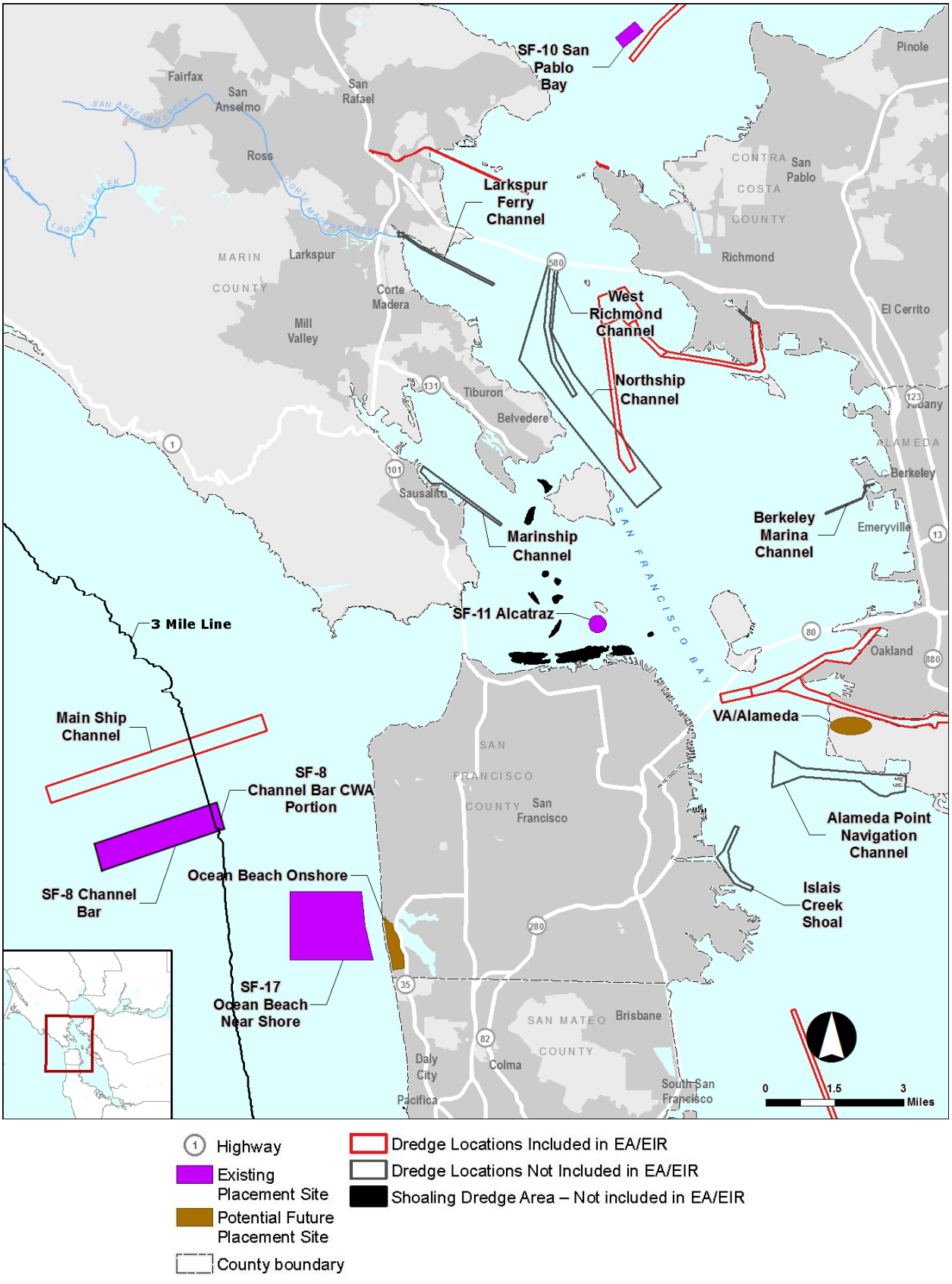

Figure 2. San Francisco Harbor – Main Ship Channel

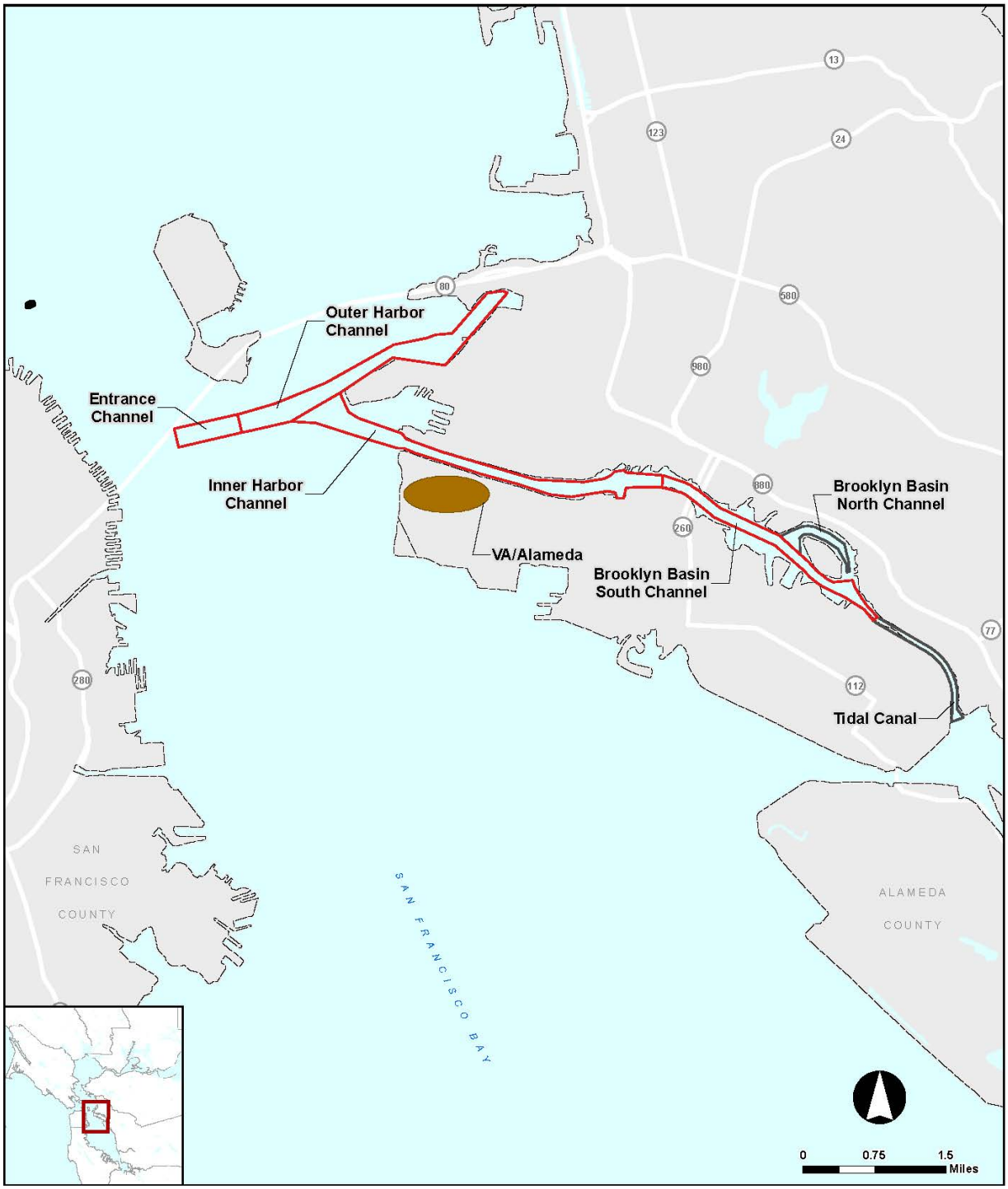

Figure 3. Oakland Harbor

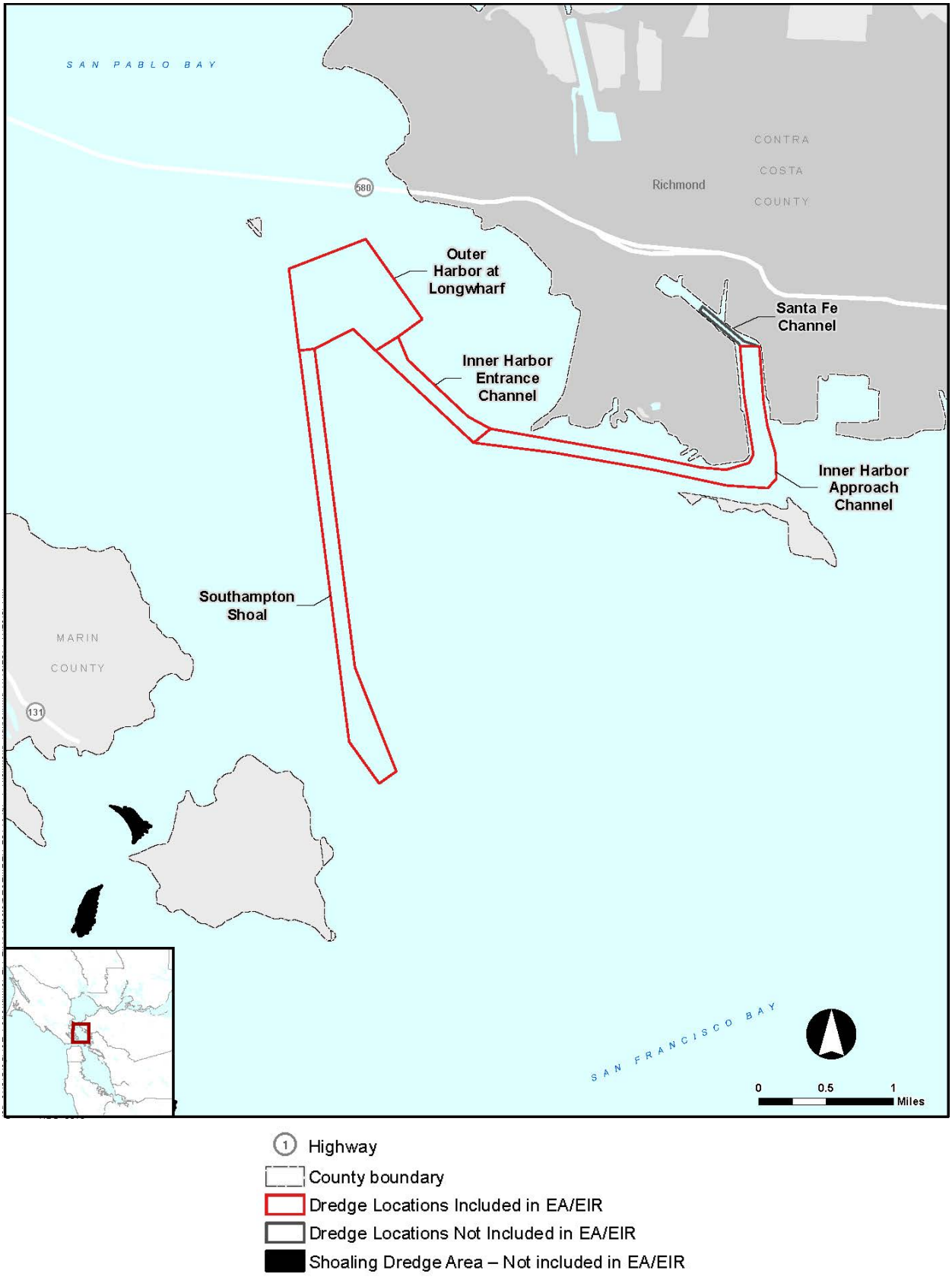

Figure 4. Richmond Harbor

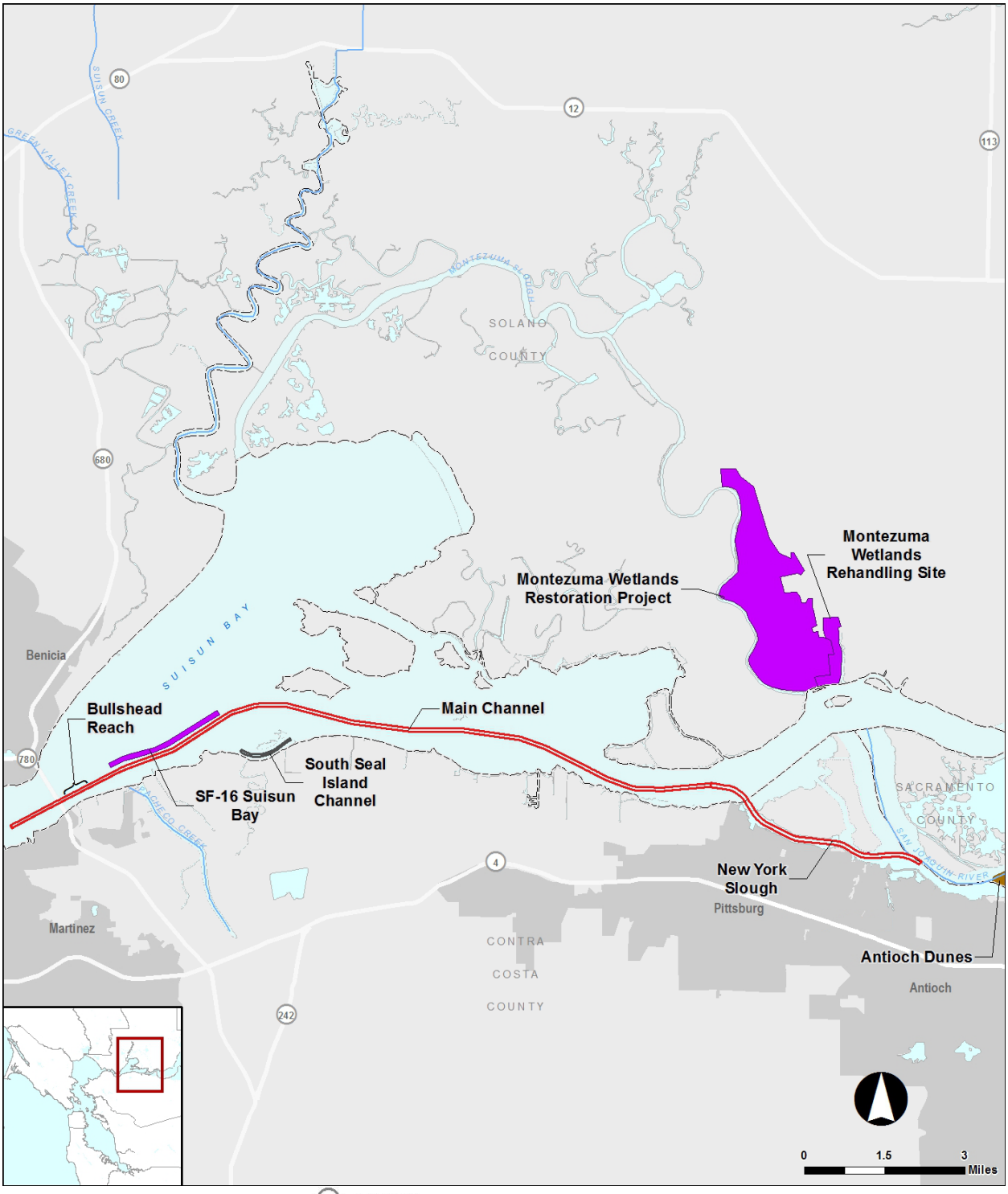

Figure 5. Suisun Bay Channel and New York Slough

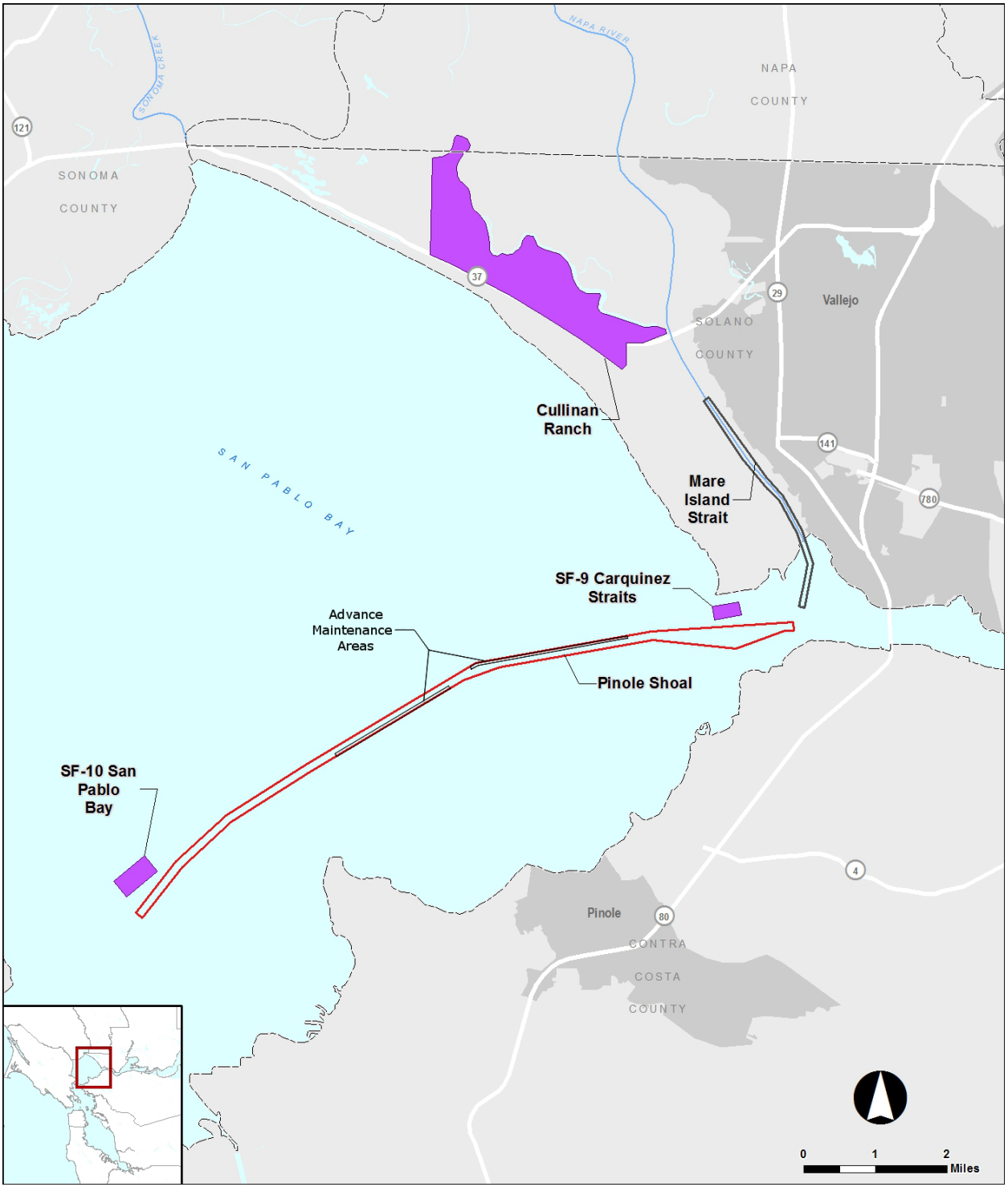

Figure 6. Pinole Shoal

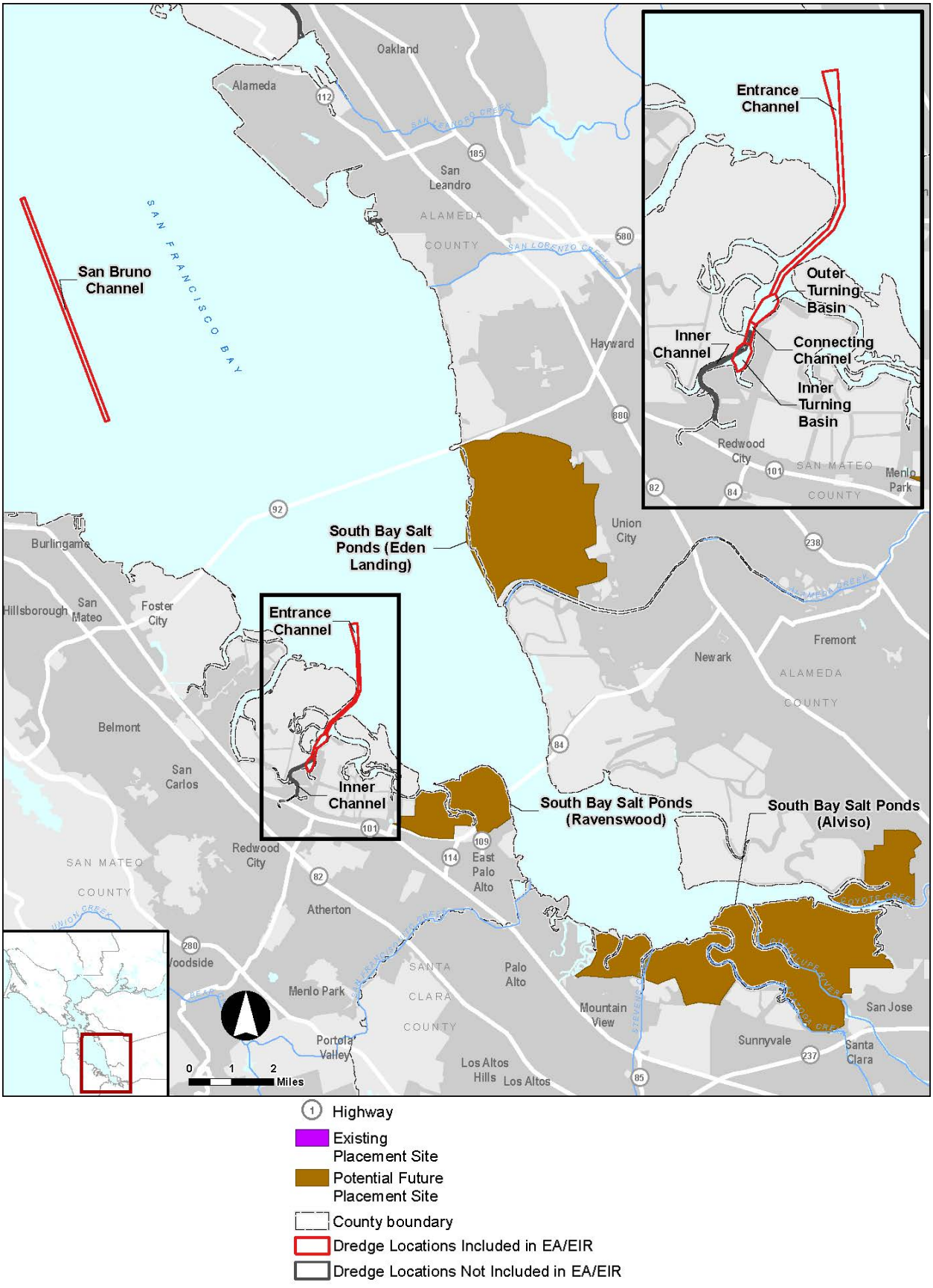

Figure 7. Redwood City Harbor

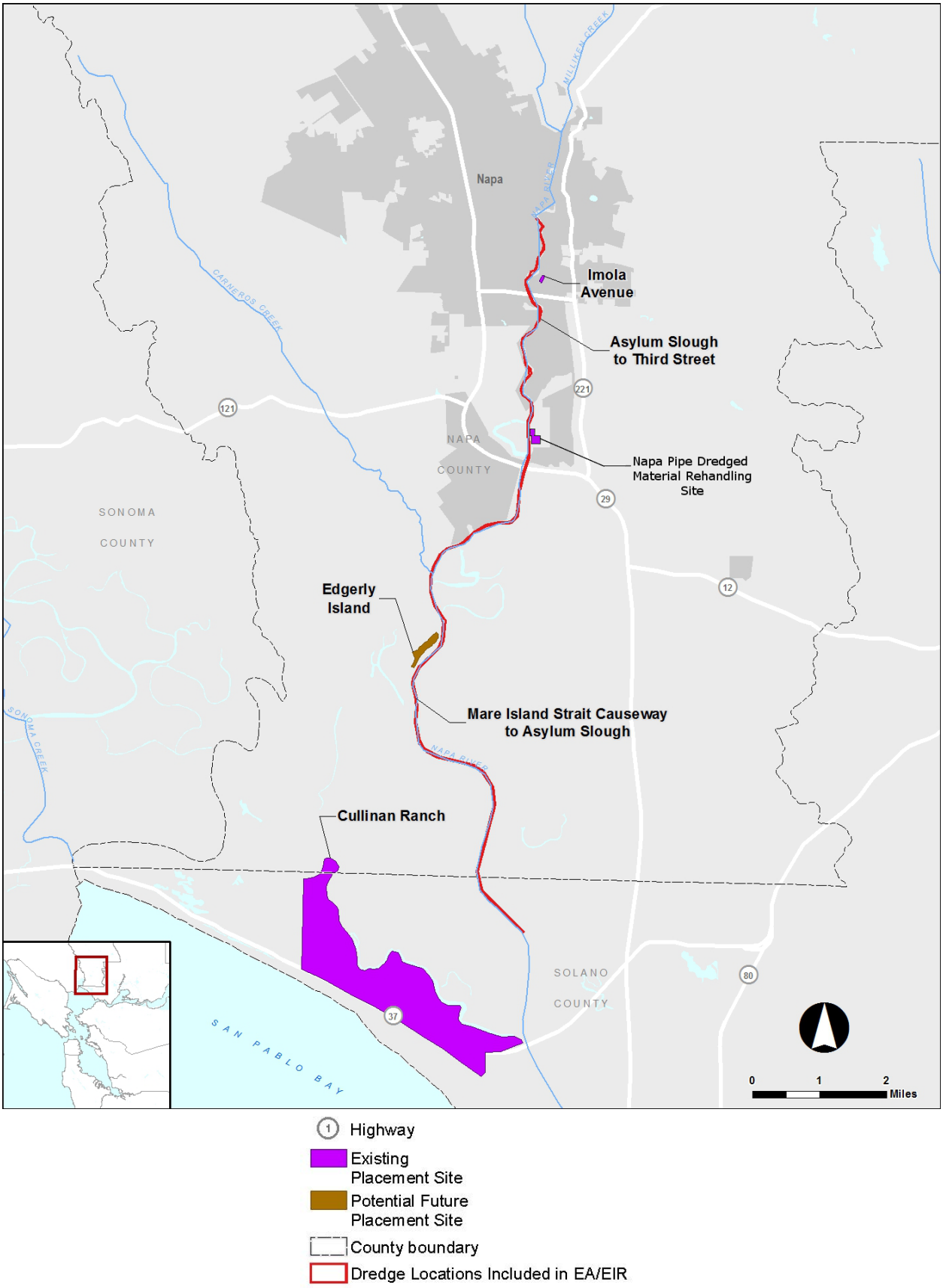

Figure 8. Napa River Channel

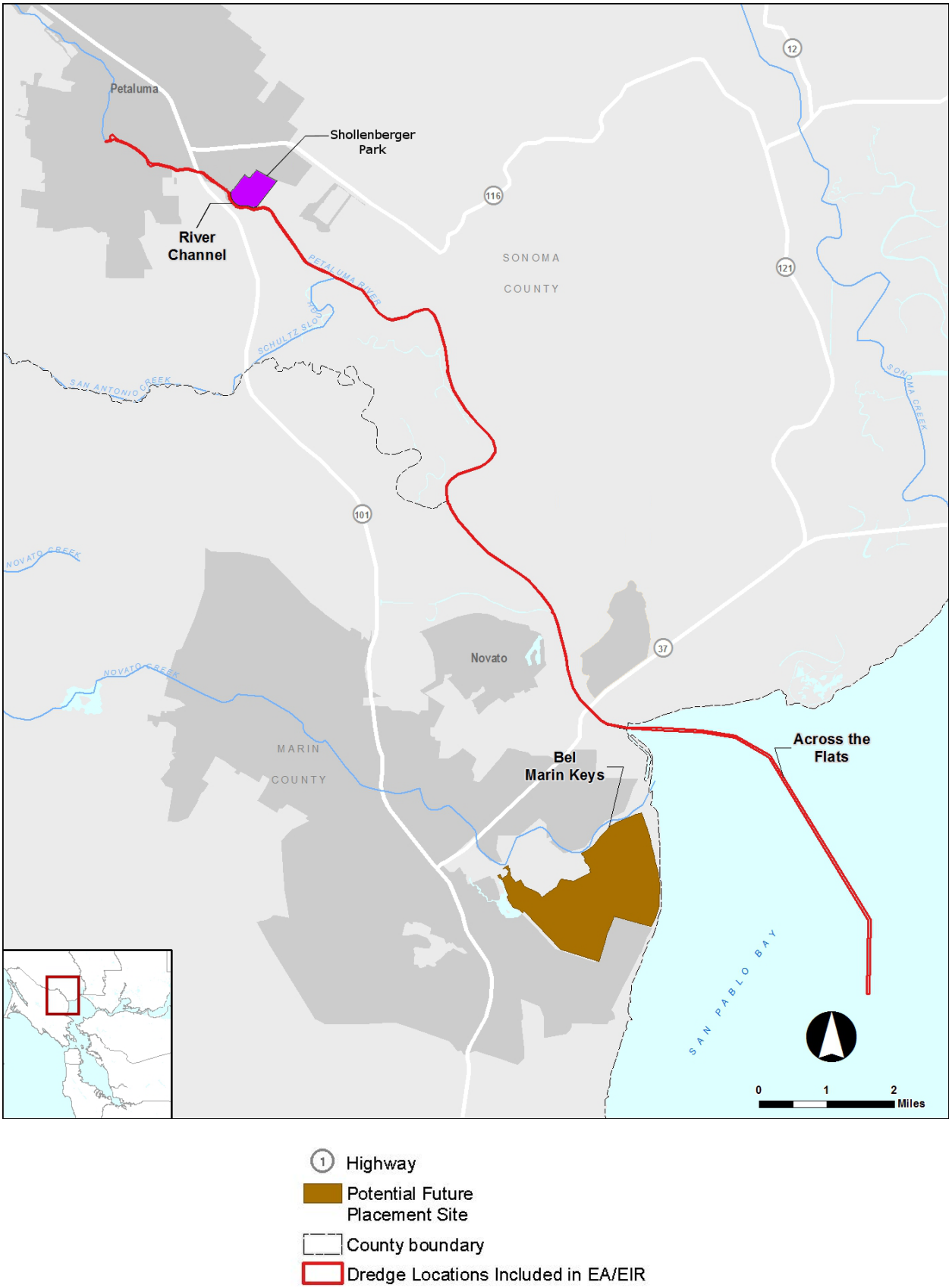

Figure 9. Petaluma River Channel

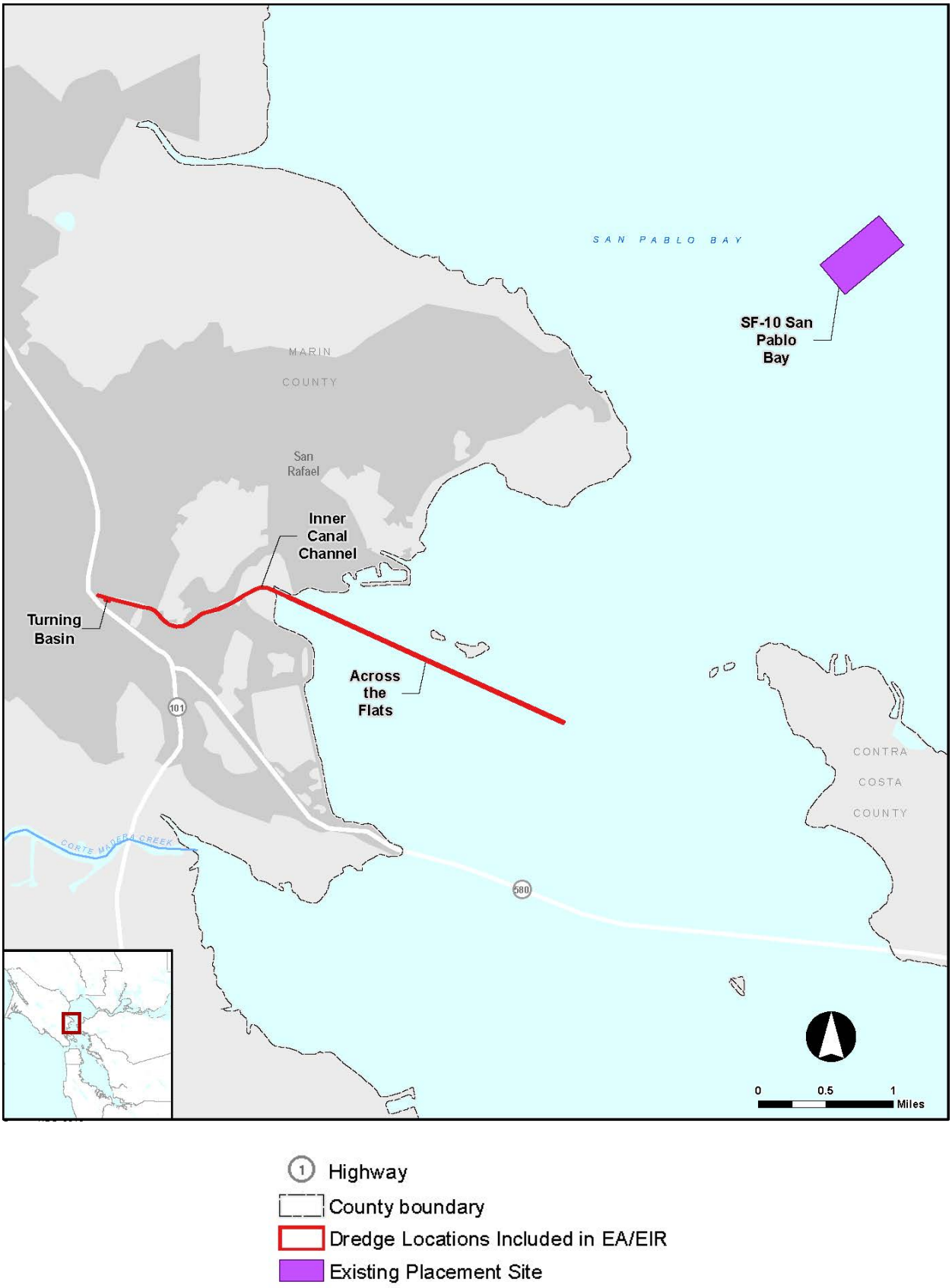

Figure 10. San Rafael Creek Channel

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APPENDIX B

Comment Letters Received

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DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVE.
SAN FRANCISCO, CA 94102

November 4, 2019

Mr. Michael Montgomery
Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Dear Mr. Montgomery:

The U.S. Army Corps of Engineers, San Francisco District (USACE) would like to thank the California Regional Water Quality Control Board, San Francisco Bay Region (Water Board) for this opportunity to provide public comment on the Tentative Order (TO), Reissued Waste Discharge Requirements and Water Quality Certification (WDR/WQC) for the USACE San Francisco Bay Federal Channel Maintenance Dredging Program, 2020 through 2024 (Dredging Program). USACE strongly supports approval of this TO, which will ensure our ability to guarantee safe and efficient navigation throughout the Bay, while preserving water quality.

As an enumerated beneficial use of the Basin Plan, the Water Board recognizes the essential role navigation serves in the Bay. USACE's dredging activities permit more than 10,000 deep draft vessel trips annually, sustaining the goods-movement industry. This industry accounts for 51 percent of the total regional economic output and 32 percent of the total regional employment. Of these over 10,000 vessel trips, 3,000-5,000 are made by oil tankers. Maintaining deep draft channels are vital to reducing the risk of vessel collisions, groundings, allisions, and oil spills. With the Water Board's certification of the TO, USACE can continue this critical service.

USACE also appreciates our continued working relationship with the Water Board and all the support we have received from your staff. Under our previous WDR/WQC for 2015-2019, USACE will have dredged over 11 million cubic yards of sediment, with 4 million cubic yards going to beneficial reuse, furthering the goals of the Long Term Management Strategy for all dredgers in the Bay.

Under this new TO, USACE looks forward to working with the Water Board and advancing our shared goals for the Bay. Detailed, technical comments are provided in the enclosure. If you have any further questions or comments, please contact Mr. Christopher Eng at (415) 503-6868 or Christopher.K.Eng@usace.army.mil.

Sincerely,

John D. Cunningham
Lieutenant Colonel, U.S. Army
District Commander and Engineer

Enclosure

Enclosure to Letter from USACE (LTC. Cunningham) to the RWQCB (Mr. Montgomery)

General Comments

1. As a federal agency, conducting congressionally authorized operation and maintenance dredging, USACE is only subject to federal law, specifically here the federal requirements under the Clean Water Act. Therefore, USACE requests a Water Quality Certification (WQC) pursuant to Section 401 of the Clean Water Act. Without a clear and explicit waiver of sovereignty, USACE is unable recognize the Water Board's purely state Waste Discharge Requirement (WDR) authorities. However, USACE acknowledges that the Water Board may have its own administrative reasons for issuing a joint WDR/WQC rather than a standalone WQC.
2. USACE similarly objects to Water Board's application of California Environmental Quality Act and California Endangered Species Act to our federal project. USACE continues to hold the same position outlined in our agencies' joint Finding of No Significant Impact (FONSI) and Environmental Assessment/Environmental Impact Report (EA/EIR) for Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay Fiscal Years (FY) 2015-2024, signed May 29, 2015 that reduction of hopper dredging is unnecessary and inappropriate. However, USACE will reduce the scope of our federal project and alternate annual dredging of Richmond Outer Channel and Pinole Shoals Channel to remain in compliance with the WDR/WQC. The reduction of dredging will produce even less impacts to the State's listed species than were USACE to switch to clamshell dredging one of these two channels annually.
3. In the TO, the Water Board states that "the potential for entrainment would be reduced with the use of a mechanical dredge" (p.24) compared to a hopper dredge. This is an assumption. The studies that have been completed have limited ability to produce useful statistical data on entrainment of special-status species due to equipment limitations on government dredges (see comment 9). USACE requests that the Water Board acknowledge that this is an assumption rather than a scientifically validated fact.
4. After five years of studies in cooperation with the Water Board, USACE appreciates the Water Board's agreement that monitoring requirements associated with overflow/decanting during dredging testing is no longer required.

LTMS Comments

5. As acknowledged in the WQC (p.2), as early as the mid-2000s, the U.S. Geological Survey identified a significant reduction in suspended sediment loading from the Sacramento-San Joaquin river system into the Bay, and less sediment in suspension and circulation within the Bay impairs its ability to withstand erosion and inundation, especially as sea level rises. This shift in sediment dynamics coupled with sea level rise, brings into question the foundational assumption in the LTMS that in-Bay disposal is not beneficial and that ocean disposal is preferred to it. The Water Board should bear in mind this reality when considering compliance with the LTMS 20/40/40 goals. The Water Board must appreciate that the percentage goal that the dredging community is failing to meet is not the beneficial reuse 40% but the ocean 40%. For instance, USACE's 2019 percentages are likely to be approximately 64% beneficial reuse, 30% in-Bay, and 6% ocean. The Dredged Material Management Office (DMMO) overall

numbers have all dredgers at 43.3% beneficial reuse, 38.8% in-Bay, and 20.9% ocean since the year 2000. In other words, there does not seem to be an actual desire for dredgers to shift in-Bay disposal to ocean disposal as recommended in the LTMS 20/40/40 goal.

6. USACE appreciates the Water Board's certification of 4.08 million cubic yards of in-Bay disposal over five years.

Episode Approval

7. USACE greatly appreciates the Water Board providing the opportunity for USACE to streamline the episode approval process. By doing so, both USACE and the Water Board can conserve tax payer resources, while appropriately accounting for compliance with the Clean Water Act. Moreover, USACE appreciates the inclusion of language that increases the flexibility of the Order by authorizing the Executive Officer to consider allowing USACE to exceed the 4.08 mcy in-Bay limit provided it does not result in exceedance of the allocation trigger and that 50% of the excess volume is beneficially reused.

Entrainment Monitoring

8. Notwithstanding comment 2, USACE would like the Water Board to include this revision to Provision 12: "By March 31 of years 2021 through 2024, USACE shall submit an annual update to the plan (or an acceptable rationale justifying that no update is necessary or proposed). USACE may propose alternative evaluation methods that it believes will result in a better understanding of hopper dredge entrainment of special status species." This flexibility appears to be consistent with the intent of the CDFW recommended monitoring, which suggested monitoring be conducted for two years then evaluated to determine if additional minimization measures or monitoring is indeed necessary.

9. USACE also requests the Water Board leave open the opportunity to consider alternatives to the existing entrainment monitoring requirement in the WDR/WQC. USACE understands the Water Board's concern regarding entrainment of special status species during our dredging operations and believes we may be able to ameliorate those concerns in a more effective manner than the current entrainment monitoring envisioned by the WDR/WQC. The USACE expended a considerable amount on entrainment monitoring under the former WDR/WQC and these efforts have had limited ability to produce useful statistical data on the effects of entrainment on special-status species. The continuation of this program is unlikely to provide further improved data without modifications to the entrainment devices, which would be prohibitively costly. USACE hopes that the Water Board will be amenable to potential alternatives to the entrainment monitoring requirement in Provision 12, should USACE find a substitute acceptable to the Water Board. We request the Water Board include the following statement in the TO:

> The Executive Officer may consider and approve a USACE proposal that provides better benefits to special-status fish species than the entrainment monitoring required by Provision 12. This proposal, if agreed to by the Water Board, would be implemented and would replace the requirements in Provision 12.

SAN FRANCISCO
BAYKEEPER®

Transmitted via Electronic Mail

November 4, 2019

Beth Christian
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RE: Tentative Order for Clean Water Act Section 401 Certification for Army Corps of Engineers' Operations and Maintenance Dredging in San Francisco Bay, 2020-2024

Dear Ms. Christian:

On behalf of San Francisco Baykeeper ("Baykeeper") and our more than 5,000 members and supporters, I submit the following comments on the Tentative Order for the Army Corps of Engineers ("Corps") for a Federal Water Pollution Control Act, 33 U.S.C. section 1251, *et seq*., ("Clean Water Act ") section 401 certification ("Water Quality Certification") for its operations and maintenance dredging ("O&M dredging") in San Francisco Bay ("Tentative Order"). Baykeeper's mission is to protect San Francisco Bay from its biggest threats and to hold polluters accountable. During the past several years, Baykeeper has worked to ensure that dredging operations in the Bay do not unnecessarily harm imperiled native fish species and also beneficially reuse dredged sediment instead of treating it as a waste product, including pursuing litigation regarding the San Francisco Bay Regional Water Quality Control Board's ("Regional Board") Waste Discharge Requirements and Water Quality Certification for the Corps' O&M dredging during the past five years, Order No. R2-2015-0023 ("Previous Order").

Baykeeper previously submitted comments to the Regional Board regarding the Corps' application for the Water Quality Certification, dated August 6, 2019, which Baykeeper has attached hereto and hereby incorporates by reference herein. Those comments lay out the Regional Board's legal duty under section 401 of the Clean Water Act, 33 U.S.C. section 1341, to impose conditions on the Corps' O&M dredging to ensure protection of water quality standards in the Bay for the next five years, specifically urging the Regional Board to require the Corps to use clamshell dredges in all in-Bay channels and to require the Corps to beneficially reuse at least 40% of the dredged sediment from its O&M dredging operations. Despite Baykeeper's previous comments, the Tentative Order continues to allow the Corps to use a hydraulic dredge in one in-Bay channel and only requires the Corps to beneficially reuse dredged material under limited circumstances. It is Baykeeper's understanding that the Regional Board is hesitant to further condition the Water Quality Certification without additional guidance from the pending federal court decision in the matter of *San Francisco Bay Conservation and Development Commission, et al. v. U.S. Army Corps of Engineers, et al*., Case No. 3:16-cv-05420-RS ("Dredging Litigation") regarding the Previous Order. In order to utilize this guidance as soon as possible, the Regional Board must clarify the Tentative Order to ensure that the Final Order can be modified in accordance with the court decision in the Dredging Litigation.

Additionally, there are several provisions from the Previous Order which have been omitted from the Tentative Order without explanation. In summary, Baykeeper requests the Regional Board to:

1) **Revise the Final Order to prohibit hydraulic dredging and require mechanical clamshell dredging in in-Bay channels to protect imperiled native fish species;**
2) **Revise the Final Order to require the Corps to dispose of a minimum of 40% of dredged sediment at beneficial reuse sites, or, at a minimum, retain Provision B.2 in the Final Order;**
3) **Revise Certification C.3 of the Tentative Order to authorize the Regional Board to modify the Final Order in accordance with the pending federal court decision regarding the Previous Order;**
4) **Add to the Final Order the Receiving Water Limitations from the Previous Order that were omitted from the Tentative Order;**
5) **Add to the Final Order the language from Provision B.6 of the Previous Order regarding overflow and decanting during mechanical dredging activities; and**
6) **Retain in the Final Order increased funding provided in Provision B.20.**

Baykeeper's detailed comments regarding each of these requests are below.

I. Revise Provision B.9 in Response to the Corps' 2016-2019 Entrainment Monitoring Data

The primary environmental harm caused by the Corps' O&M dredging is the entrainment of imperiled native fish species during hydraulic dredging activities. Section 17 of the Tentative Order, *Entrainment of Special-Status including Longfin Smelt and Delta Smelt*, includes a short description of the Corps' 2016-2019 Entrainment Monitoring, stating in full:

> *2016-2019 Entrainment Monitoring: Entrainment monitoring aboard the hopper dredge Essayons took place under the previous Order R2-2015-0023 in June, September, and October 2016; June and November 2017, June and October 2018, and in August 2019. No delta smelt were entrained in the monitoring apparatus during these monitoring events, most likely because the Essayons dredged in areas where the salinity exceeded the tolerance limit of delta smelt.* ***However, monitoring during this period demonstrated that entrainment of longfin smelt occurred****.*

While Baykeeper is relieved that no Delta smelt were detected during the Corps' entrainment monitoring, we are hesitant to celebrate. Delta smelt habitat is located in the Suisun Bay Channel and New York Slough, not in the Richmond Outer Harbor and Pinole Shoal Channel. Under the Previous Order and per the U.S. Fish and Wildlife's biological opinion for Delta smelt, the Corps is not permitted to conduct hydraulic dredging in the Suisun Bay Channel.

In contrast, Baykeeper is devastated that longfin smelt were entrained under the Previous Order. Table A below summarizes the number of longfin smelt entrained between 2016 and 2019:

Table A: Number of Longfin Smelt Entrained 2016-2019		
Navigation Channel	**Month/Year**	**No. of Longfin Smelt Entrained**
Richmond Outer Harbor	June 2016	12
Richmond Outer Harbor	October 2016	0
Pinole Shoal	October 2016	0
Pinole Shoal	June 2017	56
Pinole Shoal	November 2017	3
Richmond Outer Harbor	June 2018	0
Richmond Outer Harbor	October 2018	30
Pinole Shoal	August 2019	1
Total:		102

Despite its lack of protected status under the Federal Endangered Species Act (i.e., protection is warranted, but listing has been precluded), the longfin smelt is on the brink of extinction *now* and the Regional Board must act *now* to protect longfin smelt habitat from further degradation. This is not a California Endangered Species Act issue. Rather, it is a water quality standard issue for which the Regional Board has legal authority to protect. Based on the Corps' recent entrainment monitoring data, it is clear that in order to protect longfin smelt from extinction, the Corps must be prohibited from hydraulic dredging in the Richmond Outer Harbor and Pinole Shoal navigation channels. Alternating deferred hydraulic dredging in these channels has proven to be insufficient to protect imperiled native fish species as evidenced by the 2016-2019 entrainment monitoring data. **Baykeeper urges the Regional Board to revise Provision B.9 to prohibit the Corps from conducting any hydraulic dredging in any of the in-Bay Channels.**

II. Maintain and Expand Beneficial Reuse Requirements

Maximization of the beneficial reuse of dredged sediment is of paramount importance to the Bay's ability to adapt to sea level rise and defend against the impacts from climate change. As the largest dredger operating in the Bay, it is imperative that the Corps do its part to place dredged sediment at beneficial reuse sites. Baykeeper is disappointed that the Tentative Order fails to include a condition requiring the Corps to comply with the Long-Term Management Strategy's (LTMS) 40% beneficial reuse target. Tables 1 and 2 of the Tentative Order indicate in-Bay and ocean disposal for the vast majority of the Corps' Federal Standard Placement Sites. Beneficial reuse sites are indicated as the Federal Standard Placement Sites for the Petaluma River Channel, Lower Napa River Channel, Upper Napa River Channel, and San Francisco Harbor – Main Ship Channel which account for approximately 20% of the total disposal volume – a far cry from the LTMS' 40% beneficial reuse target. Again, Baykeeper urges the Regional Board to use its authority under section 401 of the Clean Water Act to condition the Water Quality Certification to require additional beneficial reuse of dredged sediment.

Provision B.2 of the Tentative Order states that in order for the Corps to gain approval for in-Bay disposal above 4.08 mcy, the Corps must submit a proposal that documents how:

> *(a) the additional in-Bay disposal will not result in an exceedance of the 1.5 mcy allocation trigger for total in-Bay disposal from all dredgers combined in any three-year averaging period, and*

> *(b)* ***at least 50 percent of the excess volume will be beneficially reused at an aquatic habitat creation or restoration project****.*

Baykeeper appreciates the Regional Board's inclusion of this provision in the Tentative Order, as it aims to maintain compliance with the LTMS in-Bay disposal targets and also provides additional incentive for the Corps to dispose of dredged sediment at beneficial reuse sites, but it does not go far enough. **Baykeeper continues to believe that the Regional Board has the legal authority to require the Corps to dispose of even more dredged sediment at beneficial reuse sites, but, at a minimum, we hope that Provision B.2 will remain in the Final Order.**

III. Clarify Modification Clause

Certification C.3 of the Tentative Order provides for modification or revocation of the Water Quality Certification in limited circumstances and provides in full:

> *3. This Order is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and 23 CCR section 3867. The Water Board may add to or modify the conditions of this Order, as appropriate, to implement any new or revised water quality standards and implementation plans adopted and approve [sic] pursuant to the Water Code, or section 303 of the Clean Water Act, or in response to new information concerning the conditions of the project.*

Baykeeper challenged the Corps' interpretation of Provision 10 of the Previous Order (similar to Provision B.9 of the Tentative Order) and the Corps dredging regulations (i.e., the Federal Standard), as well as other legal interpretations, in the Dredging Litigation in federal court. The Dredging Litigation has been fully briefed and was heard by the Honorable Richard Seeborg on August 28, 2019. The Court has yet to issue its decision resolving the Dredging Litigation. Should the Court follow the existing legal rationale in *Ohio v. U.S. Army Corps of Engr's*., 259 F.Supp.3d 732 (N.D. Ohio 2017), and find that the Corps cannot use the Federal Standard to override conditions imposed under section 401 of the Clean Water Act and applicable State water quality standards, it is reasonable to expect the Regional Board will want to modify the Final Order accordingly.

Certification C.3 appears to be the Regional Board's boiler plate language for its Waste Discharge Requirements under the Water Code. Water Code section 1330 and 23 CCR section 3867 provide that an aggrieved party can petition the State Board for reconsideration of certain actions under State law. Here, the Tentative Order is both a Waste Discharge Requirement under State law and a Water Quality Certification under federal law. While Certification C.3 of the Tentative Order does not explicitly exclude federal judicial review (and Baykeeper believes that federal judicial review is implicitly included), Baykeeper advises the Regional Board to revise Certification C.3 of the Tentative Order to clarify that the Final Order is subject to modification or revocation upon *federal* judicial review as well as *State* judicial review. **Baykeeper urges the Regional Board to clarify its authority to modify the Final Order under Certification C.3 of the Tentative Order, and if needed, revise Certification C.3 to authorize the Regional Board to modify the Final Order in accordance with the pending Court decision in the Dredging Litigation.**

IV. Include Omissions from 2014-2019 Water Quality Certification

Baykeeper has conducted a close review comparing the Tentative Order to the Previous Order and has identified several provisions in the Previous Order which have been omitted without explanation from the Tentative Order. Without additional information, it is unclear how these omissions will impact the water quality of the Bay, and thus they require further explanation by the Regional Board.

a. Receiving Water Limitations

Receiving Water Limitations A.2 and A.3 from the Previous Order have been omitted from the Tentative Order without any explanation. Receiving Water Limitation A.2 states in full:

> *2. The discharge of waste shall not cause the following conditions to exist in waters of the State that cause a nuisance or adversely affect beneficial uses at any place:*
>
> *a. Floating, suspended, or deposited macroscopic particulate matter or foam;*
>
> *b. Aquatic growths;*
>
> *c. Significant alteration of temperature, turbidity, or apparent color beyond present natural background levels;*
>
> *d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and*
>
> *e. Toxic or other deleterious substances in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.*

Receiving Water Limitation A.3 states in full:

> *3. The discharge of waste shall not cause violations of the following limits in the water column at dredging and disposal sites:*
>
> | | |
> |---|---|
> | *a. Dissolved Oxygen:* | *5.0 mg/L minimum downstream of the Carquinez Bridge, 7.0 mg/L minimum upstream of the Carquinez Bridge. When natural factors cause lesser concentrations, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.* |

b. Dissolved Sulfide:	*0.1 mg/L maximum.*
c. pH:	*A variation of natural ambient pH by more than 0.5 pH units.*
d. Un-ionized Ammonia:	*0.025 mg/L as N, annual median; and 0.16 mg/L as N, maximum.*
e. Salinity:	*The project shall not increase total dissolved solids or salinity to adversely affect beneficial uses.*

Baykeeper recognizes that the language in Receiving Water Limitations A.2 and A.3 comes from the Water Quality Control Plan for the San Francisco Bay Basin ("Basin Plan"), thus these water quality limitations are applicable to the Corps' O&M dredging regardless of whether or not they are expressly included in the Final Order. We note that if the Regional Board is going to include water quality limitations, then it must also require water quality monitoring for those water quality limitations. **The Regional Board must insert these Receiving Water Limitations into the Final Order, or in the alternative, provide its reasoning for the omissions in the response to comments.**

b. Overflow/Decanting During Mechanical Dredging

Provision B.6 of the Previous Order has also been omitted from the Tentative Order, and states in full:

> *6. Overflow/Decanting During Mechanical Dredging: No water entrained during dredging (i.e., overflow or decant water) shall be discharged from any vessel containing dredged material characterized as containing greater than 20 percent fines (silt- and clay-size particles), with the exception of spillage incidental to clamshell bucket operations. Decanting is allowed when the fine-grain content of the dredged material is less than 20 percent (i.e., the sediment is greater than 80 percent sand).*
>
> *Exceptions may be granted on a project-specific basis if USACE submits an overflow or decanting monitoring plan, acceptable to the Executive Officer, at least 90 days prior to the anticipated dredging start date. The plan shall describe the process for monitoring compliance with the following receiving water limits within 500 feet of the dredge footprint (a shorter distance may apply in Richmond and Oakland Inner Harbors depending on the distance to the nearest eelgrass bed or patch):*
>
> - *Turbidity 50 NTU (or up to 10 percent greater than turbidity at a background reference location sampled concurrently with the dredging location, if the background turbidity is greater than 50 NTU)*

- *Dissolved oxygen 5.0 mg/L (7.0 mg/L east of the Carquinez Bridge)*

- *$6.5 \leq pH \leq 8.5$*

In addition, the monitoring plan shall: 1) describe how the temporal and spatial extent of the suspended sediment plume associated with overflow/decant discharge will be characterized and compared to non-overflow conditions; 2) describe reporting format and frequency; and 3) include a contingency plan in the event of an observed exceedance of one or more water quality objectives caused by overflow/decant discharges.

Project-Specific Overflow Monitoring Plan Due Date: A minimum of 90 days prior to anticipated dredging start date. Dredging may not commence until the plan is approved in writing by Water Board staff.

Without any reference to the overflow/decanting monitoring results during the Previous Order, the water quality impact of leaving out this provision is unclear. Presumably, overflow or decant water may be discharged at times during the Corps' mechanical dredging activities authorized under the Final Order, so this provision is still relevant to the Corps' O&M dredging for the next five years. **The Regional Board must insert the language from Provision B.6 of the Previous Order into the Final Order, or in the alternative, provide its reasoning for the omission in the response to comments.**

V. Maintain Increased RMP Funding

Provision B.20 of the Tentative Order increases the Corps' contribution to the San Francisco Estuary Regional Monitoring Program for Trace Substances (RMP) via funding directed to the U.S. Geological Survey (USGS) to monitor suspended sediment concentrations at an array of locations in the Bay on an annual basis in the amount of no less than $400,000. Baykeeper appreciates the Regional Board's inclusion and increased amount of this contribution in the Tentative Order, and we fully support efforts to continue to improve the collective understanding of sediment transport processes in the Bay as well as the creation of a comprehensive database for various numerical modeling efforts. **We hope that the increased funding to USGS in Provision B.20 will remain in the Final Order.**

VI. Conclusion

Thank you for the opportunity to comment on the Tentative Order for the Water Quality Certification for the Corps' O&M dredging for years 2020-2024. In sum, Baykeeper urges the Regional Board to revise the Final Order as follows:

1. **Revise the Final Order to prohibit hydraulic dredging in in-Bay channels to protect imperiled native fish species;**
2. **Revise the Final Order to require the Corps to dispose of a minimum of 40% of dredged sediment at beneficial reuse sites, or, at a minimum, retain Provision B.2 in the Final Order;**

3. **Revise Certification C.3 of the Tentative Order to authorize the Regional Board to modify the Final Order in accordance with the pending court decision regarding the Previous Order;**
4. **Add to the Final Order the Receiving Water Limitations from the Previous Order that were omitted from the Tentative Order;**
5. **Add to the Final Order the language from Provision B.6 of the Previous Order regarding overflow and decanting monitoring during mechanical dredging activities; and**
6. **Retain in the Final Order increased funding to USGS provided in Provision B.20.**

If you have any questions or would like to discuss these comments further, please contact me at nicole@baykeeper.org or 510-735-9700 x110.

Sincerely,

Nicole C. Sasaki
Staff Attorney

Enclosure (Baykeeper's August 6, 2019 comments without attachments).

SAN FRANCISCO BAYKEEPER®

Transmitted via email

August 6, 2019

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Re: Clean Water Act Section 401 Certification for Army Corps of Engineer's Operations and Maintenance Dredging in San Francisco Bay, 2020-2024

Dear Ms. Christian:

On behalf of San Francisco Baykeeper ("Baykeeper") and our more than 5,000 members and supporters, I submit the following comments on the application of the Army Corps of Engineers ("Corps") for a Clean Water Act section 401 certification ("Water Quality Certification") for its operations and maintenance dredging ("O&M dredging") in San Francisco Bay. Baykeeper's mission is to protect San Francisco Bay from its biggest threats and to hold polluters accountable. During the past several years, Baykeeper has worked to ensure that dredging operations in the Bay do not unnecessarily harm imperiled native fish species and beneficially reuse dredged sediment instead of treating it as a waste product. This Water Quality Certification process presents the San Francisco Bay Regional Water Quality Control Board ("Regional Board") with an opportunity to ensure that O&M dredging over the next five years is protective of water quality standards in the Bay. To meet this duty, we urge the Regional Board to adopt conditions that require the Corps (1) to use clamshell or mechanical dredges in all in-Bay federal navigation channels and (2) to beneficially reuse dredged sediment at a level that, at a minimum, is in accordance with the Long-Term Management Strategy commitments.

I. The Regional Board Has a Duty under Clean Water Act Section 401 to Impose Conditions to Ensure that the Entire O&M Dredging Activity Protects Water Quality Standards.

The objective of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To do so, the Clean Water Act requires each state to prepare water quality standards that "protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act." *Id.* § 1313(c)(2)(A). Water quality standards "designat[e] the use or uses to be made of the water and [set] criteria that protect the designated uses." 40 C.F.R. § 131.2. Specifically, the Clean Water Act mandates that Water Quality Standards provide for the "protection and propagation of fish, shellfish, and wildlife." 33 U.S.C. §§ 1251(a)(2), 1313(c)(2)(A); 40 C.F.R. § 131.2. The U.S. Environmental Protection Agency (EPA) reviews the state water quality standards and determines whether they meet the CWA's requirements. 33 U.S.C. § 1313(c)(3). Once approved by the EPA, the water quality standards are federally-enforceable standards under the Clean Water Act. *Id.*

Section 401 of the Clean Water Act gives states authority to ensure that activities in navigable waters in the state meet federally-approved state water quality standards. *See* 33 U.S.C. § 1341. Whenever an entity applies for a federal license or permit for an activity that "may result in any discharge into navigable waters," that applicant must first obtain a Water Quality Certification from the applicable state that the applicant's activity will not violate state water quality standards. *Id*. § 1341(a)(1). If necessary, the Water Quality Certification must include "limitations" to assure that the activity meets the requirements of the CWA and "any other appropriate requirement of State law." *Id*. § 1341(d); *see also* 40 C.F.R. § 121.2(a)(4) (authorizing the state to include "any conditions which the [state] deems necessary or desirable with respect to the discharge of the activity"). Under CWA section 401, the State has broad authority to impose any condition on the Corps' O&M dredging it deems necessary to protect designated uses of the Bay and to ensure compliance with federally-approved state WQS. *See PUD No. 1 v. Wash. Dep't of Ecology*, 511 U.S. 700, 713-14 (1994). Moreover, under the Porter-Cologne Act, the Regional Board may only issue a Water Quality Certification if "there is reasonable assurance that an activity . . . will not reduce water quality below applicable standards." Water Code § 13160.

The Corps' maintenance dredging operations are subject to the CWA, including section 401. 33 U.S.C. §§ 1344(t), 1323. In response to the conditions the Regional Board included in the last Water Quality Certification issued for the O&M dredging from 2015-2019, the Corps asserted that the Corps' regulations, referred to as the "Federal Standard," prohibits the Corps from implementing state conditions imposed under CWA section 401 if they increase costs. In fact, the Corps has unlawfully deferred dredging in two navigation channels to avoid implementing a condition under the previous Water Quality Certification, which is intended to intimidate the State into giving up its authority to protect water quality standards under CWA section 401.

The Corps' interpretation of the Federal Standard is wrong for two reasons. First, the CWA expressly requires the Corps to comply with State requirements to meet WQS. 33 U.S.C. §§ 1344(t), 1323. In fact, Congress amended the CWA "to indicate unequivocally that all Federal facilities and activities are subject to all of the provisions of State and local pollution laws." S. Rep. No. 95-370, at 67 (1977); *see also In re Operation of the Mo. River Sys. Litig.,* 418 F.3d 915, 918 n.4 (8th Cir. 2005) ("Congress' intent in enacting the l977 amendments was to subject the Corps' *channel-dredging* activities to state [WQS] promulgated pursuant to the CWA, while preserving its authority to maintain navigation") (emphasis in original); *Ohio v. U.S. Army Corps of Engr's.*, 259 F.Supp.3d 732, 749-50 (N.D. Ohio 2017) ("Congress verified its intent to make" the State "the ultimate authority" on water quality standards and "did not intend for federal agency decisions to pre-empt state law in this area") (citation omitted). Second, the Corps ignores and misinterprets the plain language of its own regulations, which expressly require it to comply with a Water Quality Certification issued under CWA section 401 and applicable State water quality standards. The Federal Standard does not simply require the Corps to dredge in the least-costly manner, but also expressly requires dredging to be "environmentally acceptable" and in compliance with the CWA, including section 401 and applicable water quality standards. *See* 33 C.F.R. §§ 335.2, 335.4, 335.5, 336.1(a)(1), (b)(8), (c)(1)-(2), (10); *Ohio*, 259 F.Supp.3d at 752-54, 760-61. Thus, the Corps' position and threats of deferring dredging should not deter the Regional Board from imposing conditions that are reasonably necessary to ensure protection of water quality standards.

II. The Regional Board Must Require the Corps to Use Clamshell Dredges in All In-Bay Channels.

In 2015, the Corps and the Regional Board published a Final Environmental Assessment/ Environmental Impact Report for the "Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay, Fiscal Years 2015-2024" (EA/EIR) under the National Environmental Policy Act and the California Environmental Quality Act. This EA/EIR is the applicable environmental review document for the proposed re-issuance of the Water Quality Certification.

The EA/EIR evaluated the impact of O&M dredging on imperiled fish species, in particular, Delta smelt and longfin smelt.[1] As recognized by the Corps and federal resource agencies, dredging with hydraulic dredges has significant adverse impacts on these species because the fish get sucked into the dredge (*i.e.,* entrained) and are killed.[2] In 2013, the Corps studied the impacts of hydraulic dredges on Delta and longfin smelt.[3] The study found that up to 29% of the population of Delta smelt and up to 8% of the population of longfin smelt would be killed annually by using hydraulic dredges in the in-Bay channels.[4] In contrast, using a mechanical dredge in the in-Bay channels essentially eliminates the entrainment of fish because the fish do not get trapped in the mechanical dredge bucket.[5]

After reviewing the Corps' entrainment study, the California Department of Fish and Wildlife (CDFW) found that the Corps' dredging as proposed (*i.e.*, primarily using hydraulic dredges in the in-Bay channels) "would substantially reduce the number of" these listed fish species and cause significant cumulative impacts to those species.[6] CDFW thus recommended to "reduce hopper dredging to a minimum in [the] Bay."[7] The EA/EIR concluded that hydraulic dredges would significantly impact Delta and longfin smelt by substantially reducing their populations.[8]

Because of the impact on Delta and longfin smelt, the EA/EIR included two Reduced Hopper Dredge Alternatives, which would require the Corps to use mechanical dredges rather than hydraulic dredges in certain in-Bay channels, while still annually dredging these channels.[9] Under Reduced Hopper Dredge Alternative 1, starting in fiscal year 2017, the Corps could use a hydraulic dredge only in the MSC and one in-Bay channel; the Corps would purchase mitigation credits for the take of imperiled fish in the hydraulically dredged channel and would use a mechanical dredge in the other channel.[10] Under Reduced Hopper Dredge Alternative 2, starting in fiscal year 2017, the Corps could use a hydraulic dredge only in the MSC.[11] The Regional Board found that the Corps could feasibly implement either alternative, as each alternative provided a two-year phase-in period to

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[1] EA/EIR at ES-2, ES-19.
[2] *Id*. at 3.6-35, 3.6-43.
[3] *Id*. at 3.6-36.
[4] *Id*. at 3.6-41, 3.6-46.
[5] *Id*. at ES-12, 3.6-43, 3.6-49 – 3.6-50.
[6] San Francisco Bay Regional Water Quality Control Board, Reissued Waste Discharge Requirements and Water Quality Certification for U.S. Army Corps of Engineers, San Francisco District San Francisco Bay Federal Channel Maintenance Dredging Program, 2015 through 2019, ORDER NO. R2-2015-0023 ("2015 WQC"), at 12, 30.
[7] *Id*. at 12-15, 30.
[8] EA/EIR at 3.6-39 - 3.6-40, 3.6-46 - 3.6-47.
[9] *Id*. at ES-9 – ES-12, 3.6-41 – 3.6-43, 3.6-48 – 3.6-50.
[10] *Id*. at ES-10 – ES-11.
[11] *Id*. at ES-11; 2015 WQC at 15.

allow the Corps to budget for the change in equipment use.[12] When the Regional Board approved the Water Quality Certification for O&M dredging for 2015-2019, the Regional Board required that the Corps to implement either Reduced Hopper Dredge Alternative 1 or 2, as described in the EA/EIR.[13]

The status of the Delta smelt and longfin smelt in San Francisco Bay has not improved since the EA/EIR, and in fact, recent data indicates that the species have become further imperiled. Delta smelt is a native fish that is only found in the San Francisco Bay-Delta Estuary and were once abundant but now are "at imminent danger of extinction."[14] Delta smelt is listed as threatened under the federal Endangered Species Act (ESA) and endangered under the California ESA.[15] Recent abundance numbers for the Delta smelt have been at historic lows.[16]

Similarly, longfin smelt were once one of the most abundant open-water fishes in the Estuary and were commercially important fish.[17] Today the species' numbers have plummeted to record lows in the Bay-Delta.[18] Longfin smelt is listed as threatened under the California ESA and the U.S. Fish and Wildlife Service (FWS) has determined that listing of the Bay-Delta population is warranted under the federal ESA.[19] Longfin smelt abundance in 2018 (the most recent year of sampling) were less than 1% of the levels detected when sampling began in 1967. Since the species was listed by the State in 2009, longfin smelt numbers have plummeted further. The 10-year average abundance from 2000-2009, has decreased by 88%, compared to the 10-year average abundance from 2009-2018.[20]

Hopper dredges cause a much more significant impact on smelt than mechanical dredges. The Corps cannot dispute this. In fact, the Corps recently published a draft Environmental Impact Statement analyzing deepening of the Pinole Shoal Channel and determined that use of a mechanical dredge was the lowest-cost, environmentally-acceptable way of dredging in that channel.[21] Yet for

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[12] EA/EIR at 2-24; San Francisco Bay Regional Water Quality Control Board, Response to Comments on Tentative Order for U.S. Army Corps of Engineers, San Francisco District Maintenance Program, 2015-2019 ("Response to Comments"), at 8-9; 2015 WQC at 15.
[13] 2015 WQC at 1, 22-23, 27; *see also* Response to Comments at 9.
[14] California Dept. of Fish & Wildlife, Delta Smelt, available at https://www.wildlife.ca.gov/Conservation/Fishes/Delta-Smelt, attached as Exhibit 1; EA/EIR at 3.6-19 – 3.6-20, 3.6-39.
[15] EA/EIR at 3.6-19.
[16] *See* "News worsens for rare Delta fish; Smelt's decline reflects health of estuary as a whole," Stockton Record (Apr. 18, 2015), available at http://www.recordnet.com/article/20150418/NEWS/150419726/101095/A_NEWS, attached as Exhibit 2; *see also* Sahagun, Louis, "As California's delta smelt spirals toward extinction, a future in captivity awaits," Los Angeles Times, April 22, 2019, available at: https://www.latimes.com/local/california/la-me-threatened-delta-smelt-aquarium-exhibit-20190422-story.html, attached as Exhibit 3.
[17] The Bay Institute *et al.*, Petition to List the San Francisco Bay-Delta Population of Longfin Smelt (*Spirinchus thaleichthys*) as Endangered Under the Endangered Species Act, August 8, 2007, at p. ii-iii, attached hereto as Exhibit 4.
[18] *Id.*
[19] EA/EIR at 3.6-19.
[20] *See* California Dept. of Fish & Wildlife, Monthly Abundance Indices, available at http://www.dfg.ca.gov/delta/data/fmwt/indices.asp.
[21] The Draft Integrated Reevaluation Report and Environmental Impact Statement for the San Francisco to Stockton Navigation Improvement Project ("Stockton DEIS") correctly states that

O&M dredging, the Corps illogically continues to argue that using hopper dredges in in-Bay channels, particularly the Pinole Shoal Channel and the Richmond Outer Harbor, constitutes the federal standard alternative. Using a hopper dredge in those channels is not environmentally acceptable, as the best available evidence and the Corps' own recent determination for the deepening project, indicates that it would significantly harm two imperiled fish species.

Considering the conclusions of the EA/EIR and the continuing decrease in smelt populations, the Regional Board must continue, at a minimum, to impose either Reduced Hopper Dredge Alternatives 1 or 2. Although the Regional Board did so in the last iteration of the Water Quality Certification, the Corps has refused to make any changes to its equipment use in any in-Bay channel.[22] While the Corps has not expressly violated Provision 10, the Corps has unlawfully refused to dredge one in-Bay channel each year to avoid incorporating Provision 10 into its O&M Dredging program. The Corps has stated that it will continue to defer dredging in alternative years unless the Regional Board removes the condition. The Regional Board should resist this unreasonable and unlawful demand by the Corps and should instead impose Reduced Hopper Dredge Alternative 2, which would require the Corps to use a mechanical dredge in all in-Bay channels.

III. The Regional Board Must Require that the Corps Beneficially Reuse at Least 40% of Dredged Sediment in Order to Protect Beneficial Uses.

While the Regional Board recognizes the importance of wetlands to San Francisco Bay water quality and has participated in efforts to ensure that dredged sediment is beneficially reused, the Regional Board has thus far failed to use its authority under CWA section 401 to require the Corps to beneficially reuse sediment from its O&M dredging operations. This failure violates the Regional Board's duties under the Clean Water Act, as well as Porter-Cologne.

"[m]echanical dredging. . . is generally accepted to entrain far fewer fish than hydraulic dredging because little water is removed along with the sediment and it does not involve any suction." Stockton DEIS, available at https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/11171, at 4-48; *see also* Stockton DEIS at 4-6, 4-50.

[22] Although Provision 10 applies to all in-Bay channels, the only channels at issue are the Pinole Shoal Channel and the Richmond Outer Harbor. All other channels, except Suisun Bay, cannot be dredged with a hopper dredge, and Fish and Wildlife Service requires the Corps to dredge with a mechanical dredge in Suisun Bay to avoid significant impacts on Delta smelt. The FWS estimates that "about 10 percent of the current population" of Delta smelt is killed by the Corps' hydraulic dredges in Suisun Channel alone. Letter from Jessica Burton Evans to Kim Turner, re: Request to Revise the Project Description for a previously submitted (dated February 2, 2016) Biological Assessment Fiscal Year 2016 and 2017 Maintenance Dredging of Suisun Bay Channel to Reflect that Clamshell Dredging is Proposed Only for 2016, dated July 7, 2016, attached as Exhibit 5. Thus, to minimize take of Delta smelt, FWS now requires the Corps to conduct maintenance dredging activities in Suisun Channel using only a mechanical dredge between August 1 and November 30 of each year. While the Corps refuses to implement Provision 10, the Corps is complying with these FWS limitations on its dredging operations.

Wetlands are critical to protecting the water quality and beneficial uses of the Bay, and because dredging operations threaten the viability of wetlands, the Regional Board has authority and an obligation to condition the 401 Water Quality Certification to mitigate for such impacts. The Basin Plan clearly identifies wetlands as critical to San Francisco Bay.

> *Wetlands and related habitats comprise some of the Region's most valuable natural resources. Wetlands provide critical habitats for hundreds of species of fish, birds, and other wildlife; offer open space; and provide many recreational opportunities. Wetlands also serve to enhance water quality, through such natural functions as flood control and erosion control, stream bank stabilization, and filtration and purification of surface water.*

(Basin Plan, § 4.23.) Specifically, wetlands are necessary to support several beneficial uses:

> *Many individual wetlands provide multiple benefits depending on the wetland type and location. There are many potential beneficial uses of wetlands, including Wildlife Habitat (WILD); Preservation of Rare and Endangered Species (RARE); Shellfish Harvesting (SHELL); Water Contact Recreation (REC1); Noncontact Water Recreation (REC2); Commercial, and Sport Fishing (COMM); Marine Habitat (MAR); Fish Migration (MIGR); Fish Spawning (SPAWN); and Estuarine Habitat (EST).*

(Basin Plan, § 2.2.3.) Beneficial uses are water quality standards and under CWA section 401 and Water Code section 13160, the Regional Board must impose conditions on a federal activity, such as the Corps' O&M Dredging, to protect these beneficial uses.

With expected sea level rise in the Bay Area, wetlands are becoming more threatened, at the same time that they become even more critical for flood control to protect shoreline communities and as natural ecosystems to support beneficial uses. By 2100, the Bay is expected to rise by three feet, and the "the U.S. Geological Survey says the predicted damage from sea level rise in California *triples* once tides, storms and erosion are taken into account."[23] This amounts to an estimated 70 billion dollars of structural damage from flood loss, and 42,000 homes and business and 1100 contaminated sites will be impacted.[24]

Moreover, the Bay has seen a significant reduction in suspended sediment inputs.[25] The EA/EIR states that "[o]ver the last half-century, sediment loss trends have been documented in San

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[23] San Francisco Baykeeper, *Sea Level Rise Along California: Questions & Answers*, https://baykeeper.org/shoreview/california-slr.html, attached as Exhibit 6; Raquel Maria Dillon, *Sea Level Rise in Bay Area is Going to Be Much More Destructive than We think, Says USGS Study,* KQED, March 13, 2019, available at https://www.kqed.org/science/1939059/the-ocean-is-not-a-bathtub-so-sea-level-rise-will-be-more-damaging, attached as Exhibit 7.

[24] San Francisco Baykeeper, *How Will Sea Level Rise Impact the Shoreline of San Francisco Bay?*, available at https://baykeeper.org/shoreview/index.html.

[25] Barnard, P. L. *et al*., "Sand transport in the San Francisco Bay Coastal System: An overview," 345 Marine Geology, 3-17 (2013); Ariel Rubissow Okamoto, *Making the Most of Mud*, Bay Nature, February 1, 2013, available at https://baynature.org/article/making-the-most-of-mud/, attached as Exhibit 8; Moftakhari, H.R., D.A. Jay, S.A. Talke, and D.H. Schoellhamer. "Estimation of historic flows and sediment loads to San Francisco Bay, 1849–2011." Journal of Hydrology 529 (2015):

Pablo Bay, Suisun Bay, and Central Bay."[26] At the same time, sea level rise means more sediment is needed to maintain the Bay's existing wetlands and other shoreline ecosystems. The scientific consensus is that we have until 2030 to ready the region's existing wetlands for climate change.[27]

To add to this need for sediment, the Bay Area needs to restore wetlands on a grand scale in order to protect our communities from sea level rise and storm surges.[28] Bay Area voters overwhelmingly passed Measure AA in 2016 to provide a parcel tax to restore wetlands.[29] But one of the biggest challenges wetland restoration projects face is finding a sufficient amount of soil and sediment.[30] Back in 2013, Amy Hutzel, the Bay Area program manager at the State Coastal Conservancy, stated "We can't let any more mud go to waste. As we're out there dredging our ports, marinas, and flood control channels, as we're digging up dirt around the Bay to do construction, we need to make the best use of every bit of dirt we can to help sustain our habitats and wildlife."[31]

O&M dredging directly impacts the amount of sediment available to replenish existing wetlands and to restore wetlands. Several scientific studies have looked at sediment transport in San Francisco Bay and found that removing sediment from the Bay ecosystem will negatively impact

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1247-1261, attached as Exhibit 9; DredgeFest California: Key Findings and Recommendations, December 2016, available at http://dredgeresearchcollaborative.org/works/dredgefest-california-white-paper/, attached as Exhibit 10.

[26] EA/EIR at 3.4-8.

[27] Laura Tam and Julie Beagle, *Eleven Years to Save San Francisco Bay*, San Francisco Chronicle, June 21, 2019, *available at* https://www.sfchronicle.com/opinion/openforum/article/Eleven-years-to-save-San-Francisco-Bay-14026824.php, attached as Exhibit 11; *see also* San Francisco Baykeeper, Sea Level Rise and Wetlands Along San Francisco Bay, available at https://baykeeper.org/shoreview/wetlands.html, attached as Exhibit 12; *see also* 2015 WQC at 2.

[28] *See* Robin Meadows, *San Francisco Bay Area Makes History with Wetland Restoration Measure,* Water Deeply, October 14, 2016, available at https://www.newsdeeply.com/water/articles/2016/10/14/san-francisco-bay-area-makes-history-with-wetland-restoration-measure, attached as Exhibit 13; *see also* Erica Gies, *Fortresses of mud: how to protect the San Francisco Bay Area from rising seas,* Nature, October 9, 2019, available at https://www.nature.com/articles/d41586-018-06955-4, attached as Exhibit 14.

[29] *See* Meadows, *supra* note 28; *see also* San Francisco Bay Restoration Authority, Parcel Tax, http://sfbayrestore.org/parcel-tax.

[30] *See* Gies, *supra* note 28; *see also* Isaac Pearlman, *Bay Area's Massive Marsh Restoration Project Takes Root*, Sierra, April 22, 2019, available at https://www.sierraclub.org/sierra/bay-areas-massive-marsh-restoration-project-takes-root, attached as Exhibit 15.

[31] Okamoto, *supra* note 25.

shoreline wetlands and coastal beaches.[32, 33, 34, 35, 36, 37, 38, 39, 40, 41] Baykeeper would like to draw the Regional Board's attention to the following excerpts from the cited scientific studies, which pertain directly to the impacts of dredging on sediment transport in San Francisco Bay.

(1) Dallas, K. L. & Barnard, P. L., "Linking human impacts within the estuary to ebb-tidal delta evolution," 56 Journal of Coastal Research, 713-716 (2009):

- San Francisco Bay is one [of] the largest estuaries in the United States and has been continuously altered by a range of activities, including influx by hydraulic mining debris, mining of fill for bay development, *dredging of harbors and waterways*, and mining of sand and gravel for use as construction aggregate. (*Id*. at 713 [emphasis added].)
- Since 1900 a minimum of 130 million m^3 (Mcm) of sediment has been permanently removed from the San Francisco Bay and adjacent coastal ocean through borrow pit mining (27 Mcm), aggregate mining (26 Mcm), *and dredging (77 Mcm)*. (*Id*. at 714 [emphasis added].)
- With new management plans calling for an increase in *out of bay dredge disposal*, and aggregate companies lobbying to extract greater volumes, it is likely these activities will further limit the available sediment supplied to the bar. (*Id*. at 716 [emphasis added].)

[32] Dallas, K. L. & Barnard, P. L., "Linking human impacts within the estuary to ebb-tidal delta evolution," 56 Journal of Coastal Research, 713-716 (2009), attached as Exhibit 16.
[33] Dallas, K. L. & Barnard, P. L., "Anthropogenic influences on shoreline and nearshore evolution in the San Francisco Bay coastal system," 92 Estuarine, Coastal and Shelf Science, 195-204 (2011), attached as Exhibit 17.
[34] Barnard, P. L. *et al*., "Integration of bed characteristics, geochemical tracers, current measurement, and numerical modeling for assessing the provenance of beach sand in the San Francisco Bay Coastal System," 345 Marine Geology, 181-206 (2013), attached as Exhibit 18.
[35] Barnard, P. L. *et al*., "Sand transport in the San Francisco Bay Coastal System: An overview," 345 Marine Geology, 3-17 (2013), attached as Exhibit 19.
[36] San Francisco Estuary Institute, Pulse of the Estuary 2009, Bay Sediments: Past a Tipping Point, 3 (2009), *available at* **www.sfei.org/rmp/pulse**.
[37] Erikson, L.H., Wright, S.A., Elias, E., Hanes, D.H., Schoellhamer, D.H., Largier, J., "The use of modeling and suspended sediment concentration measurements for quantifying net suspended sediment transport through a large tidally dominated inlet," 345 Marine Geology, 98–114 (2013), attached as Exhibit 20.
[38] McGann, M., Erikson, L., Wan, E., Powell II, C., Maddocks, R.F., "Distribution of biologic, anthropogenic, and volcanic constituents as a proxy for sediment transport in the San Francisco Bay Coastal System," 345 Marine Geology, 115–144 (2013), attached as Exhibit 21.
[39] Rosenbauer, R.J., Foxgrover, A.C., Hein, J.R., Swarzenski, P.W., "A Sr–Nd isotopic study of sand-sized sediment provenance and transport for the San Francisco Bay Coastal System," 345 Marine Geology, 145–153 (2013), attached as Exhibit 22.
[40] Wong, F.L., Woodrow, D.L., McGann, M., "Heavy mineral analysis for assessing the provenance of sandy sediment in the San Francisco Bay Coastal System," 345 Marine Geology, 172–182 (2013), attached as Exhibit 23.
[41] Hein, J., Mizella, K., Barnard, P., "Sand sources and transport pathways for the San Francisco Bay coastal system based on X-ray diffraction mineralogy," 345 Marine Geology, 154-169 (2013), attached as Exhibit 24.

(2) Dallas, K. L. & Barnard, P. L., "Anthropogenic influences on shoreline and nearshore evolution in the San Francisco Bay coastal system," 92 Estuarine, Coastal and Shelf Science, 195-204 (2011):

- A minimum of 200 million m^3 of sediment has been permanently removed from the [San Francisco Bay] system *by dredging*, aggregate mining, and borrow pit mining. (*Id*. at 203 [emphasis added].)

(3) Barnard, P. L. *et al*., "Integration of bed characteristics, geochemical tracers, current measurement, and numerical modeling for assessing the provenance of beach sand in the San Francisco Bay Coastal System," 345 Marine Geology, 181-206 (2013):

- At present . . . *dredging* removes about 3 million m^3/yr of sediment, with the majority of this material permanently removed from the San Francisco Bay Coastal System. (*Id*. at 202 [emphasis added].)
- [T]his work also highlights the need to more efficiently manage existing in-Bay sediment resources, as active aggregate mining and *dredging* occurs along well-defined sand transport pathways that carry sediment toward outer coast beaches, at removal rates that exceed the present-day sediment supply rates from all San Francisco Bay watersheds. (*Id*. at 203 [emphasis added].)

(4) Barnard, P. L. *et al*., "Sand transport in the San Francisco Bay Coastal System: An overview," 345 Marine Geology, 3-17 (2013):

- Over the last century, a minimum of 200 million m^3 of sediment has been permanently removed from the San Francisco Bay Coastal System through *dredging*, aggregate mining, and borrow pit mining. (*Id*. at section 2.2.4 [emphasis added].)
- *Dredging* removes about 3 million m^3/year of sediment out of navigation channels and from other channel and berth maintenance projects, with the majority of this material permanently removed from the San Francisco Bay Coastal System via deep-water disposal in the Pacific Ocean, [. . .] roughly equivalent to the annual sediment supply from the Central Valley. (*Id*. at section 2.2.4 [emphasis added].)

(5) Erikson, L.H., Wright, S.A., Elias, E., Hanes, D.H., Schoellhamer, D.H., Largier, J., "The use of modeling and suspended sediment concentration measurements for quantifying net suspended sediment transport through a large tidally dominated inlet," 345 Marine Geology, 98–114 (2013):

- A quantitative understanding of sediment delivered to, stored within, and exported from an estuary is important for a number of issues including *maintenance dredging of navigation channels*, sand mining, light availability for primary productivity, creation and sustainability of tidal wetlands, and the transport of particle-bound nutrients and contaminants. (*Id*. at 96 [emphasis added].)

(6) McGann, M., Erikson, L., Wan, E., Powell II, C., Maddocks, R.F., "Distribution of biologic, anthropogenic, and volcanic constituents as a proxy for sediment transport in the San Francisco Bay Coastal System," 345 Marine Geology, 115–144 (2013):

- Aggregate mining, *dredging*, and borrow pit mining has also been responsible for the removal of large quantities of sediment from the Bay. (*Id.* at 119 [emphasis added].)

The Corps is responsible for approximately 70% of dredging that occurs in San Francisco Bay.[42] Therefore, the Corps' projects are going to be largely responsible for the impacts to wetlands and their beneficial uses from removing dredged sediment from the Bay. Despite this evidence, the Corps does not propose to beneficially reuse any sediment from in-Bay channels, and instead will either dump the dredged sediment in in-Bay disposal sites or at SF-DODS, which is 50-miles off the coast in the Pacific Ocean. The Corps argues that this is environmentally acceptable for O&M Dredging, yet the Corps' recent draft EIR for a deepening project in the Pinole Shoal and Suisun Bay Channels recognized that "[p]lacement of material at SF-DODS is not ideal since it takes material out of the natural system, while both Cullinan Ranch and Montezuma Wetlands both can beneficially use the material and are cost effective."[43] In fact, for the deepening project the Corps determined that the federal standard required that the dredged sediment be beneficially reused. The Corps' positions in these two projects contradicts each other.

But the Regional Board need not rely on the Corps' determinations. It has a separate duty to ensure that it protects water quality standards, including the beneficial uses provided by wetlands. In order to do that, the Regional Board must require that the Corps beneficially reuse a significant portion of the dredged sediment instead of wasting the material at the deep ocean disposal site.

Moreover, the Corps has already committed to beneficially reusing at least 40% of dredged sediment through the Long-Term Management Strategy, of which the Regional Board is a stakeholder.[44] Applying this objective to the Corps' O&M dredging is a reasonable means of ensuring that water quality standards are protected. The Regional Board must require the Corps to beneficially reuse at least a minimum of 40% of dredged sediment in this Water Quality Certification.

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[42] *See* Dredged Material Management Office's (DMMO), "Dredging and Placement of Dredged Material in San Francisco Bay January-December 2013 Report." Baykeeper's independent calculations indicate that DMMO miscalculated the reported total for this data, and that, when all dredging volumes are properly added, the percentage of the Corps' dredging increases to over 80%. "Dredging and Placement of Dredged Material in San Francisco Bay January-December 2013 Report," Dredged Material Management Office, Appendix I (July 2014), *available at* http://www.spn.usace.army.mil/Portals/68/docs/Dredging/Annual%20Reports/DMMO%202013%20Annual%20Report_Final%207-22-14.pdf.

[43] Stockton DEIS at ES-5 – ES-6.

[44] Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region, Final Policy Environmental Impact Statement/Programmatic Environmental Impact Report, August 1998, at 1-15 – 1-16, Executive Summary attached as Exhibit 25. *See also* 2015 WQC at 2-3; EA/EIR at 1-3 – 1-5 (While the 2015 WQC and EA/EIR recognize the LTMS and its goals, including the goal to maximize beneficial reuse, it fails to recognize that the LTMS agencies adopted a preferred alternative that requires that 40% of all dredged sediment is beneficially reused.)

IV. Conclusion

Thank you for the opportunity comment on the proposed issuance of the Water Quality Certification for the Corps' O&M dredging for years 2020-2024. In sum, Baykeeper urges the Regional Board to adopt the following conditions as they are necessary to protect the Bay's water quality standards:

1) The Corps shall use only a mechanical dredge in all in-Bay navigation channels.
2) The Corps shall, at a minimum, beneficially reuse 40% of all sediment dredged during O&M dredging of in-Bay navigation channels.

If you have any questions or would like to discuss these comments further, please contact me at erica@baykeeper.org or 510-735-9700.

Sincerely,

Erica A. Maharg
Managing Attorney

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November 4, 2019

California Regional Water Quality Control Board,
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: Elizabeth Christian

Subject: San Francisco Bay Federal Channel Maintenance Dredging Program, 2020 Through 2024 – Tentative Order

Dear Members of the Board:

On behalf of California's system of ports and harbors, thank you for the opportunity to comment on the Tentative Order your staff has prepared for your consideration and adoption.

We heartily agree with the statement *"The Water Board therefore finds that it is in the public interest to encourage beneficial reuse of suitable dredged material as one component of regional adaptation to climate change and reduced suspended sediment loading to the Bay."*

The question is "what is beneficial?"

Further, the Tentative Order refers to "habitat restoration." What is meant by this term and does it preclude USACE or other party from applying to place dredged material over mud flats or other shallow water habitat where there is potential for legacy contaminants to be exposed?

In 2015, we requested the Water Board positively affirm that additional sediment does not need to go into the water column as the Tentative Order in 2015 stated "Less sediment in suspension and circulation within the Bay impairs the ability of shorelines, mudflats, and tidal wetlands to withstand erosion and inundation, especially as sea level rises. As we see the question, under current Sea Level Rise predictions from the State of California is it better to put dredged material back into the Bay where it will increase sediment in suspension and possibly feed both mudflats and wetlands or place the sediment directly into wetlands that may or may not be able to function under Sea Level Rise and possibly not provide other benefits, such as limiting the loss of mudflats?

We continue to ask the Water Board to affirm that additional sediment does not need to go into the water column to meet its obligations under the Basin Plan and Porter-Cologne Act.

The Tentative Order requires USACE to prepare and submit at Integrated Alternatives Analysis. We request that you include language that shows there is nothing to preclude other parties to provide additional funds to USACE to achieve the forms of "beneficial reuse" that you ask of USACE. Further, as we asked in 2015, please state that the Water Board has reviewed the socio-economic, life safety and environmental impacts to other Corps' projects within the San Francisco District and South Pacific Division due to the additional costs of dredging navigation channels in San Francisco Bay as a result of this Tentative Order. Specifically, dredging of small coastal communities such as: Moss Landing; Noyo and Morro Bay.

On page 3, there is a discussion about increasing USACE's beneficial reuse as their "disproportional" use of in-bay disposal reduces the availability of in-bay disposal for other dredgers. We would like to see any analysis that the Board has on this impact including any analysis of requiring each individual medium-dredging sponsor to have to individually meet the 40-40-20 "goals" of LTMS.

Please provide information as to how the USGS monitoring of suspended sediments "has" improved the Board's understanding of sediment transport processes and, what changes the Board has made to its policies as a result of this monitoring.

Under the existing beneficial uses of San Francisco Bay, we would like to know why items such as "life safety" and "flood damage reduction" are not included.

Has there been any updated correspondence between the Board and California Department of Fish and Wildlife concerning take of state-listed species under the USACE navigation maintenance program?

Again, thank you for the opportunity to comment as you continue to meet your obligations in a thoughtful and deliberative process.

Sincerely,

James M. Haussener

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APPENDIX C
Response to Comments

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We received three comment letters during the public comment period, which closed on November 4, 2019, and we have reviewed and considered the comments contained in those letters. The comments[1] and our responses are presented here. Staff initiated changes are presented at the end of our responses.

Comment letters received:

[1] The comments in Appendix C have been paraphrased. Readers should refer to the comments in Appendix B to see the comments in full.

Comment Letter No. 1: U.S. Army Corps (USACE)

Comment 1.1

"As a federal agency, conducting congressionally authorized operation and maintenance dredging, USACE is only subject to federal law, specifically here the federal requirements under the Clean Water Act. Therefore, USACE requests a Water Quality Certification (WQC) pursuant to Section 401 of the Clean Water Act. Without a clear and explicit waiver of sovereignty, USACE is unable recognize the Water Board's purely state Waste Discharge Requirement (WDR) authorities. However, USACE acknowledges that the Water Board may have its own administrative reasons for issuing a joint WDR/WQC rather than a standalone WQC."

Response to Comment 1.1

Pursuant to Water Code section 13263(d), the Board may prescribe waste discharge requirements (WDRs) although no discharge report has been filed. Furthermore, from 1990 to the present, the Board has regulated USACE's maintenance dredging activities under WDRs. Initially, the Board issued WDRs every 2-3 years for USACE maintenance dredging. After adoption of the Long-Term Management Strategy (LTMS) Management Plan in 2001, WDRs were issued for 3-year periods corresponding with the LTMS in-Bay disposal reduction step-down periods. USACE provides no reference to any new provision of law or change in circumstance that would restrict the Board's ability to continue to regulate USACE's maintenance dredging activities under WDRs. WDRs are appropriate where, as in this activity, there are ongoing discharges. Moreover, the Board may modify WDRs more easily than a stand-alone section 401 Water Quality Certification (WQC) to react to changed circumstances and/or new information during the term of the permit.

Under the Supremacy Clause (U.S. Const., art. VI, cl. 2.), and the doctrine of sovereign immunity, federal agencies and facilities are subject to State law only to the extent authorized by Congress. (*Hancock v. Train* (1976) 426 U.S. 167.) Any such authorization must be "clear and unambiguous" and any waiver must be narrowly construed. (*Goodyear Atomic Corp. v. Miller* (1986) 486 U.S. 174, 180.) Because only Congress may waive sovereign immunity, any such waiver will be found within a federal statute.

In this case, there are two waivers of sovereign immunity within the federal Clean Water Act (CWA) (33 U.S.C. § 1251 *et seq.*): CWA § 313 and CWA § 404(t). Both sections contain similar language; however, the former is a more general sovereign immunity waiver applicable to "the discharge or runoff of pollutants," while the latter is more specific and applies to the "discharge of dredge or fill material in any portion of the navigable waters." For example, CWA § 404(t) provides:

"Nothing in this section shall preclude or deny the right of any State or interstate agency to control the discharge of dredged or fill material in any portion of the navigable waters within the jurisdiction of such State, including any activity of any Federal agency, and each such agency shall comply with such State or interstate requirements both substantive and procedural to control the discharge of dredged or fill material to the same extent that any person is subject to such requirements. This section shall not be construed as affecting or impairing the authority of the Secretary to maintain navigation."

The Ninth Circuit Court of Appeals has held that the Clean Water Act's waiver of sovereign immunity requires a federal entity to obtain a state permit that regulates and controls dredging and water quality. (*Friends of the Earth v. U.S. Navy* (9th Cir., 1988) 841 F.2d 927.) The WDRs

regulate USACE's ongoing discharge of dredged or fill material and are consistent with the waivers of sovereign immunity in the Clean Water Act.

Comment 1.2

"USACE similarly objects to Water Board's application of California Environmental Quality Act and California Endangered Species Act to our federal project. USACE continues to hold the same position outlined in our agencies' joint Finding of No Significant Impact (FONSI) and Environmental Assessment/Environmental Impact Report (EA/EIR) for Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay Fiscal Years (FY) 2015-2024, signed May 29, 2015 that reduction of hopper dredging is unnecessary and inappropriate. However, USACE will reduce the scope of our federal project and alternate annual dredging of Richmond Outer Channel and Pinole Shoals Channel to remain in compliance with the WDR/WQC. The reduction of dredging will produce even less impacts to the State's listed species than were USACE to switch to clamshell dredging one of these two channels annually."

Response

Although USACE is not required to comply with the California Endangered Species Act (CESA), the Water Board must comply with CESA when issuing WDRs and a WQC. Under CESA, "all State agencies '*shall* seek to conserve endangered species and threatened species and *shall* utilize their authority in furtherance of the purposes of' CESA." (*Kern County Water Agency v. Watershed Enforcers* (2010) 185 Cal.App.4th 969, 980 [citing Fish & G. Code § 2055] [emphases added].) The requirement to reduce hopper dredging in the Richmond Outer Harbor and Pinole Shoal channels complies with CESA because it substantially lessens significant effects of maintenance dredging on two State-listed species, delta smelt and longfin smelt.

We acknowledge that the California Environmental Quality Act (CEQA) does not apply to USACE independent of the 401 context. The Water Board, however, must comply with CEQA in connection with the 401 WQC. Where, as here, a project will have significant effects on the environment, the Water Board cannot approve the project unless it eliminates or substantially lessens those impacts where feasible and determines that any remaining impacts are acceptable due to overriding concerns. (Cal. Code Regs., tit. 14, § 15092, subd. (b).) Reduced hopper dredging is feasible and therefore required.

In addition, the Water Board may impose conditions under CWA § 401 that require a federal activity to comply with State water quality standards and appropriate requirements of State law. (*PUD No. 1 of Jefferson County v. Washington Dept. of Ecology* (1994) 511 U.S. 700, 712-713.) Requiring reduced hopper dredging is necessary to ensure that USACE's activities are undertaken consistently with water quality standards. The Basin Plan designates Preservation of Rare and Endangered Species (RARE), Estuarine Habitat (EST), Fish Spawning (SPWN), and Fish Migration (MIGR) as beneficial uses, which are part of water quality standards under the federal Clean Water Act. (CWA § 303(c)(2)(A).) Reduced hopper dredging will, for example, ensure that habitats necessary for threatened and endangered species are protected consistent with the RARE beneficial use designation for San Francisco Bay.

Comment 1.3

"In the TO, the Water Board states that 'the potential for entrainment would be reduced with the use of a mechanical dredge' (p.24) compared to a hopper dredge. This is an assumption. The studies that have been completed have limited ability to produce useful statistical data

on entrainment of special-status species due to equipment limitations on government dredges (see comment 9). USACE requests that the Water Board acknowledge that this is an assumption rather than a scientifically validated fact."

Response

This contradicts USACE's draft Environmental Impact Statement analyzing deepening of the Pinole Shoal Channel (Stockton DEIS)[2], which makes a statement very similar to the one that USACE objects to in the Tentative Order. Specifically, on page 4-48 of the Stockton DEIS states., [m]echanical dredging … is generally accepted to entrain far fewer fish than hydraulic dredging because little water is removed along with the sediment and it does not involve any suction…"

The California Department of Fish and Wildlife (CDFW) is the primary State agency responsible for protecting State threatened and endangered species in California. In its March 14, 2014, memorandum to the Water Board (CDFW Memo) providing guidance on issues related to entrainment of State-listed fish species (attached to the Tentative Order), recommended reducing the use of hopper dredging equipment inside San Francisco Bay. CDFW's recommendation is based on the fact that mechanical dredging has less potential for entrainment of longfin and delta smelt compared to hopper dredging. While this has not been proven statistically, it is based on scientific data including patterns of fish life history and behavior, swimming ability, and flow field forces around the drag head. No studies have been performed in the last five years to show that the basis for CDFW's recommendation is invalid and the USACE monitoring demonstrates continued entrainment is occurring with the hopper dredge method. More information about scientific underpinnings of the EIR are found in the paragraphs below.

Per 2015 Federal Navigation Channels EA/EIR[3], Impact 3.6-4: Potential Adverse Effects from Entrainment on Special-Status or Commercially and Recreationally Important Marine Species, Not Including Delta Smelt and Longfin Smelt, page 3.6-33: "All forms of dredging have the potential to incidentally remove organisms from the environment with the dredged material, a process referred to as entrainment. Organisms on the dredged material may be entrained, in addition to organisms in the water column near the dredging apparatus. In general, smaller organisms with limited or no swimming capabilities are more susceptible to dredge entrainment. Mechanical dredging is generally accepted to entrain far fewer fish than hydraulic dredging, because little water is removed along with the sediment; but it still may remove demersal fish and crustaceans that live in or on the sediment."

Per 2015 Federal Navigation Channels EA/EIR, Impact 3.6-6: Potential Substantial Adverse Effects and Cumulative Impacts to Longfin Smelt from Entrainment, page 3.6-43: "Smelt are not

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[2] Draft Integrated Reevaluation Report and Environmental Impact Statement for the San Francisco to Stockton Navigation Improvement Project, available at https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/11171

[3] United States Army Corps of Engineers, San Francisco District and Regional Water Quality Control Board, San Francisco Bay Region. April 2015. Final Environmental Assessment/Environmental Impact Report. Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay, Fiscal Years 2015-2024.

(footnote continued on next page)

strong swimmers and longfin smelt in particular are known to occur near the bottom of the water column (CDFG, 2009a[4]). As a result, they are presumed susceptible to entrainment in the flow fields created around drag heads of trailing suction dredges."

Comment 1.4

"After five years of studies in cooperation with the Water Board, USACE appreciates the Water Board's agreement that monitoring requirements associated with overflow/decanting during dredging testing is no longer required."

Response

Comment noted.

Comment 1.5

"As acknowledged in the WQC (p.2), as early as the mid-2000s, the U.S. Geological Survey identified a significant reduction in suspended sediment loading from the Sacramento-San Joaquin river system into the Bay, and less sediment in suspension and circulation within the Bay impairs its ability to withstand erosion and inundation, especially as sea level rises. This shift in sediment dynamics coupled with sea level rise, brings into question the foundational assumption in the LTMS that in-Bay disposal is not beneficial and that ocean disposal is preferred to it. The Water Board should bear in mind this reality when considering compliance with the LTMS 20/40/40 goals. The Water Board must appreciate that the percentage goal that the dredging community is failing to meet is not the beneficial reuse 40% but the ocean 40%. For instance, USACE's 2019 percentages are likely to be approximately 64% beneficial reuse, 30% in- Bay, and 6% ocean. The Dredged Material Management Office (DMMO) overall numbers have all dredgers at 43.3% beneficial reuse, 38.8% in-Bay, and 20.9% ocean since the year 2000. In other words, there does not seem to be an actual desire for dredgers to shift in-Bay disposal to ocean disposal as recommended in the LTMS 20/40/40 goal."

Response

This comment appears to question the goals of the LTMS Program. The Tentative Order is not the appropriate vehicle for revising these goals. If this is USACE's intention, we recommend it work with the LTMS federal and State agency partners collectively through the LTMS Management Committee to refine and update the LTMS goals. However, the Water Board believes the LTMS goals are still appropriate in light of climate change driven sea-level rise. Further, the Water Board's perspective is that if any changes are made to LTMS goals, these modifications should require both project and dredger specific in-Bay limits associated with beneficial reuse minimums that will be directly written into dredging permits requiring more than 50 percent beneficial reuse of all dredged material.

We disagree with the assertion that in-Bay "disposal" could be considered "beneficial" in terms of adapting to sea level rise.

[4] CDFG (California Department of Fish and Game), 2009a. Longfin Smelt Fact Sheet.

USACE implies that unconfined or non-engineered in-Bay disposal could be considered beneficial reuse, especially considering the decrease in suspended sediment supply. Currently, no sea level rise adaptation benefits are associated with dredged sediment placement at existing in-Bay dispersive aquatic disposal sites. These sites were intentionally located in areas of strong currents (i.e., high energy) to maximize dispersal of dredged sediment placed there. In 2012, as part of the USACE's ongoing Regional Dredged Material Management Planning process, a three-dimensional hydrodynamic, wave, and sediment transport model was applied to examine sediment dispersal throughout the Bay. One focus of the sediment transport modeling effort was to examine the sediment dispersal following dredged material placements. The model was applied to evaluate sediment dispersal away from two currently designated in-Bay sediment placement sites, Carquinez Strait (SF-9) and San Pablo Bay (SF-10) and two nearby sites adjacent to marsh areas. Model results indicated that placements at these sites, which are in a highly dispersive region, were not effective at supplying sediment to the nearby mudflats and marshes. There is even less likelihood that sediment placed at the Alcatraz Island site (SF-11) in central San Francisco Bay would deposit on mudflats or marshes along the Bay margin.

The LTMS12-Year Review completed in 2013 concluded that, while implementation challenges remain, the LTMS goals, and the LTMS Management Plan (based on the 1998 LTMS programmatic FEIS/EIR Alternative 3) remain valid and do not need to be changed. However, the Review did also talk about beginning a process to evaluate whether, where, and how unconfined in-Bay placement might qualify as beneficial reuse. If future studies show that in-Bay beneficial reuse may be feasible and environmentally acceptable in some locations, the volume so managed would not be accounted for as in-Bay "disposal."

We also disagree with USACE's assertion that ocean disposal is "preferred" over in-Bay disposal. There is no preference under the LTMS Management Plan to achieve an ocean disposal "goal." Ocean disposal was meant to serve as a "safety valve" for when beneficial reuse is unavailable or otherwise not practicable. The only other reason it may be desirable to shift in-Bay disposal to ocean disposal would be to avoid exceeding the cumulative annual in-Bay disposal target or the three-year average annual in-Bay disposal allocation trigger.

While we are pleased to see USACE beneficially reusing dredged sediment at higher than normal rate in 2019, we must also acknowledge that over half of this volume is a backlog owed to beneficial reuse per the LTMS Programmatic ESA consultation with NMFS (sediment dredged outside listed salmonid work window in previous years but taken to the SF-DODS ocean disposal site rather than to aquatic habitat restoration beneficial reuse).

Comment 1.6

"USACE appreciates the Water Board's certification of 4.08 million cubic yards of in-Bay disposal over five years."

Response

Comment noted.

Comment 1.7

"USACE greatly appreciates the Water Board providing the opportunity for USACE to streamline the episode approval process. By doing so, both USACE and the Water Board can conserve tax payer resources, while appropriately accounting for compliance with the Clean Water Act. Moreover, USACE appreciates the inclusion of language that increases the

flexibility of the Order by authorizing the Executive Officer to consider allowing USACE to exceed the 4.08 mcy in-Bay limit provided it does not result in exceedance of the allocation trigger and that 50% of the excess volume is beneficially reused."

Response

Comment noted.

Comment 1.8

"Notwithstanding comment 2, USACE would like the Water Board to include this revision to Provision 12: 'By March 31 of years 2021 through 2024, USACE shall submit an annual update to the plan (or an acceptable rationale justifying that no update is necessary or proposed). USACE may propose alternative evaluation methods that it believes will result in a better understanding of hopper dredge entrainment of special status species.' This flexibility appears to be consistent with the intent of the CDFW recommended monitoring, which suggested monitoring be conducted for two years then evaluated to determine if additional minimization measures or monitoring is indeed necessary."

Response

We have not added the additional sentence to Provision 12 that USACE requests in its comment. The language currently in the Tentative Order allows the flexibility to modify monitoring methods that still meet the minimum elements described in the CDFW Memo. In addition, we have confirmed via personal communication with Arn Aarreberg that CDFW still considers Provision 12 a. through e. to be minimum essential components of an acceptable entrainment monitoring plan. The Water Board is open to more broad changes in the monitoring program should a proposal be consistent with the CDFW Memo. We note that CDFW is willing to work with Water Board staff to provide recommendations on USACE-proposed modifications to Provision 12 monitoring requirements during review of the annual monitoring plan updates.

Comment 1.9

"USACE also requests the Water Board leave open the opportunity to consider alternatives to the existing entrainment monitoring requirement in the WDR/WQC. USACE understands the Water Board's concern regarding entrainment of special status species during our dredging operations and believes we may be able to ameliorate those concerns in a more effective manner than the current entrainment monitoring envisioned by the WDR/WQC. The USACE expended a considerable amount on entrainment monitoring under the former WDR/WQC and these efforts have had limited ability to produce useful statistical data on the effects of entrainment on special-status species. The continuation of this program is unlikely to provide further improved data without modifications to the entrainment devices, which would be prohibitively costly. USACE hopes that the Water Board will be amenable to potential alternatives to the entrainment monitoring requirement in Provision 12, should USACE find a substitute acceptable to the Water Board. We request the Water Board include the following statement in the TO:

The Executive Officer may consider and approve a USACE proposal that provides better benefits to special-status fish species than the entrainment monitoring required by Provision 12. This proposal, if agreed to by the Water Board, would be implemented and would replace the requirements in Provision 12.

Response

We did not make the change requested by USACE to add the statement in Comment 1.9 to the Tentative Order, but we are amenable to amending the WDRs/WQC order in the future should USACE develop a substitute for monitoring acceptable to the Water Board.

Allowing future replacement of entrainment monitoring with an unspecified alternative action that does not involve monitoring would be a significant revision to a Board-adopted WDR/WQC order. The Executive Officer does not have the authority to issue or revise WDR orders under California Water Code section 13223. The adopted order would have to go before the Water Board to amend Provision 12 to revise the entrainment monitoring requirement should USACE propose an acceptable substitute.

The current monitoring data shows continued entrainment. We are willing to work with USACE during the 2020-2024 permit term, in coordination with CDFW and the federal resource agencies, to devise an alternative to monitoring that could be shown to provide measurable benefits to special-status fish species that have been entrained by USACE hopper dredging in San Francisco Bay.

Comment Letter No. 2: San Francisco Baykeeper (Baykeeper)

Comment 2.1

"Revise the Final Order to prohibit hydraulic dredging and require mechanical clamshell dredging in in-Bay channels to protect imperiled native fish species."

Response

The Water Board does not agree that a prohibition of hydraulic dredging and requirement to implement mechanical clamshell dredging of in-Bay channels is required to protect imperiled native fish species, such as the longfin smelt and delta smelt. The current Provision in the Tentative Order, which allows hydraulic dredging every other year in the Richmond Outer Harbor Channel and the Pinole Shoal Channel, adequately protects special status fish species as demonstrated in the Board-adopted Federal Navigation Channels EA/EIR (EA/EIR)[5] and summarized below.

In developing the EA/EIR, the Water Board consulted with CDFW because it is the primary resource agency charged with responsibility for protecting endangered species in California. CDFW was consulted at length during the process of drafting the EA/EIR, and in response to a request for guidance from the Water Board, provided a memorandum dated March 14, 2014 (CDFW Memo), that outlines conditions and measures CDFW believed would reduce significant

[5] United States Army Corps of Engineers, San Francisco District and Regional Water Quality Control Board, San Francisco Bay Region. April 2015. Final Environmental Assessment/Environmental Impact Report. Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay, Fiscal Years 2015-2024.

impacts to delta smelt and longfin smelt to less than significant. One of the conditions that CDFW recommended was to reduce hopper dredging (a form of hydraulic dredging) in SF Bay to a minimum, and it referenced Alternative 1 of the Draft EA/EIR (reduce hopper dredging to one channel inside the Bay per year) as an example. The CDFW Memo also recommended a corresponding amount of compensatory mitigation in the form of mitigation bank credit purchase using the formula that CDFW developed for the State Water Project. The CDFW Memo did not recommend prohibiting hopper dredging or other forms of hydraulic dredging (e.g., cutterhead, plain suction) altogether within San Francisco Bay. As with the previous 2015-2019 Order, the current Tentative Order incorporates all impact minimization and mitigation measures recommended by the CDFW Memo so that impacts to protected species are considered less than significant.

The Water Board consulted CDFW about the Tentative Order, including the entrainment monitoring results for 2016 to 2019 on several occasions between August 2019 and November 2019 (personal communication with Arn Aarreberg). During such consultation, CDFW did not recommend any changes to the Tentative Order regarding hopper dredging due to concerns over threatened species. Therefore, we did not revise the Tentative Order.

Comment 2.2

"Revise the Final Order to require the Corps to dispose of a minimum of 40% of dredged sediment at beneficial reuse sites, or, at a minimum, retain Provision B.2 in the Final Order."

Response

The Water Board regulates dredged material in the most environmentally protective manner possible within the limits of its regulatory authority and consistent with the LTMS program goals. The Tentative Order accomplishes this objective, so we did not make the revision that Baykeeper requests. We also note that Provision B.2 was retained in the Tentative Order.

Consistent with the LTMS goal of "maximizing the use of dredged sediment as a resource," the LTMS Management Plan cites the 1998 LTMS programmatic FEIS/EIR 40-40-20 alternative (40 percent or more beneficial reuse, a maximum of 40 percent ocean disposal, and a maximum of 20 percent in-Bay disposal) as doing the best job of meeting those narrative goals. The 40-40-20 alternative is not specific to any one dredger but is to be achieved cumulatively by the entire dredging community, which it currently is. According to dredged material disposal reporting compiled by the DMMO in its annual reports, the fraction of beneficial reuse achieved for all dredgers combined between 2000 and 2018 is 40.8 percent demonstrating that the overall goal of 40 percent or more beneficial reuse is being achieved.

The mechanism for maximizing beneficial reuse and meeting the 40-40-20 alternative is to evaluate disposal alternatives for dredging projects in accordance with *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredge or Fill Material* (40 CFR 230). Compliance with these Guidelines is required under both the USACE's Federal Standard (33 CFR 335.7) and Section 4.23 of the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan). The Section 404(b)(1) Guidelines prohibit all discharges of dredged or fill material into waters of the U.S., unless there are no practicable alternatives to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. *An alternative is practicable if it is available and capable of being done taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by*

the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered (40 CFR 230.10(a)(2)).

Requiring USACE to beneficially reuse a minimum of 40 percent of dredged sediment generated by its maintenance program over the five-year term of the Tentative Order is not practicable at this time. It is not logistically feasible, for instance, because the amount of sediment that can be beneficially reused is limited by the dredging work window mandated by NMFS and/or FWS to protect special status species (i.e., avoidance of other significant adverse environmental consequences) and the number of sites available to beneficially reuse dredged sediment. Currently, only two large-scale beneficial reuse sites (Montezuma Wetlands Restoration Project and Cullinan Ranch Restoration) can accept dredged sediment and the number of barges that can be sent to these sites is limited by the rates of the offloading facilities. In addition, at Cullinan Ranch, the water depth at the current offloading location limits the size of barges that can access the site, which requires the sediment to be transported in smaller barges that increases the number of trips to the site, takes additional time, and further reduces the amount of dredged material that can be sent to this site. In addition, the occasional equipment breakdowns and power outages at these sites can further limit the amount of dredged sediment that can be beneficially reused in any given year. Lastly, not all sediment is suitable for beneficial reuse at restoration sites because it contains contaminant levels above screening thresholds.

Although it is not practicable to require a minimum of 40 percent beneficial reuse of dredged sediment for USACE's maintenance program over the entire permit term, the Water Board intends to work with USACE and our LTMS partner agencies during this permit term to maximize the amount of USACE dredged material that is taken to beneficial reuse sites. We continue to support efforts to provide additional funding to increase the number of beneficial reuse sites, such as the WRDA WIIN project (Section 1122 of the Water Resources Development Act/Water Infrastructure Improvements for the Nation Act of 2016 Pub. Law 114-322), SB 840 (Budget Act of 2018)[6], or possible funding from San Francisco Bay Restoration Authority (http://sfbayrestore.org/). Additional funding may also increase capacity to beneficially reuse dredged sediment by purchasing an additional offloading facility and/or piloting strategic placement sites. We also are working to increase the number of beneficial reuse sites by supporting efforts to implement additional wetland restoration sites, such as Bel Marin Keys V and Eden Landing. Our hope is that by facilitating projects that increase beneficial reuse placement sites, the logistical constraints to beneficial reuse will be lessened; thereby, allowing more dredged sediment to be beneficially reused to protect the Bay from sea level rise resulting from climate change.

Comment 2.3

"Revise Certification C.3 of the Tentative Order to authorize the Regional Board to modify the Final Order in accordance with the pending federal court decision regarding the Previous Order."

Response

We believe the requested revision is no longer necessary. The federal judge presiding over the dredging-related litigation that Baykeeper references issued a decision shortly after Baykeeper submitted its comments (Order Denying Plaintiff's Motion for Summary Judgment and Granting

[6] https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB840

Defendant's Motion for Summary Judgment, *San Francisco Bay Conservation and Development Commission v. United States Army Corps of Engineers, et al.,* U.S. District Court Northern District of California (Case No. 16-cv-05420-RS). The Water Board is not a party to that litigation and the court's decision does not affect the Tentative Order. No changes have been made to Certification C.3.

Comment 2.4

"Add to the Final Order the Receiving Water Limitations from the Previous Order that were omitted from the Tentative Order"

Response

We did not retain the receiving water limitations based on narrative water quality objectives for nuisance conditions and toxic pollutants and numeric objectives for conventional pollutants (dissolved oxygen, pH, un-ionized ammonia, and salinity), because they are unnecessary. Inclusion of these receiving water limitations was not necessary in the Previous Order either. The San Francisco Estuary Institute (SFEI) completed a literature review in 2008[7] to better understand the short-term effects of dredging on water quality in San Francisco Bay. Based on key findings of SFEI's literature review, we have determined that water quality impacts related to the prior receiving water limitations due to dredging and aquatic disposal activities conducted under the LTMS Program, which applies to all USACE navigation dredging, are unlikely. This is due to: 1) the small area affected by the discharge plumes in relation to the substantially larger area of the Bay, 2) water volume and tidal circulation at the dispersive aquatic disposal sites, and 3) sediment testing and evaluation which ensures no in-Bay disposal of sediments that either exhibit toxicity or fail the bioaccumulation test.

Comment 2.5

"Add to the Final Order the language from Provision B.6 of the Previous Order regarding overflow and decanting during mechanical dredging activities."

Response

We removed the requirement to monitor water quality during decanting operations[8] in the Tentative Order because the decant monitoring data that USACE collected from 2015 to 2019 in Oakland Harbor, Richmond Inner Harbor, and Redwood City Harbor under the Previous Order demonstrates that decanting during dredging of fine-grain sediment does not generate large plumes of suspended sediment that will adversely impact fish and other aquatic life. Turbidity during decanting operations in Oakland and Richmond Harbors never exceeded the 50 NTU (or 10 percent greater than concurrent background turbidity when background was greater than 50 NTU) compliance limit 500 feet down current from the dredge scow. Although there were a few excursions of turbidity above 50 NTU in Redwood City Harbor in 2015 and 2016, the frequency,

[7] Jabusch, T., A. Melwani, K. Ridolfi and M. Connor. 2008. Effects of short-term water quality impacts due to dredging and disposal on sensitive fish species in San Francisco Bay. Prepared by San Francisco Estuary Institute for US Army Corps of Engineers, San Francisco District.

[8] Decanting refers to the release of water entrained with dredged sediment from a barge when the water reaches the top of a stand pipe that typically represents about 80% of barge capacity. The stand pipe acts as a weir, allowing the discharge of supernatant water to increase the barge's effective load.

magnitude, and duration did not reach a level that would likely harm aquatic life. No turbidity exceedances were observed in Redwood City Harbor during the 2017 and 2019 decant monitoring events (no dredging was conducted in 2018).

Comment 2.6

"Retain in the Final Order increased funding provided in Provision B.20."

Response

Comment noted. We did not adjust this requirement to monitor, evaluate, and report the water quality impacts of dredged sediment discharge to waters of the State, which USACE may elect to fulfill by contributing a minimum amount of funding to the RMP, as described in Provision B.20.

The following three comments were the focus of Baykeeper's August 6, 2019, letter commenting on USACE's application for a Clean Water Act 401 certification for the 2020-2024 Maintenance Dredging Program. This letter was attached to Baykeeper's letter commenting on the Tentative Order.

Comment 2.7 (Comment I in August 6, 2019 Baykeeper letter)

"The Regional Board Has a Duty under Clean Water Act Section 401 to Impose Conditions to Ensure that the Entire O&M Dredging Activity Protects Water Quality Standards."

Response

We agree that the Water Board has a duty under the Clean Water Act to protect water quality standards and the Tentative Order fulfills this duty regarding USACE's dredging program. USACE has successfully followed all the fish entrainment-related mitigation and monitoring requirements of the Previous Order by dredging Richmond Outer Harbor Channel and the Pinole Shoal Channel every other year to maintain the navigability of those federal navigation channels in San Francisco Bay. The Water Board does not consider the action by USACE to reduce hopper dredging to every other year to be an act of "unlawful deferred dredging" but views this action as complying with the CDFW Memo and Provision 10 of the Previous Order. The Water Board continues to impose conditions on USACE that require reduced hopper dredging for those two channels to protect threatened and endangered species and habitat. Therefore, the conditions in this Tentative Order ensures that maintenance dredging performed by USACE will be done in a manner that will not result in significant adverse impacts to threatened and endangered species or violate State water quality standards.

Baykeeper correctly states that when the Water Board issued its prior maintenance dredging order to the Corps in 2015, the Corps asserted that its regulations at 33 C.F.R. Part 335-338 (referred to as the federal standard) prohibit the Corps from implementing the Water Board's requirements if they increase costs. Nonetheless, the Corps subsequently decided to dredge in accordance with the Water Board's previous order. And it has expressed willingness to continue complying in accordance with the Tentative Order. We appreciate Baykeeper's support that the federal standard does not exempt the Corps from complying the Clean Water Act. The Tentative Order includes requirements necessary to meet applicable provisions of the Clean Water Act and appropriate requirements of state law.

Comment 2.8 (Comment II in August 6, 2019 Baykeeper letter)

"The Regional Board Must Require the Corps to Use Clamshell Dredges in All In-Bay Channels."

Response

See response to Comment 2.1 above.

Comment 2.9 (Comment III in August 6, 2019 Baykeeper letter)

"The Regional Board Must Require that the Corps Beneficially Reuse at Least 40% of Dredged Sediment in Order to Protect Beneficial Uses."

Response

See response to Comment 2.2 above.

Furthermore, in this comment, Baykeeper drew the conclusion that "dredging operations threaten the viability of wetlands" and directly impact the amount of sediment available to replenish existing wetlands, citing a number of scientific papers and presentations. We disagree that this literature supports such a conclusion. A majority of the papers, i.e., those authored by USGS and appearing in a 2013 issue of Marine Geology, are irrelevant to the issue as explained in the Water Board's opposition brief (California Regional Water Quality Control Board, San Francisco Bay Region's Opposition to Baykeeper's Petition for Writ of Mandate, *San Francisco Baykeeper, Inc., v. California Regional Water Quality Control Board, San Francisco Bay Region, and DOES 1-25*, Superior Court of the State of California, County of Alameda (Case No. RG15776089)) and summarized below.

1. The studies Baykeeper provided chiefly evaluated the loss of fine-to-coarse grained sand, ebb-tidal erosion, and open coast beach erosion rather than the clay and silt found in the Bay Mud that USACE typically dredges from most of the navigation channels.
2. The dredged material placement sites most likely to be used for the channels where sand is present are all located within the San Francisco Bay and outer coast sediment transport system, so sand placed at those sites will remain available to replenish coastal areas south of the Golden Gate, such as Ocean Beach, which Baykeeper claimed was at risk from erosion.
3. Water Board staff's analysis of Bay Mud removal via USACE dredging concluded that for the period covered by the EA/EIR (through the term of the Tentative Order), accretion of sediment to wetlands and marshes in San Francisco Bay would exceed any sea level rise. Consequently, USACE's dredging of Bay Mud will not negatively impact accretion to wetlands, tidal marshes and other low-lying ecosystems along the Bay shoreline.

The remaining papers that mention dredging do not support Baykeeper's assertion that dredging impacts tidal wetlands. In fact, no studies to our knowledge have been published to date that demonstrate a scientific link between removal of sediment via dredging and impacts to wetlands by preventing accretion or causing erosion. The sediment dynamics in the Bay are an incredibly important physical process and the RMP sediment working group

(https://www.sfei.org/programs/sf-bay-regional-monitoring-program) has initiated a number of studies to answer critical questions. For example, a study is underway to update understanding of erosion and accretion in the Bay over the past 25 to 35 years by combining 2014-15 Ocean Protection Council bathymetric survey data with recent NOAA, USGS, and California State University Monterey Bay surveys to create a bathymetric Digital Elevation Model of the whole of San Francisco Bay. In addition, another study of sediment flux at the Golden Gate is critical for understanding the overall sediment mass balance in San Francisco Bay. Provision 20 of this Tentative Order requires USACE to pay for funding USGS sediment monitoring to provide a backbone of scientific understanding of sediment transport dynamics.

Comment Letter No. 3: California Marine Affairs and Navigation Conference (CMANC)

Comment 3.1

"We heartily agree with the statement 'The Water Board therefore finds that it is in the public interest to encourage beneficial reuse of suitable dredged material as one component of regional adaptation to climate change and reduced suspended sediment loading to the Bay.' The question is what is beneficial?"

Response

Use of the term "beneficial reuse" in the Tentative Order is consistent with the 1998 LTMS EIS/EIR[9] and the 2001 Management Plan[10], which discussed the beneficial reuse of dredged material in broad terms. The intent of these LTMS documents was to avoid unnecessarily restricting known or new potential beneficial reuse opportunities, while providing the public with the assurance that LTMS agencies would only approve projects that clearly offered net environmental benefits. Relevant excerpts from the LTMS EIS/EIR include:

- Section 2.4.2.4 (p. 2 – 18): "'Beneficial reuse' refers to managing dredged material as a valuable resource that can be used to create other benefits, rather than just as a waste product to be disposed of as efficiently as possible."
- Section 2.6.1 (p. 2 – 20): "Proposed habitat restoration projects using dredged material should be evaluated in the context of regional habitat goals developed independently [...] Only habitat restoration/creation projects having positive overall net benefits will be supported as LTMS projects."

The following is a relevant excerpt from the LTMS Management Plan:

- Section ES-7 (p. ES – 17): "For restoration projects using dredged material in areas not covered by regional habitat goals […] the LTMS agencies will also encourage and authorize as legally appropriate, such projects which would clearly result in an overall net gain in habitat quality and would minimize loss of existing habitat functions. Whenever feasible, such projects will provide, as part of the project design, for a no net loss in the habitat

[9] https://www.spn.usace.army.mil/Missions/Dredging-Work-Permits/LTMS/Volume-1/
[10] https://www.spn.usace.army.mil/Portals/68/docs/Dredging/LMTS/entire%20LMTF.pdf

functions existing on the project site or, where necessary, provide compensatory mitigation for lost habitat functions in accordance with state and federal mitigation requirements."

Comment 3.2

"Further, the Tentative Order refers to "habitat restoration." What is meant by this term and does it preclude USACE or other party from applying to place dredged material over mud flats or other shallow water habitat where there is potential for legacy contaminants to be exposed?"

Response

The Water Board broadly defines "habitat restoration" projects as those projects undertaken to establish, re-establish, or enhance aquatic ecosystems and their beneficial uses. This definition of habitat restoration does not prohibit placement of dredged material over mud flats or other shallow water habitat provided that the project proponent can demonstrate that placement of dredged material in these environments provides a net environmental benefit by following the definitions in the response to Comment 3.1

Comment 3.3

"In 2015, we requested the Water Board positively affirm that additional sediment does not need to go into the water column as the Tentative Order in 2015 stated 'Less sediment in suspension and circulation within the Bay impairs the ability of shorelines, mudflats, and tidal wetlands to withstand erosion and inundation, especially as sea level rises.' As we see the question, under current Sea Level Rise predictions from the State of California is it better to put dredged material back into the Bay where it will increase sediment in suspension and possibly feed both mudflats and wetlands or place the sediment directly into wetlands that may or may not be able to function under Sea Level Rise and possibly not provide other benefits, such as limiting the loss of mudflats?"

Response

We cannot make the affirmation requested. There may be specific circumstances under which placement of sediment "into the water column" can be demonstrated to provide a net environmental benefit. For example, a thin lift placement project may involve adding a few inches of sediment to shallow water habitats like mud flats and tidal wetlands to help them accrete in preparation for sea level rise. A project proponent would first have to meet the criteria listed in the response to Comment 3.1 and demonstrate that sediment placed in the Bay would measurably increase the elevation of specific mudflat or wetland habitat before we would consider in-Bay placement to be of equal or greater benefit than direct placement into wetlands. Where sediment is placed in the Bay is a critical factor influencing whether the sediment flows out the Golden Gate and leaves the system or whether the sediment is transported by currents, waves, and wind to the shoreline areas to feed mud flats and tidal wetlands. Sediment transport modeling can help answer these important questions. However, we point out that placement of dredged material at the existing in-Bay disposal sites approved in this permit does not constitute beneficial reuse because modeling indicates that material is exported out of the Bay (See response to Comment 1.5)

Comment 3.4

"We continue to ask the Water Board to affirm that additional sediment does not need to go into the water column to meet its obligations under the Basin Plan and Porter-Cologne Act."

Response

See response to Comment 3.3.

Comment 3.5

"The Tentative Order requires USACE to prepare and submit an Integrated Alternatives Analysis. We request that you include language that shows there is nothing to preclude other parties to provide additional funds to USACE to achieve the forms of 'beneficial reuse' that you ask of USACE."

Response

We acknowledge that funding for beneficial reuse may be provided by sources outside USACE and have correspondingly revised Finding 9 in response to the comment. We have added the following text:

> Because placement of dredged sediment at beneficial reuse sites is generally more expensive than in-Bay or deep ocean disposal, the Water Board recognizes that additional funding for beneficial reuse may need to be provided by sources outside USACE, such as local project sponsors, State appropriations, or granting agencies like the San Francisco Bay Restoration Authority.

The Water Board supports efforts to identify non-USACE funding sources for beneficial reuse of federal channel dredged sediment. We have demonstrated this through our letters of support for the San Francisco Bay Beneficial Reuse Pilot Program funded pursuant to Section 1122 of the Water Resources Development Act of 2016 and the Redwood City Harbor Beneficial Use Project funded by appropriation of State of California general funds through the State Coastal Conservancy.

Comment 3.6

"Further, as we asked in 2015, please state that the Water Board has reviewed the socio-economic, life safety and environmental impacts to other Corps' projects within the San Francisco District and South Pacific Division due to the additional costs of dredging navigation channels in San Francisco Bay as a result of this Tentative Order. Specifically, dredging of small coastal communities, such as: Moss Landing; Noyo and Morro Bay."

Response

The Water Board has crafted the Tentative Order considering USACE's budget process. The Water Board, however, does not have any control over USACE's internal budgetary process. Accordingly, the Water Board has no control over the extent to which USACE (1) asks for an increase in funding, (2) receives additional funding, or (3) reallocates existing funds from other projects external to this Tentative Order.

Comment 3.7

"On page 3, there is a discussion about increasing USACE's beneficial reuse as their 'disproportional' use of in-bay disposal reduces the availability of in-bay disposal for other dredgers. We would like to see any analysis that the Board has on this impact including any analysis of requiring each individual medium-dredging sponsor to have to individually meet the 40-40-20 'goals' of LTMS."

Response

If the Corps exceeds the 4.08 million cubic yard (mcy) five-year threshold for in-bay disposal in the Tentative Order, it would be a "disproportional" use of the in-Bay disposal capacity shared by all dredgers. As explained in Finding 7, this threshold is based on the relative contribution of USACE's total dredging volume to the total volume of all dredging over the past two LTMS averaging periods (2013-2015 and 2016-2018). On average, USACE's dredging comprised approximately 71 percent of all dredging performed from 2013 through 2018. After applying a safety factor, we set the threshold in the Tentative Order as 65 percent of the LTMS goal for in-Bay disposal over a five-year period.

Should USACE exceed this threshold, the potential impact to medium-sized dredgers is that they would have to divert dredged sediment planned for in-Bay disposal to ocean or beneficial reuse sites, which would increase disposal costs by approximately two to five times the cost of in-Bay disposal. Determining how USACE and other dredgers help meet the overall LTMS goals is part of the integrated alternatives analyses process established by the LTMS as described in Comment 2.2.

Comment 3.8

"Please provide information as to how the USGS monitoring of suspended sediments 'has' improved the Board's understanding of sediment transport processes and, what changes the Board has made to its policies as a result of this monitoring."

Response

USGS suspended sediment monitoring has been critical to the Water Board's understanding of sediment supply and demand in San Francisco Bay. For example, it was through this monitoring that Water Board staff first learned of the sudden step decrease in 1999 in suspended sediment concentrations in the Bay, thought to be due to depletion of the pool of sediment washed into the Bay from hydraulic mining in the 1800s. An adequate suspended sediment supply is necessary for development of diverse, resilient baylands. The supply of inorganic (mineral) sediment available to deposit on tidal wetlands helps govern their ability to keep pace (maintain elevations) with rising sea levels.

The Water Board has not yet made any changes to its policies resulting from information gained through USGS monitoring of suspended sediments. However, the Water Board is currently working on an update to its Basin Plan wetland policy that addresses climate change and decreased sediment supply[11]. One goal of this policy update is to encourage strategic placement of clean sediment from navigational dredging projects to help existing tidal marshes maintain elevation capital, improve topographic diversity, and increase high tide refugia within marsh interiors.

[11] California Regional Water Quality Control Board, San Francisco Bay Region. 2019. *Wetland Policy Climate Change Update Project, Wetland Fill Policy Challenges and Future Regulatory Options: Findings and Recommendations*. https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/climate_change/R2%20Climate%20Change-Wetlands%20Policy_2019-1016.pdf

Comment 3.9

"Under the existing beneficial uses of San Francisco Bay, we would like to know why items such as "life safety" and "flood damage reduction" are not included."

Response

Although the terms "life safety" and "flood damage reduction" are not uniquely named beneficial uses in the Basin Plan, these components are in fact included in existing beneficial uses of San Francisco Bay. The Water Board's wetland policy/climate change update report (see footnote 11) recognizes that natural features, such as coarse-grain beaches and mature tidal wetlands provide life safety and flood damage reduction for at-risk communities and critical infrastructure. At present, beaches and wetlands are protected with several existing beneficial uses listed in the Basin Plan including Estuarine Habitat, Fish Migration, Preservation of Rare and Endangered Species, Water Contact Recreation, Noncontact Water Recreation, Shellfish Harvesting, Fish Spawning, and Wildlife Habitat. Further, life safety is incorporated into many of the Basin Plan beneficial uses, such as Commercial and Sportfishing or Water Contact Recreation, because the water quality objectives associated with those uses protect human health.

Comment 3.10

"Has there been any updated correspondence between the Board and California Department of Fish and Wildlife concerning take of state-listed species under the USACE navigation maintenance program?"

Response

Water Board staff contacted CDFW staff via phone and email numerous times since the previous order was adopted in 2015 to solicit their advice on the effectiveness of hopper dredge entrainment monitoring and mitigation measures designed to protect both state and federally-listed species. CDFW did not ask for any significant changes to Provisions related to entrainment and thus did not update the 2014 memorandum to the Water Board providing guidance on issues related to take of State-listed fish species.

Staff-Initiated Changes

We corrected typographical errors and made other minor editorial and formatting changes to the Tentative Order. We also made two minor changes worth noting.

First, to maintain consistent use of terminology related to review of alternative disposal site analysis pursuant to Clean Water Act section 404(b)(1), we changed the words "feasible" and "feasibility" to "practicable" and "practicability" in Provision 8 parts c and d.

Second, Arn Aarreberg of CDFW suggested during a November 8, 2019, phone call with staff that the March 31 due date for the five-year entrainment monitoring plan and annual updates may not provide adequate time for detailed review of modifications to the monitoring plan relative to USACE's contracting process. We, therefore, revised Provision 12 to require the entrainment monitoring plan by January 31, 2020, and annual updates to this monitoring plan by January 31 in subsequent years.