

# San Francisco Bay Conservation and Development Commission

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May 29, 2015

**TO:** Commissioners and Alternates

**FROM:** Larry Goldzband, Executive Director (415/352-3653 larry.goldzband@bcdc.ca.gov)  
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**SUBJECT:** **Staff Recommendation on Consistency Determination No. C2015.002.00;**  
**U.S. Army Corps of Engineers, San Francisco District; Operations and**  
**Maintenance Dredging Program 2015 through 2017**  
(For Commission consideration on June 4, 2015)

## Recommendation Summary

The San Francisco Bay Conservation and Development Commission conditionally agrees with the U.S. Army Corps of Engineers, San Francisco District (USACE) consistency determination, dated February 9, 2015 and amended on March 28, 2015 and April 10, 2015, that the 2015 through 2017 Operations and Maintenance Dredging Program for the federal deep water navigation channels (Exhibit A), and the disposal of dredged material at a variety of sites including in-Bay, beneficial reuse, upland and the deep ocean disposal site are consistent to the maximum extent practicable with the Commission's Amended Coastal Zone Management Program for San Francisco Bay.

The USACE's project is described as follows: in San Francisco Bay, during the calendar years 2015, 2016 and 2017, the project allows maintenance dredging up to a total of 6.075 million cubic yards (cy) from five federal deep water channels, within the Commission's jurisdiction, including Oakland Harbor, Richmond Harbor, Pinole Shoal, Suisun Bay and Redwood City Harbor channels; conducting knockdown events of sediment in the same channels, and the Main Ship channel located outside the Commission's jurisdiction. The USACE also proposes disposing of and/or beneficially reusing the dredged sediment at various sites including the state- and federally-authorized Suisun Bay, Carquinez Strait, San Pablo Bay, and Alcatraz in-Bay disposal

sites; and the San Francisco Bar and deep ocean disposal site; as well as a number of beneficial reuse and upland sites adjacent to the Bay, both within and outside the Commission's jurisdiction. Dredging, disposal and beneficial reuse sites are located in Solano, Contra Costa, Marin, Alameda and San Francisco counties.

In 2015, the USACE proposes to dredge a maximum of 1.975 million cubic yards of sediment within the Commission's jurisdiction, and a maximum 350,000 cy sediment from the San Francisco Main Ship Channel, outside the Commission's jurisdiction. The USACE has proposed two alternative scenarios for disposal or beneficial reuse of the dredged sediment – the “Federal Standard Alternative” and the “Long Term Management Strategy for Placement of Dredged Material in the Bay Region (LTMS) Program Alternative.” Under its Federal Standard Alternative, the USACE proposes to dispose of 1.175 million cy of sediment at in-Bay disposal sites (47%), 800,000 cy of sediment at SF-DODS (53%), and place no sediment at beneficial reuse sites. Its LTMS Program Alternative includes in-Bay disposal of 1.175 million cy of sediment (47%) and beneficial reuse of 800,000 cy of sediment (53%).

In 2016, the USACE proposes to dredge a total of 2.0 million cy of dredging within the Commission's jurisdiction, and a maximum 500,000 cy of sediment from the San Francisco Main Ship Channel, outside the Commission's jurisdiction. Under its Federal Standard Alternative, the USACE proposes in-Bay disposal of 900,000 cy of sediment (45%), 1.1 million cy of sediment at SF-DODS (55%), and place no sediment at beneficial reuse sites. The USACE's LTMS Program Alternative proposes in-Bay disposal of 900,000 cy of sediment (45%), no sediment at SF-DODS (0%), and placing 1.1 million cy of sediment at beneficial reuse sites (55%).

In 2017, the USACE proposes to dredge a total of 2.1 million cy of dredging from within the Commission's jurisdiction, and dredge a maximum 500,000 cy of sediment from the San Francisco Main Ship Channel, outside the Commission's jurisdiction. Under its Federal Standard Alternative, the USACE proposes in-Bay disposal of 1.0 million cy of sediment (48%), disposal of 1.1 million cy of sediment at SF-DODS (52%); and no beneficial reuse. The USACE's LTMS Program Alternative includes disposal of 1.0 million cy of sediment at in-Bay sites (48%), no SF-DODS disposal (0%), and beneficial reuse of 1.1 million cy of sediment (52%).

Due to consistent shoaling in the Bulls Head Reach of Suisun Channel, the USACE proposes to conduct advanced maintenance dredging to reduce the need for additional dredging episodes. In any given year, the USACE also proposes “knockdown events” on an as-needed basis of up to five percent of the total maximum volume for any channel.

The project description for each channel includes the proposed maximum volume to be dredged and disposed of due to the variability of sedimentation from year to year. The Corps will provide more accurate estimates to the Commission prior to dredging each project through its episode approval request.

### **Staff Recommendation**

#### **I. Agreement**

A. The San Francisco Bay Conservation and Development Commission, as conditioned herein, agrees with the determination of the US Army Corps of Engineers, San Francisco District (USACE) 2015 through 2017 Operations and Maintenance Program is consistent to the maximum extent practicable with federal Coastal Zone Management Act, as Amended, and the San Francisco Bay Coastal Zone Management Program as follows:

1. Dredge a maximum of 450,000 cy of sediment in 2015, and a maximum of 700,000 cy of sediment each year in 2016 and 2017, for a total of 1,850,000 cy of sediment over three years from Oakland Entrance, Inner and Outer Harbor channels, in Alameda County, to a project depth of -50 feet MLLW, plus two feet over-dredge depth (Exhibit B). Place the dredged sediment at an approved beneficial reuse site or, if beneficial reuse is infeasible, dispose of the sediment at San Francisco Deep Ocean disposal site (SFDODS);
2. Dredge a maximum of 350,000 cy of sediment in 2015, and a maximum of 400,000 cy of sediment each year in 2016 and 2017, for a total of 1,150,000 cy of sediment over three years from Richmond Inner Harbor channel, in Contra Costa County, to a project depth of -38 feet MLLW, plus two feet over-dredge depth (Exhibit C). Place the dredged sediment at an approved beneficial reuse site or, if beneficial reuse is infeasible, dispose of the sediment at San Francisco Deep Ocean disposal site;
3. Dredge a maximum of 250,000 cy of sediment each year in 2015, 2016 and 2017, for a total of 750,000 cy of sediment over three years from Richmond Outer Harbor channel, in Contra Costa County, to a project depth of -45 feet MLLW, plus two feet over-dredge depth (Exhibit D). Dispose of the dredged sediment in the Bay at the Alcatraz Island (SF-11) disposal site, or if feasible, place the dredged sediment at an approved beneficial reuse site;

4. Dredge a maximum of 175,000 cy of sediment in 2015, and a maximum of 200,000 cy of sediment each year in 2016 and 2017, for a total of 575,000 cy of sediment from Suisun Bay Channel, in Solano County, to a project depth of -35 feet MLLW, plus two feet over-dredge depth over three years (Exhibit E). If feasible, beneficially reuse the sand at the San Francisco Bar (SF-8) disposal site or the Ocean Beach Demonstration Site (SF-17), or dispose of the sediment in the Bay at the Suisun Bay (SF-16) or Carquinez Strait (SF-9) disposal sites. Conduct advanced maintenance dredging to a depth of -37 MLLW at the Bulls Head Reach area within and adjacent to Suisun Channel;
5. Dredge a maximum of 150,000 cy of sediment in 2015, and a maximum of 200,000 cy of sediment each year in 2016 and 2017, for a total of 550,000 cy of sediment over three years from Pinole Shoal, in Contra Costa County, to project depth of -35 feet MLLW, plus two feet over-dredge depth (Exhibit F). If feasible and if a significant portion of the channel contains eighty percent or greater sand, beneficially reuse the sand at the SF-8 disposal site or the Ocean Beach Demonstration Site (SF-17), or dispose of the sediment at the San Pablo Bay (SF-10) or Carquinez Strait (SF-9) disposal site;
6. Dredge a maximum of 600,000 cy of sediment in 2015, and a maximum of 250,000 cy of sediment in 2016, and 350,000 cy of sediment in 2017, for a total of 1,200,000 cy of sediment over three years from Redwood City Harbor channel to the project depth of -30 feet MLLW, plus two feet over-dredge depth (Exhibit G). Place the dredged sediment at an approved beneficial reuse site, or if infeasible, dispose of the dredged sediment at SF-DODS, or if both beneficial reuse and ocean disposal is infeasible, dispose of the dredged sediment in the Bay at the Alcatraz Island (SF-11) or San Pablo Bay (SF-10) sites;
7. Dredge a maximum of 350,000 cy of sediment in 2015, and a maximum of 500,000 cy of sediment each year in 2016 and 2017, for a total of 1,350,000 cy of sediment from the San Francisco Main Ship Channel over three years to a project depth of -55 feet MLLW) with 2 feet of over dredge depth (Exhibit H). Beneficially reuse the dredged sand at the Ocean Beach Demonstration Site (SF-17), or if infeasible dispose of the sediment each year at the San Francisco Bar Channel (SF-8) disposal site (both dredging and disposal sites are outside the Commission's jurisdiction);
8. Conduct annual "knockdown events" of up to five percent of that channel's proposed volume, with individual shoals being no greater than 3,000 cy, unless the USACE agrees to monitor the knockdown event to determine the increase in suspended sediment and turbidity levels from the knockdown event.

The in-Bay disposal sites: Alcatraz Island (SF-11), San Pablo Bay (SF-10), Carquinez Strait (SF-9) and Suisun Bay Channel (SF-16) are located in San Francisco, Marin, Solano, and Solano counties respectively and their physical descriptions are contained in the Commission's regulations. The San Francisco Deep Ocean Disposal Site (SFDODS) is located approximately 55 miles from the coast outside the Farallones Marine Sanctuary. The San Francisco Bar disposal site (SF-8) is located three miles off shore, adjacent to and on the south side of the Main Ship

Channel. The Ocean Beach Demonstration Site (SF-17) is located at Sloat Boulevard, offshore of Ocean Beach, in San Francisco County. The currently available wetland beneficial reuse sites are Montezuma Wetlands Restoration Project (Montezuma) and Cullinan Ranch Wetlands Restoration Project (Cullinan Ranch), located in Collinsville and the City of Vallejo, in Solano County respectively.

The proposed projects are dredged annually and are reliant on sufficient annual Congressional funding to accomplish full project depth. If funding is not sufficient to support the full program, the USACE may limit the volume of sediment or depth of any channel, to accomplish its channel maintenance priorities for that year.

B. This agreement is given based on the information submitted by or on behalf of the USACE in its letter dated February 9, 2015 and the amendment submitted on April 10, 2015, including all accompanying and subsequent correspondence and exhibits.

## II. Special Conditions

If the USACE does not agree with the following conditions or fails to incorporate them into the projects, the USACE shall notify the Commission immediately of its refusal to agree or to incorporate the conditions into the project and the conditional concurrence shall be converted into an objection. The USACE shall also immediately notify the Commission if the USACE determines to go forward with the project despite the Commission's objection.

A. **Limits on Dredging.** This consistency determination authorizes maintenance dredging only within areas as shown on Exhibits B through G to the project depths for each channel as listed in the authorization section plus two feet allowable over-dredge depth and a total volume of 6.075 million cy in 2015-2017. No dredging in other areas or additional volume is authorized.

B. **Limits on Disposal.** In-Bay disposal of dredged sediments shall not exceed the monthly or annual disposal site targets set forth in the Long-Term Management Strategy (LTMS) Management Plan, or Commission regulations. The USACE shall limit in-Bay disposal volumes in accordance with direction from the Inter-Agency Dredged Material Management Office (DMMO) to ensure there is adequate in-Bay disposal volume to accommodate other dredgers, particularly the small dredging community. In the event that monthly in-Bay disposal site limits are reached, the USACE shall redirect in-Bay disposal at the direction of the DMMO, to a site that has not approached its limits. If, in any instance, the USACE determines that the LTMS disposal targets would be exceeded, at the next Commission meeting a USACE representative shall present to the Commission the purpose and need of exceeding those limits.

In 2017, the USACE shall reduce the in-Bay disposal volume to meet the LTMS goals of a maximum of twenty percent in-Bay disposal and a minimum of forty percent beneficial reuse. If feasible, maximize beneficial reuse through further reduction in sediment proposed for ocean and in-Bay disposal. In order to accomplish this change in practice, the USACE shall request additional funding as provided for in 15 CFR 930.32.

C. **Annual Schedule.** No later than November 30<sup>th</sup> of each year, the Corps shall provide the Dredged Material Management Office (DMMO) agencies a schedule of the projects confirmed for execution in the following calendar year. An updated schedule shall be provided to the Commission staff quarterly if changes are made to the schedule affecting execution of the project. If a project receives funding after November 30<sup>th</sup> of any year, the Corps shall provide a project description and schedule to the DMMO agencies within two weeks of receiving funding.

D. **Water Quality Approval.** At least thirty days prior to the commencement of any dredging episode authorized herein, the Corps shall submit to the Executive Director a water quality certification, waste discharge requirements, or any other required approvals from the California Regional Water Quality Control Board, San Francisco Bay Region. Failure to obtain such certification prior to the commencement of any dredging episode shall terminate the Commission's concurrence for that episode. The Executive Director may, upon review of the Regional Board approval, either: (1) approve the dredging episode consistent with this authorization; or (2) amend this authorization, as necessary, related to water quality issues. Unless the Corps agrees to amend this authorization in a manner specified by or on behalf of the Commission, this consistency determination shall become null and void.

E. **Sediment Quality.** Sediment to be dredged and disposed/beneficially reused shall be tested to ensure that the sediment is physically, chemically and biologically suitable for the proposed placement site. The sediment testing program shall be in accordance with the Inland Testing Manual or the Ocean Testing Manual, as modified for the San Francisco Bay Region. The Sampling Analysis Plans shall be consistent with the protocols, advice and decisions of the DMMO, and should be submitted one week before the DMMO meeting occurs. Once testing has occurred, the Sample Results Report shall be submitted to the DMMO for review and decision on the suitability of the sediment for the proposed placement site. The USACE shall abide by the decisions of the DMMO.

F. **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 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 sediment is greater than 80 percent sand.

Exceptions may be granted on a project-specific basis if the USACE submits an overflow or decanting monitoring plan, acceptable to the Water Board and BCDC, 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):

1. Turbidity  $\leq 50$  Nephelometric Turbidity Units (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)
2. Dissolved oxygen  $\geq 5.0$  mg/L ( $\geq 7.0$  mg/L east of the Carquinez Bridge)
3.  $6.5 \leq \text{pH} \leq 8.5$

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. The USACE shall provide the project-specific overflow monitoring plan a minimum of 90 days prior to anticipated dredging start date. Overflow and/or decanting may not commence until the plan is approved in writing by Water Board and BCDC staff.

**G. Overflow During Hopper Dredging.** 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.

#### **H. Dredging and Disposal Activity**

1. **Pre-Dredging, Disposal Report and Notice.** At least 30 days before the commencement of any dredging and placement episode authorized herein, the USACE shall submit to the Commission's Executive Director for review and approval:
  - a. A bathymetric map showing the location of all areas authorized to be dredged, the authorized depth including over-dredge depth based on MLLW, the volume of material proposed to be dredged, and the approximate date of project commencement. At least two (2) weeks prior to any dredging episode, the USACE shall notify the Commission staff of the commencement date by telephone, email or in writing. If the date of commencement changes, an updated schedule shall be provided as soon as it is available.
  - b. A written statement to the Executive Director that contains: (1) the proposed disposal site and quantity of material to be disposed, and dates within which the disposal episode is proposed; (2) if applicable, a discussion as to how the volume proposed for disposal is consistent with in-Bay disposal allocations and disposal site limits; (3) the results of chemical and biological testing of sediment proposed for disposal; and (4) an annually updated alternatives analysis or integrated alternatives analysis to explain why beneficial reuse of dredged material, upland placement or ocean disposal at SFDODS is infeasible.
  - c. If advanced maintenance dredging is necessary, the USACE shall provide: (1) the advanced maintenance footprint; (2) any test results characterizing the sediment; (3) proposed depth; (4) volume; (5) disposal or beneficial reuse location; (6) schedule for the project; and (7) rationale for the purpose of and need for the advance maintenance to the Commission staff for review and approval.
2. **Authorization of In-Bay Disposal.** The authorization for the proposed in-Bay disposal shall become effective only if the Executive Director: (1) informs the USACE in an episode approval letter or email that the episode is consistent with the authorization provided herein, alternative disposal and beneficial reuse options are infeasible, the volume proposed for disposal is consistent with both in-Bay disposal allocations (if

applicable) and the disposal site limits, and the material is suitable for in-Bay disposal, beneficial reuse or ocean disposal; or (2) does not respond to the USACE's episode approval request within 30 days of its receipt. If the Executive Director determines that: (a) ocean disposal, upland disposal, or beneficial reuse of the material is feasible; (b) the material proposed for disposal is unsuitable for the Bay; or (c) the proposed disposal is inconsistent with in-Bay allocations and disposal site limits, the Commission's concurrence for in-Bay disposal for that episode shall be terminated. The USACE shall adhere to any special conditions contained in the episode approval letter, beyond those contained in this consistency determination concurrence.

### 3. Post-Dredging Requirements

- a. Within 60 days of completion of each dredging episode, advanced maintenance, or knockdown event authorized by this agreement, the USACE shall submit to the Commission a bathymetric map showing the actual area(s) and depths dredged including over-dredge depth based on MLLW, any dredging that occurred outside the area or below the depths authorized herein, and a written statement indicating the total volume of material dredged and disposed, the disposal locations and the volume of material placed at each site.

I. **Knockdown Events.** Knockdown shall meet the following conditions: (1) the shoal must be located within the maintenance dredging footprint of the channel; (2) the depression into which the shoal will be knocked must be located within the maintenance dredging footprint of the channel; (3) each shoal to be knocked down must be no greater than 3,000 cy; (4) the equipment used shall be a clamshell or towed I-beam; (5) minimize the re-suspension of sediment; (6) meet chemical and biological criteria specified by Water Board and/or the Commission; and (7) the Corps must meet the dredging episode notification requirements in Special Condition H.

Similarly, the USACE shall include the knockdown event in the post dredge report as described in Special Condition II-G(3), and include the following information: (1) a post-dredge bathymetric survey showing: (a) the location of all areas knocked-down; (b) the depth after completion of the knockdown episode based on MLLW; and (c) any knockdown activity that occurred outside the area authorized to be knocked-down or below the authorized depths; and (2) the actual volume and location of the material relocated in that event.

If the USACE proposes a knockdown event larger than 5,000 cy a plume study of that knockdown will be required, unless and until sufficient information is provided to the Commission staff regarding the potential impact of knockdown events to water quality. The USACE shall provide the plume study results and analysis to the Commission staff no later than ninety days after the knockdown event has concluded.

J. **Biological Resource Protection.** Dredging, and dredged sediment disposal have impacts to the biological resources of the Bay. Therefore, the USACE shall undertake the following avoidance, minimization and mitigation measures:

1. **Seasonal Limitations.** To reduce impacts to Bay species whose population are in decline, and specifically those that federal and state governments have listed as candidate, threatened or endangered, as well as those that use the Bay as spawning grounds, the USACE shall confine dredging and disposal operations to the amended work windows consistent with Tables F-1 and F-2 of Appendix F, “In-Bay Disposal and Dredging” and Figures 3.2 and 3.3 of the *Long-Term Management Strategy (LTMS) Management Plan* (2001) as amended by the U.S. Fish and Wildlife Service (FWS) on May 28, 2004. No work inconsistent with the time and location limits contained in these tables may be conducted without the written approval of the Executive Director. Such approval may only be issued after the Executive Director has sought the advice of the appropriate resource agencies and determined that dredging and disposal outside of the work window would be consistent with the Commission’s laws and policies.

Once the USACE and the Commission staff have received the amended LTMS Programmatic Biological Opinion from NOAA Fisheries, the USACE may dredge outside the environmental work window for salmonids, if the work windows for other special status species don’t preclude it, as long as sediment dredged outside the work window is taken to a beneficial reuse site that improves habitat for Bay fish species. In the event that the USACE chooses to implement this option, it shall provide notification to the Commission via its episode approval request as described in Special Condition II – G(1).

2. **Longfin and Delta Smelt.** Both the longfin smelt and Delta smelt populations are in extreme decline, as noted by the listing of both species. Longfin smelt is listed as threatened by the California Department of Fish and Wildlife (CDFW) and is a candidate species for listing by the US Fish and Wildlife Service (USFWS). Delta smelt is listed as endangered by CDFW and threatened by USFWS. To reduce impacts from entrainment to these and other fish species, beginning in 2017, the USACE shall reduce the use of a hydraulic hopper dredge for use in a maximum of one federal channel.
  - a. **Phased Reduction in Use of Hydraulic Dredges.** In fiscal year 2017, (October 1, 2016 through September 30, 2017) the USACE shall use a maximum of one hydraulic hopper dredge in either Richmond Out Harbor or Pinole Shoal channels to reduce impacts to longfin smelt. As described in Special Condition II – K, in 2015, the USACE shall begin the process of requesting allocation of funds for fiscal year 2017 implementation of this reduction.
  - b. **Minimization Measures for Hydraulic Dredges.** To reduce entrainment of longfin and Delta smelt, the USACE shall implement the following minimization measures when using a hydraulic dredge:
    - (1) No dredging would occur in water ranging from 0 to 5 parts per thousand salinity between December 1<sup>st</sup> and June 30<sup>th</sup> of any year;

- (2) The USACE shall designate a qualified biologist to provide a worker education and training program regarding special status fish species that could be adversely impacted by dredging. The program would 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 for all special status species. The training program shall be conducted prior to the use of a hydraulic dredge in San Francisco Bay;
  - (3) At the beginning and end of each hopper load, pump priming, drag head clearing, and suction of water would be conducted within three feet of the seafloor;
  - (4) Hydraulic drag head suction pumps would be turned off when raising and lowering the drag arms from the seafloor;
  - (5) Maintaining contact of drag head, cutterheads, and pipeline intakes with the seafloor during suction dredging;
  - (6) Keeping the drag head water intake doors closed to the maximum extent feasible in locations most vulnerable to entraining longfin and Delta smelt. In circumstances when the doors need to be opened to alleviate clogging, the doors would be opened incrementally;
  - (7) Completing hydraulic hopper dredging in Suisun Bay between August 1<sup>st</sup> and September 30<sup>th</sup> of any year, to the extent feasible, to avoid impacts to spawning adult longfin and Delta smelt; and
  - (8) Completing hydraulic dredging in Central Bay (i.e., Richmond Outer Harbor) between August 1<sup>st</sup> and November 30<sup>th</sup>, to the extent feasible to avoid impacts to young-of-the-year and spawning adult longfin smelt. However, if feasible, impacts to longfin smelt would be even more reduced if dredging would begin later in the window, for example, from September through November of any year.
  - (9) The Corps shall immediately notify the Commission staff in writing if it determines that it is not in compliance with any of these measures, including but not limited to any actual or anticipated failure to implement minimization measures.
- c. **Entrainment Monitoring for Hydraulic Dredges.** To increase the accuracy of the existing estimated entrainment rates for longfin and Delta smelt, the USACE shall:
- (1) By July 31, 2015, submit an entrainment monitoring plan, acceptable to the Executive Director, to collect hydraulic hopper dredge entrainment data for Delta smelt, longfin smelt, and other fish species that occurs during maintenance dredging activities in San Francisco Bay. At a minimum, the plan shall include the following elements:

- i. On-board monitoring during active dredging;
- ii. Sampling during all phases of the dredging cycle;
- iii. Sampling both drag-arms to capture a greater percentage of the pump volume during active dredging;
- iv. Sampling associated with flood/ebb tides and spring/neap tides;
- v. Visual monitoring of vessel hold for fish that are not captured by sampling screens during active dredging; and
- vi. Presence/absence fish monitoring in the immediate vicinity of the dredge during active dredging to understand if sampling is effective.

The plan shall also describe procedures for evaluating the effectiveness of the minimization measures described in Special Condition II – J(2)(b) and include a schedule for completing the monitoring and submitting a final report to the Water Board and Commission.

- (2) Implement the entrainment monitoring plan when using a hydraulic hopper dredging in San Francisco Bay, and provide a report within 6 months of completion of each monitoring event.

- d. **Compensatory Mitigation Measures for Use of Hydraulic Dredges.** Because the reduction of hydraulic hopper dredges use may not be implemented until fiscal year 2017, compensatory mitigation is necessary for years 2015 and 2016 dredging activity. If the USACE uses a hydraulic dredge in Suisun Bay, Pinole Shoal, or Richmond Outer Harbor channels, the USACE shall purchase 0.92 acres mitigation credit at Liberty Island Conservation Bank to mitigate for potential impacts to longfin and Delta smelt.

In 2017, the USACE shall reduce hydraulic dredging in San Francisco Bay to a maximum of one federal channel as described in the FEA/FEIR. Beginning in fiscal year 2017 and each subsequent year, USACE shall purchase mitigation credits at the Liberty Island Conservation Bank, or other CDFW- and USFWS-approved conservation bank, providing habitat benefitting listed smelt species. If Pinole Shoal is dredged with a hydraulic dredge the USACE shall purchase no less than 0.19-acres of mitigation credit per year and if Richmond Outer Harbor is dredged with a hydraulic dredge, it should purchase no less than 0.34 acres of mitigation credit per year.

In finalizing the annual compensatory mitigation purchases, the USACE shall coordinate with the appropriate regulatory and resource agencies to purchase any additional compensatory mitigation.

- 3. **Herring.** Pacific herring is an important forage and commercial fishery fish that spawns on hard surfaces, aquatic plants, and seaweed in San Francisco Bay. Due to unfavorable drought conditions, Pacific herring spawning range has expanded to

include the Central Bay from Coyote Point in the south to San Pablo Bay just west of the Carquinez Strait. To protect this species' spawning habitat, the USACE shall implement the following measures when dredging between November 30<sup>th</sup> and March 1<sup>st</sup> of any year.

- a. By November 15<sup>th</sup>, the USACE shall notify the Commission staff, the Water Board and CDFW if dredging is proposed between November 30<sup>th</sup> and March 1<sup>st</sup> of any year within the herring spawning area described above. The USACE shall request and receive CDFW waiver letter and provide a copy of that waiver to the Commission staff for review and concurrence prior to dredging in herring spawning areas after November 30<sup>th</sup> of any year.
  - b. If dredging is proposed to occur after November 30<sup>th</sup> of any year, a qualified and trained herring observer shall be present during all dredging or in-water work (day and night), and observing shall be his/her sole duty. Training includes, at a minimum, annual attendance at a CDFW administered herring training. The USACE shall provide a copy of observers' qualifications to the Commission, the Water Board and the CDFW not later than November 20<sup>th</sup> in years that dredging would occur after the herring closure.
  - c. The observer shall monitor for herring spawn from an area that allows a full range of view of the 500 meter buffer zone. Observations may be conducted from the dredge, shore, or by a separate vessel.
  - d. The observer shall conduct a shoreline survey within the 500 meter buffer zone at least one hour prior to the start of dredging when there is a lag time of eight hours or more between dredging activities and/or following dredging at night.
  - e. All in-water work shall stop immediately and Commission staff and CDFW shall be notified if spawning Pacific herring are detected within 500 meters of the dredging site. If spawning occurs within the 500 meter buffer, work may not continue until spawning has ended and herring embryos have hatched (14-21 days). Dredging can restart with approval from CDFW and notification to the Commission staff.
  - f. The observer shall keep a daily log of observations, which shall be submitted to Commission staff and the CDFW on a weekly basis by 5:00 pm on Friday.
  - g. To further protect herring during their spawning season, if dredging occurs between December 1<sup>st</sup> and March 1<sup>st</sup> of any year, the Oakland Harbor and Richmond Inner Harbor channels shall be dredged from the outer reaches to the inner reaches.
4. **Eelgrass.** Eelgrass is a known productive aquatic plant that provides significant habitat value for certain Bay species. When a dredging footprint is within 45 meters of an eelgrass bed, the USACE shall conduct pre-dredge and post-dredge eelgrass surveys to determine whether the project is impacting eelgrass beds. The USACE shall provide a copy of the pre-dredge eelgrass survey 30 days prior to project

commencement of dredging. Once dredging is complete, the USACE shall provide a post-dredge eelgrass survey within 45 days of project completion and provide them to the Commission staff, the Water Board, NOAA Fisheries and CDFW for review and consideration.

5. **Fish Habitat.** In order to reduce impacts to habitat from the dredging and disposal projects, the USACE shall comply with the Conservation Measures set forth in the June 9, 2011, Programmatic Essential Fish Habitat (EFH) Consultation Agreement between USACE, the EPA, and NOAA Fisheries. 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.
6. The USACE shall immediately stop/repair and clean up any fuel or hazardous waste leaks or spills from dredging or disposal activities at the time of occurrence. The USACE shall properly contain hazardous products and dispose of any unused or leftover hazardous products off-site.

This consistency determination agreement does not allow for the take, or incidental take, of any special status species. The USACE is required, as prescribed in the State and federal endangered species acts, to consult with the appropriate agencies prior to commencement of the project. Once consultation is complete the USACE shall provide a copy of the biological opinion to the Commission staff for consideration. The 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, as a public benefit of San Francisco Bay and its tributaries.

**K. Request for Funds.** Within three months after this CN is approved, the USACE shall develop and begin to implement a strategy to garner funds sufficient to support increasing the beneficial reuse of dredged sediment, decreasing in-Bay disposal to meet the LTMS goals and for reducing hopper dredge use to a maximum of one channel per year within San Francisco Bay beginning in fiscal year 2017 to protect special status species. This funding strategy shall be shared with the LTMS partners, shall include specific actions to be taken by the USACE at all levels of governance, and be responsive to requests by the LTMS partners for information that they can use to develop and implement complementary and supplementary actions. Beginning in July, 2015, and continuing each quarter for the life of this consistency agreement, the USACE shall report to the Commission and its LTMS partners its efforts, progress, and proposed future efforts to secure funding for these minimization and mitigation measures.

**L. Management and Monitoring of In-Bay Disposal of Dredged Material.** The Corps shall maintain administrative controls on disposal volumes at the in-Bay disposal sites so the LTMS target volumes are not exceeded. The Corps shall manage overall disposal volumes and disposal locations within each site to prevent build-up of dredged materials at each of the sites.

1. The Corps shall continue bathymetric monitoring of the in-Bay disposal sites, monthly at SF-11, quarterly at SF-9, SF-10, and SF-16. The Corps shall provide these condition surveys within 60 days of their completion to the Commission staff.

2. No later than July 1<sup>st</sup> of each year, the Corps shall provide to the Commission an annual report acceptable to the Executive Director, analyzing the status of the mounding at the Alcatraz disposal site. This report shall include:
  - a. A description of results of the previous year's bathymetric surveys and a description of the trends in mound shape and size;
  - b. An estimate of the annual net change in volume of the mound overall, and at depths above -60, -50, -40, and -30 feet MLLW;
  - c. An estimate of the annual volume of dredged material disposal at the site;
  - d. An analysis of the relationship between disposal volumes, site management practices, and net change in mound volume;
  - e. Assessment of whether management practices are achieving satisfactory results; and
  - f. Recommendations for future site management practices, as informed by the analysis and assessment of items d and e, above.

**M. Observation of Dredging and Disposal Operations.** The Corps shall allow the Commission staff or representatives of other state or federal agencies to come aboard the dredge or barge associated with any dredging, knockdown or disposal episode and observe the operation(s) to ensure that these activities are consistent with pre-dredging reports required herein and other terms and conditions of this permit. Further, the Commission reserves the right to have post-dredging reports inspected by a reliable third party familiar with bathymetric mapping in order to verify the contents of these reports.

**N. Long-Term Management Strategy Program.** If, at any time during the effective life of this agreement, the Commission's laws, Bay Plan policies, or regulations are changed and are in effect regarding dredging, dredged material disposal, and beneficial reuse consistent with the multi-agency Long-Term Management Strategy Program (LTMS), this agreement shall become null and void unless the Corps agrees to amend this authorization to meet the new laws, policies, or regulations in a manner specified by or on behalf of the Commission.

### **III. Findings and Declarations**

This authorization is given on the basis of the Commission's findings and declarations that the work authorized as conditioned herein, is consistent to the maximum extent practicable with the McAteer-Petris Act, the *San Francisco Bay Plan*, and the Commission's amended coastal management program for San Francisco Bay for the following reasons:

**A. Consistency of the Dredging Activities within the Consistency Determination.** Section 6666.3 of the McAteer Petris Act states "the Legislature hereby finds and declares that because of the shallowness and high sedimentation rate of San Francisco Bay, dredging is essential to establish and maintain navigational channels for maritime commerce, which contributes substantially to the local, regional and state economies, as well as for military navigation, flood control, recreational boating and other public purposes." It is USACE's primary mission to

maintain safe navigation of its channels, and maintenance dredging of the federal deep-draft navigation channels is vital to ensuring safe and efficient movement of good to and from Bay Area ports and harbors.

The USACE maintains five federal deep water navigation channels in San Francisco Bay and one deep water channel at the entrance to the Bay to support safe waterborne commerce, transportation, military and recreation. Consistency Determination No. C2015.002.00 is for maintenance of six channels within the Commission's jurisdiction: the Oakland Harbor, Richmond Inner Harbor, Richmond Outer Harbor, Pinole Shoal, Suisun Bay, Redwood City Harbor channels and one channel outside the Commission's jurisdiction: the Main Ship channel during calendar years 2015, 2016 and 2017. The maximum volume that would be dredged over three years is 6.075 million cy. The dredged sediment will be either be beneficially reused at an approved beneficial site, disposed of at the Deep Ocean Disposal Site, SF-8 a nearshore disposal site, or at one of four in-Bay disposal sites. The final determination of where the sediment would be placed on an annual basis will be decided by the LTMS agencies based on the USACE's integrated alternatives analysis.

1. **LTMS Management Plan and Dredging Policies.** The Legislature amended the McAteer Petris Act Sections 66663 through 66666 and the Commission amended its Bay Plan policies and regulations to incorporate the LTMS Management Plan's goals and measures. The LTMS program provides for economically and environmentally sound dredging while providing programmatic efficiencies to the regulatory process, creating more certainty for the dredging, resource and regulatory communities. All maintenance dredging projects are coordinated and managed through the LTMS program.

The Bay Plan Dredging Policy No. 1 states, in part, that "[d]redging and dredged material disposal should be conducted in an environmentally and economically sound manner. Dredgers should reduce disposal in the Bay over time to achieve the LTMS goal of limiting in-Bay disposal volumes to a maximum of 1.0 million cubic yards per year...."The policy also describes a regulatory disposal volume allocation strategy if the "voluntary targets" are exceeded. The one million cubic yards per year described in the Bay Plan polices does not include the 250,000 cy assigned to small dredgers on an average year.

The Bay Plan Dredging Policy No. 2 states, in part, that "[d]redging should be authorized when the Commission can find: (a) the applicant has demonstrated that the dredging is needed to serve a water-oriented use or other important public purpose; (b) the materials to be dredged meet the water quality requirements of the San Francisco Bay Regional Water Quality Control Board; (c) important fisheries and Bay natural resources would be protected through seasonal restrictions established by the California Department of Fish and Game, the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service, or through other appropriate measures; (d) the siting and design of the project will result in the minimum dredging volume necessary for the project; and (e) the materials would be disposed of in accordance with Policy 3."

The Bay Plan Dredging Policy No. 3 states, in part, that “[d]redged materials should, if feasible, be reused or disposed outside the Commission's Bay and certain waterways jurisdictions. Except when reused in an approved fill project, dredged material should not be disposed of in the Commission's Bay and certain waterways jurisdiction unless disposal outside these areas is infeasible and the Commission finds: (a) the volume to be disposed is consistent with applicable dredger disposal allocations and disposal site limits adopted by the Commission by regulation; (b) disposal would be at a site designated by the Commission; (c) the quality of the material disposed of is consistent with the advice of the San Francisco Bay Regional Water Quality Control Board and the interagency Dredged Material Management Office (DMMO); and (d) the period of disposal is consistent with the advice of the California Department of Fish and Game, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.”

Bay Plan Dredging Policy 4 states “if an applicant proposes to dispose dredged material in tidal areas of the Bay that exceeds either disposal site limits or any disposal allocation that the Commission has adopted by regulation, the applicant must demonstrate that the potential for adverse environmental impact is insignificant and that non-tidal and ocean disposal is infeasible because there are no alternative sites available or likely to be available in a reasonable period, or because the cost of disposal at alternate sites is prohibitive. In making its decision whether to authorize such in-bay disposal, the Commission should confer with the LTMS agencies and consider the factors listed in Dredging Policy 1.”

Bay Plan Dredging Policy 5 states, in part, that “[t]o ensure adequate capacity for necessary Bay dredging projects and to protect Bay natural resources, acceptable non-tidal disposal sites should be secured and the deep ocean disposal site should be maintained. Further, dredging projects should maximize use of dredged material as a resource consistent with protecting and enhancing Bay natural resources, such as creating, enhancing, or restoring tidal and managed wetlands, creating and maintaining levees and dikes, providing cover and sealing material for sanitary landfills, and filling at approved construction sites.”

The Bay Plan Dredging Policy No. 6 states, in part, that “[d]redged materials disposed in the Bay and certain waterways should be carefully managed to ensure that the specific location, volumes, physical nature of the material, and timing of disposal do not create navigational hazards, adversely affect Bay sedimentation, currents or natural resources, or foreclose the use of the site for projects critical to the economy of the Bay Area.”

Lastly, Dredging Policy 12 directs the Commission to continue to participate in the LTMS, the Dredged Material Management Office, and other initiatives conducting research on Bay sediment movement, the effects of dredging and disposal on Bay natural resources, alternatives to Bay aquatic disposal, and funding additional costs of transporting dredged materials to non-tidal and ocean disposal sites.

As described above, in order to maintain safe navigation in the Bay, the USACE proposes to dredge and dispose/place 6.075 million cy of sediment from five federal channels over three years.

**Table 1**

<b>2015 Proposed Dredging and Disposal/Placement</b>			
Channel	Maximum Volume (cy)	Federal Standard Plan	LTMS Plan
Oakland Harbor	450,000	Ocean	Beneficial Reuse
Richmond Inner Harbor	350,000	Ocean	Beneficial Reuse
Richmond Outer Harbor	250,000	SF-11	SF-11
Pinole Shoal	150,000	SF-10/9	SF-10
Suisun Bay	175,000	SF – 16/ SF-9	SF – 16/ SF-9
Redwood City Harbor	600,000	SF-11/Ocean	SF-11/Ocean
Total	1,975,000		

	<b>In-Bay</b>	<b>Beneficial Reuse</b>	<b>Ocean</b>
LTMS Goals	20% (minimize)	40% (maximize)	40% (stop-gap)
Federal Standard	47%	0%	53%
LTMS Plan	47%	41%	12%

**Table 2**

<b>2016 Proposed Dredging and Disposal/Placement</b>			
Channel	Maximum Volume (cy)	Federal Standard Plan	LTMS Plan
Oakland Harbor	700,000	Ocean	Beneficial Reuse
Richmond Inner Harbor	400,000	Ocean	Beneficial Reuse
Richmond Outer Harbor	250,000	SF-11	SF-11*
Pinole Shoal	200,000	SF-10/SF-9	SF-10*
Suisun Bay	200,000	SF-16/SF-9	SF-16*
Redwood City Harbor	250,000	SF-11/Ocean	SF-11/Ocean*
Total	2,000,000		

	<b>In-Bay</b>	<b>Beneficial Reuse</b>	<b>Ocean</b>
LTMS Goals	20% (minimize)	40% (maximize)	40% (stop-gap)
Federal Standard	45%	0%	55%
LTMS Plan	45%	55%	0%

\* If a clamshell dredge is used, the solicitation will include beneficial reuse, but the least cost bid would be selected, which is likely in-Bay disposal.

**Table 3**

<b>2017 Proposed Dredging and Disposal/Placement</b>			
Channel	Maximum Volume (cy)	Federal Standard Plan	LTMS Plan
Oakland Harbor	700,000	Ocean	Beneficial Reuse
Richmond Inner Harbor	400,000	Ocean	Beneficial Reuse
Richmond Outer Harbor	250,000	SF-11	SF-11*
Pinole Shoal	200,000	SF-10/SF-9	SF-10*
Suisun Bay	200,000	SF-16/SF-9	SF-16*
Redwood City Harbor	350,000	SF-11/Ocean	SF-11/Ocean*
Total	2,100,000		

	<b>In-Bay</b>	<b>Beneficial Reuse</b>	<b>Ocean</b>
LTMS Goals	20% (minimize)	40% (maximize)	40% (stop-gap)
Federal Standard	48%	0%	52%
LTMS Plan	48%	52%	0%

\* If a clamshell dredge is used, the solicitation will include beneficial reuse, but the least cost bid would be selected, which is likely in-Bay disposal.

**In-Bay Disposal, Ocean Disposal and Beneficial Reuse of Sediment.** In the Bay Area, there are three general options for disposal or placement of dredged sediment: in-Bay dispersive sites; ocean disposal; and beneficial reuse sites. There are four in-Bay disposal sites: Alcatraz Island (SF-11), which due to its proximity to Central Bay is the most heavily used; San Pablo Bay (SF-10); Carquinez Strait (SF-9); and Suisun Bay (SF-16), which is reserved specifically for use by the USACE when dredging the Suisun Channel.

Ocean disposal includes the deep ocean disposal site and a near shore site, known simply as SF-8. Beneficial reuse of sediment has many forms including: wetland restoration projects; supplementing the coastal littoral cell (projects with greater than 80% sand); levee maintenance, daily landfill cover and general construction fill.

In its consistency determination concurrence request regarding Dredging Policy 1, and in-Bay disposal targets, the USACE stated, "the tentative 5-year WQC board order allows for USACE to place a total of 3.5 million cubic yards at in-bay sites. Whatever the authorized volume, USACE will comply with the in-bay disposal limits of the final 5-year WQC. Further, as shown, the San Francisco Bay dredging community as a whole has not exceeded annual in-bay placement limits and is not expected to do so over the course of this CD." The Water Board's WQC/WDR limited in-Bay disposal as described at 3.5 mcy per five years, which is approximately 700,000 cy per year, though the Water Board did not specify annual limits. It is assumed that the USACE would not plan to use up their in-Bay disposal volume limit imposed by the Water Board prior to the end of their WQC/WDR authorization. However, as described to the Commission, the volumes are considered the maximum that would be dredged,

and there is potential for less sediment to accumulate in the channels, and thereby require less dredging and disposal, but the Commission must consider the full proposal against the policies.

Given the in-Bay disposal targets in the LTMS of 1.25 mcy, in proposing to dispose of 1.175 million cy in-Bay in 2015, 900,000 cy in 2016 and 1.0 million cy in 2017, the USACE would leave little capacity remaining for all other dredgers including ports, refineries, marinas and homeowners. Of that volume, 250,000 cy is dedicated to small dredgers for which out of Bay placement is infeasible. Ports, refineries, and other medium and large dredging projects have been diligently working to meet the LTMS goals and have been taking approximately eighty percent of their sediment to beneficial use or ocean disposal. Even with this collective effort, significant volume is needed to provide the capacity for these dredgers in any given year. To accommodate the annual variability in the dredging activities, the LTMS agencies have included a 250,000 cy contingency volume in the LTMS Plan for high dredging years. If the targets are exceeded, the LTMS agencies may need to use the contingency volume for the first time since the implementation of the program. If the contingency volume is exceeded, the LTMS program would likely have to implement Bay-wide allocations.

**Table 4**

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)	500,000	
Suisun Bay (SF-16) USACE Only		200,000
Three Year Average Total (In-Bay)		1,250,000*

\* This volume does not include an allowable contingency volume of 250,000 cy per year, but does include the 250,000 small dredger allowance.

The in-Bay disposal targets are averaged on a three-year basis to allow some flexibility due to high and low volume dredging years. 2015 is the last year of the current three-year averaging period. Taking into consideration the final numbers for 2013, the estimated volume for 2014 (final numbers are still coming in), and the proposed USACE dredging and disposal only for 2015, the total remaining volume for all other dredgers is approximately 740,000 cy. While this may appear to be a significant volume, this is likely to be a high volume dredging year with many small dredgers (exempt from out of Bay disposal requirements) currently proposing to dredge.

However, if the three-year average of in-Bay volumes is exceeded beyond the contingency volume, the LTMS must consider in-Bay disposal allocations to each dredger. If allocations become necessary, a staff report with analysis of the issues would be prepared with a recommendation for the Commission. The Commission would need to vote affirmatively for the allocations in order to implement this portion of the LTMS program. In order to address this issue, the USACE should reduce its in-Bay disposal volume significant to become consistent with the LTMS Program and Bay Plan policies. However, it is recognized the USACE has limited funding as allocated annually by Congress. Special Conditions II – B and K address this issue by requiring the USACE reduce in-Bay disposal by 2017 and request additional funding from Congress to meet the environmental requirements of the Bay Region.

Regarding Dredging Policy 2, maintenance of navigational channels is clearly needed to serve a water-oriented use. As described by the USACE “maintenance dredging of the federal deep-draft navigation channels is vital to ensuring safe and efficient movement of good[s] to and from Bay Area ports and harbors.” The USACE has committed to meeting the water quality requirements of the Water Board as described in the Water Quality discussion below. Similarly, measures to protect species and habitats of the Bay are discussed in the Natural Resources section below, but of note is the USACE’s commitment to dredge within the environmental work windows or seek additional consultation with the Resource Agencies. Special Conditions II –D, E, F, and G address water quality concerns in accordance with the Water Board’s Water Quality Certification and Waste Discharge Requirements (WQC/WDR). Special Condition II-J(1) describes the environmental work windows and the process for dredging outside the windows, if necessary.

Dredging Policy 2 also directs the Commission to consider whether the siting and design of the project results in the minimum amount of dredging necessary for the project. The federal navigation channels are sited along the naturally deep spine of the Bay. However as ships have increased in size over the years, their deeper drafts have required deeper channels. Because other areas of the Bay are shallow, the siting of the federal navigation channels is appropriate. The advanced maintenance dredging is conducted in locations where heavy shoaling occurs, such as Bulls Head Reach in Suisun Bay, and therefore is also sited in an appropriate location. Further, knockdown events would occur if an isolated shoal occurs in a tidal channel, and does not require a full dredging event. Knockdowns would only occur when there is an available deep water within the footprint, and therefore would also only occur where necessary, and are sited and designed as such. Special Conditions II – H and I describe the methods in which dredging, advanced maintenance, knockdowns, disposal and beneficial reuse is authorized.

The Bay Plan Dredging Policies 3, 4 and 5 together provide guidance on when in-Bay disposal is appropriate, the analysis that should be undertaken and promote beneficial reuse of dredged sediments. Policy 3 states, in part, that “[d]redged materials should, if feasible, be reused or disposed outside the Commission's Bay and certain waterways jurisdictions.” It further states that, dredged material should not

be disposed of in the Commission's Bay and certain waterways jurisdiction unless disposal outside these areas is infeasible and the Commission finds: disposal would be at a site designated by the Commission; the sediment quality is suitable for the proposed disposal/placement site per the Water Board and DMMO's advice; and the disposal period is consistent with the advice of the resource agencies. (The last two items of this list will be discussed in other sections of this report.) Dredging Policy 4 further describes the Commission's considerations when a project proponent proposes to conduct in-Bay disposal when the disposal would exceed the disposal site limit. In this instance, the project proponent must demonstrate that the potential for adverse environmental impact is insignificant and that non-tidal and ocean disposal is infeasible because no sites are available, or because the cost of disposal at alternate sites is prohibitive. Lastly, Dredging Policy 5 states in part, that to ensure capacity for other Bay dredging projects and to protect natural resources, non-tidal disposal sites and the deep ocean disposal site should be secured and maintained, respectively. It goes on to state that dredging projects should maximize beneficial use of dredged sediment as a resource (e.g. in wetland restoration, maintaining levees, etc.) consistent with protecting and enhancing Bay natural resources.

In response to these three policies the consistency determination states, it is committed to complying with the in-Bay disposal limits in 2015, 2016, and 2017." It further stated that "the USACE is committed to beneficially using dredging material to the maximum extent feasible...." However, as discussed, USACE is also constrained by the federal standard when placing dredged material. To make using a beneficial use site feasible, its cost must be comparable to the cost of the federal standard or a sponsor must fund the incremental cost above the federal standard." In addition, over the next 3 years, the USACE stated it will dredge in accordance with the 5-year WQC, which specifically developed limitations for USACE in-Bay disposal limitations to both comply with the LTMS goal of reduced in-bay disposal and allow for adequate placement for other dredgers.

In examining the proposed project, the concerns raised included: (1) the USACE's proposed in-Bay disposal volumes do not appear to provide for adequate disposal volume for the remaining dredging projects; (2) the percentage of in-Bay disposal is more than double the twenty percent targeted by the LTMS goals; (3) the high volume of dredged sediment proposed for ocean disposal and the low volume proposed for beneficial reuse; and (4) the USACE's interpretation of the federal standard appears to does not appear to be consistent with the Coastal Zone Management Act requirements.

In subsequent correspondence, the USACE clarified the USACE's position regarding the adequacy of in-Bay disposal volumes, and stated that the disposal volumes are conservative, but realistic estimates, and that:

“the total in-Bay volume planned for 2015, 925,000 cy and 47% of our total program, is reflective of our statutory authorities, our actual funding, and is based on forecasted shoal volumes from historical data. This volume is a substantial portion of the total in-Bay volume limit of 1.25 million cy per year that is described in the LTMS Management Plan, and the 1 million cy per year limit that is described in Dredging Policy 1 of the Bay Plan. Notwithstanding the fact that our program, including in-Bay placement, remains constrained by our authorities and the federal standard....”

The USACE further acknowledged that if the proposed in-Bay disposal for 2015 were implemented, and the small and medium dredgers dredged and disposed of more than 800,000 cy, the allocation process could be triggered for the Bay Region. However, Lt. Colonel Morrow further emphasized the public benefits that accrue from maintaining the federal navigation channels, which are critical to our economy and ensure safe and efficient movement of goods to Bay Area ports and Harbors.

Over the past twelve years, the total volume dredged has been between 1.5 and 3 million cy per year, staff expects this trend to continue. In addition, medium and large dredgers have LTMS-approved Integrated Alternative Disposal Site Analyses (IAA) that provide flexibility to the project sponsor over three to five years, with regard to the year(s) that they will use in-Bay disposal. These dredgers include the ports, refineries, ferry systems and other federal agencies. As a result of these factors, the volume of in-Bay disposal varies from year to year. 2015 is projected to be a year of high in-Bay disposal. Based upon review of the proposed projects for 2015, Commission staff estimates that small dredgers with no feasible alternative to in-Bay disposal may dredge approximately 600,000 cy and, if the USACE dredges the volumes predicted, there appears to be approximately 740,000 cy available to all other dredgers in 2015 (this number is calculated by examining 2013 through 2015 dredging and in-Bay disposal volumes). If 2015 is a high volume year, the LTMS agencies would need to implement the 250,000 cy contingency volume. Special Condition II – B limits the in-Bay disposal to the monthly and annual disposal targets and directs the USACE to work with the DMMO to ensure in-Bay limits are not exceeded.

The federal budget is constrained, and during the LTMS transition period from in-Bay disposal to maximizing beneficial reuse, the USACE’s budget has remained relatively unchanged. The transition period was included in the program to allow for budgeting and planning processes to occur to address the increased cost of beneficial reuse. The USACE’s proposed in-Bay disposal volume represents between 45 and 48 percent of their total proposed dredging for each year. In the USACE’s integrated disposal site alternatives analysis, the least cost bid for each dredging project will be used in determining whether to use ocean disposal or beneficial reuse. Over the three-year period, the distribution of sediment between in-Bay, ocean and beneficial reuse remains virtually unchanged.

Bay Plan Dredging Policy 3, states that the Commission must consider whether out-of-Bay placement at the ocean disposal site or beneficial reuse is feasible. From the USACE's perspective, the evaluation factors for the discharge of dredged material are contained in 33 C.F.R. Part 336.1(c), most notably, navigation and Federal standard. The USACE stated,

“the maintenance of a reliable Federal navigation system is essential to the economic well-being and national defense of the country. The district engineer will give full consideration to the impact of the failure to maintain navigation channels on the national and, as appropriate, regional economy. USACE regulates the discharge of dredged material from its projects to assure that dredged material placement occurs in the least costly, environmentally acceptable manner, consistent with engineering requirements established for the project. The least costly alternative, consistent with sound engineering practices and selected through the section 404(b)(1) guidelines or ocean disposal criteria, will be designated the Federal standard for the proposed project.”

The USACE has consistently stated that it is constrained from using a disposal site that costs more than the federal standard, such as beneficial reuse sites or ocean disposal, for many of the USACE's projects that traditionally use in-Bay disposal (Richmond Outer Harbor, Pinole Shoal, Suisun Bay and Redwood City). Beneficial reuse or ocean disposal are almost always greater in cost than in-Bay disposal. The Commission staff and the USACE have long disagreed over this issue, as it appears the USACE is only taking into consideration the least cost, rather than inclusion of the environmentally acceptable portion of the USACE's federal standard test, and has argued that the LTMS Management Plan, an adopted regional dredging and disposal program (including adoption by the San Francisco USACE), as well as the Bay Plan policies and the Water Board's Bay Basin Plan, and not what is environmentally acceptable in this region.

The Coastal Zone Management Act requires the USACE's projects to be consistent to the maximum extent practicable with the Coastal Zone Management Plan for the region. The term “consistent to the maximum extent practicable” means fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.<sup>1</sup> It further states that federal agencies shall not use a lack of funding as a basis for being consistent to the maximum extent practicable with an enforceable policy of a management program. In cases where the cost of being consistent with the management program was not included in the Federal agency's budget and planning processes, it should seek additional federal funds necessary to be consistent with the Management Plan. Federal agencies should include the cost of being fully consistent with the management programs in their budget and planning processes.<sup>2</sup> Therefore, it appears clear that the USACE should request additional funding to support full

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<sup>1</sup> 15 CFR 930.32(a)(1)

<sup>2</sup> 15 CFR 930.32(a)(3)

consistency with the Bay Plan policies that support maximizing beneficial reuse and minimizing in-Bay disposal as described in the LTMS Management Plan. Special Condition II - K requires the USACE to develop and implement a strategy to obtain funds per the CZMA prescribed process.

However, the USACE submits budget requests two years in advance of receiving funding. While the USACE San Francisco District may request funding, it may not receive the amount requested. Because the USACE's budget has been submitted for fiscal years 2015 and 2016, funding will not likely be available to increase beneficial reuse until 2017, unless Congress provides additional, unsolicited funds. Therefore, simply due to budgeting, it may be infeasible for the USACE to reduce in-Bay disposal in favor of beneficial reuse or ocean disposal in 2015 and 2016. However, the USACE should begin requesting funding now for fiscal year 2017 projects.

The Bay is currently in a period of sediment supply decline and many have raised the concern that existing habitat, particularly marshes be sustainable under this new sediment regime, and raise additional concerns due to the confounding issue of rising sea level. The USACE is aware of this issue and has committed to do all within its authority to increase beneficial use, including revising the USACE's contracting strategy; placing all dredged sediment after November 30<sup>th</sup> of any year at beneficial reuse sites, in compliance with the soon to be released NOAA Fisheries Service Amended LTMS Programmatic Biological Opinion; improved coordination with sponsors of restoration sites; and investigating the potential to "recharge" marshes and mudflats with dredged sediments. If these efforts are successful, the USACE may be able to increase beneficial reuse under this consistency determination.

Special Condition II- B and H, require the USACE to limit in-Bay disposal to the monthly and annual targets, work with the DMMO to ensure adequate volume is available for all dredgers, reduce in-Bay disposal in 2017 to the LTMS target of twenty percent, and provide an annual update to the Integrated Alternatives Analysis for review and approval through the LTMS agencies.

**Management of In-Bay Disposal Sites.** The in-Bay disposal sites are managed by the USACE and the LTMS agencies through the Dredged Material Management Office (DMMO). The DMMO ensures that the amount and timing of disposal does not create navigational hazards and that the individual site volume limits are not exceeded on a monthly or annual basis. When the volume limits at the in-Bay sites are reaching capacity, the DMMO directs dredging projects to alternate sites, or if necessary delays the start of dredging projects to avoid exceeding monthly disposal volume limits, taking into consideration navigational safety. Prior to implementation of each dredging project, the Special Condition II – H requires the USACE to provide project specifics, including a pre-dredge survey, proposed dredged volumes, and sediment test results, to the DMMO for review and a determination of the suitability of the sediment for disposal. The DMMO agencies consider the timing and available volume at the proposed site and in the case of the Commission, issues an episode approval to allow a project to proceed.

As an LTMS partner and the federal agency responsible for safe navigation, the USACE conducts monthly surveys of the Alcatraz disposal site and quarterly surveys of the San Pablo, Carquinez and Suisun Bay disposal sites to ensure that navigation hazards do not occur and that the sites are functioning as designed. Special Condition II – L requires that the USACE continue this practice, and includes an annual report on the status and trends of the Alcatraz Island disposal site, the one site that is known for occasional mounding issues.

In addition, the USACE continues to support further study of Bay sediment issues as related to dredging and dredged sediment disposal/beneficial reuse as is evidenced by the numerous studies completed to date and three additional studies underway and support of the Regional Monitoring Plan.

For the reasons stated above, including, the USACE's partnership in the LTMS program and its commitment to request additional funding to support reduced in-Bay disposal and increased beneficial reuse by 2017, the Commission has determined that USACE' proposed operations and maintenance dredging program, as conditioned is consistent to the maximum extent practicable with Commission's dredging policies and the LTMS Management Plan.

**B. Natural Resources.** The San Francisco Bay Plan has several policies regarding the natural resources of the Bay, including Fish, Other Aquatic Organisms and Wildlife; Subtidal Areas; and Mitigation.

Fish, Other Aquatic Organisms and Wildlife Policy 1 states: "to assure the benefits of fish, other aquatic organisms and wildlife for future generations, to the greatest extent feasible, the Bay's tidal marshes, tidal flats, and subtidal habitat should be conserved, restored and increased."

Fish, Other Aquatic Organisms and Wildlife Policy 2 states: "specific habitats that are needed to conserve, increase or prevent the extinction of any native species, species threatened or endangered, ... or any species that provides substantial public benefits, should be protected, whether in the Bay or behind dikes."

Fish, Other Aquatic Organisms and Wildlife Policy 4 directs the Commission to "consult with the California Department of Fish and Game and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service whenever a proposed project may adversely affect an endangered or threatened plant, fish, other aquatic organism or wildlife species; and not authorize projects that would result in the "taking" of any plant, fish, other aquatic organism or wildlife species listed as endangered or threatened pursuant to the state or federal endangered species acts, or the federal Marine Mammal Protection Act, or species that are candidates for listing under the California Endangered Species Act, unless the project applicant has obtained the appropriate "take" authorization from the U.S. Fish and Wildlife Service, National Marine Fisheries Service or the California Department of Fish and Game; and give appropriate consideration to the recommendations of the California Department of Fish and Game, the National Marine Fisheries Service or the United States Fish and Wildlife Service in order to avoid possible adverse effects of a proposed project on fish, other aquatic organisms and wildlife habitat."

The Commission's Subtidal Areas policies have similar protective language to the Fish, Other Aquatic Organisms and Wildlife policies in Subtidal Area Policy 2 states: that "areas that are scarce in the Bay or have an abundance and diversity of fish, other aquatic organisms and wildlife (e.g., eelgrass beds, sandy deep water or underwater pinnacles) should be conserved. Filling, changes in use; and dredging projects in these areas should therefore be allowed only if: (a) there is no feasible alternative; and (b) the project provides substantial public benefits."

Further, Subtidal Area Policy 1, requires the Commission to fully examine the local and Bay-wide effects of dredging projects on: (a) the possible introduction or spread of invasive species; (b) tidal hydrology and sediment movement; (c) fish, other aquatic organisms and wildlife; (d) aquatic plants; and (e) the Bay's bathymetry. Projects in subtidal areas should be designed to minimize and, if feasible, avoid any harmful effects. Subtidal Areas Policy 5 directs the Commission to support and encourage expansion of scientific information on the Bay's subtidal areas, including: "... (b) the relationship between the Bay's physical regime and biological populations; (c) sediment dynamics, including sand transport, and wind and wave effects on sediment movement; (d) areas of the Bay used for spawning, birthing, nesting, resting, feeding, migration, among others, by fish, other aquatic organisms and wildlife...."

In summary, the Commission's applicable Mitigation Policies, state that projects should be "designed to avoid adverse environmental impacts to Bay natural resources such as...to plants, fish, other aquatic organisms and wildlife habitat, subtidal areas, or tidal marshes or tidal flats." Whenever adverse impacts cannot be avoided, they should be minimized to the greatest extent practicable and then unavoidable adverse impacts to the natural resources of the Bay should be mitigated. "Mitigation should, to the extent practicable, be provided prior to, or concurrently with those parts of the project causing adverse impacts." Further any mitigation should be coordinated with all affected agencies that have jurisdiction or mitigation expertise to ensure, to the maximum practicable extent, the mitigation program satisfies the policies of all the affected agencies. The policies allow for the use of mitigation banks when the bank is acceptable to the Commission and resource agencies and is shown to be ecologically acceptable and there is a scientifically defensible method for determining the timing and amount of credit required. Lastly, the policies state, "mitigation banking should only be considered when no mitigation is practicable on or proximate to the project site."

Due to the nature of dredging, removing sediment in an aquatic setting and either disposing of it aquatically in the Bay or the ocean, has potential to impact the organisms living and feeding in that environment, and impact water quality. Sediment placement at beneficial reuse sites likely has less potential impacts because these sites are normally in active construction phases during the placement period. The extent of the dredging activity and its location determine in part the type and severity of the potential impacts. In addition, the type of equipment can also influence the potential impacts and the duration of the project. In San Francisco Bay, there are generally three types of equipment used in various sizes: clamshell or excavator dredges classified as mechanical dredges; and two types of hydraulic dredges, hopper and cutterhead dredges. There are other types of dredging equipment but others are not generally used in San Francisco Bay. As part of the USACE's consistency determination request, it describes using clamshell equipment and hopper dredges.

1. **Equipment.** Clamshell dredges are normally large cranes mounted on a floating platform with a clamshell bucket lowered over the side with the bucket. The clamshell it scoops up the mud or sand in the channel, and places it into an adjacent dredge scow. Water that is entrained in the bucket is also released into the scow. Once the scow is full, a tug boat transports the scow to the designated disposal site where it is bottom dumped into the aquatic environment or offloaded to a beneficial reuse site. Multiple scows are often used on a project so dredging can continue while disposal is occurring. For longer distance disposal or beneficial reuse, clamshell dredges can be more efficient than hopper dredges. They also entrain less fish during dredging due to the lack of pumping activity. However, clamshell dredging creates more turbidity than hopper dredges.

Hydraulic hopper dredges use suction pumps to draw sediment and water into a draghead that is slowly drawn over the bottom. Once in the draghead, the sediment is drawn into the hopper, until the hopper reaches capacity. Then, the entire vessel travels to the disposal site where it opens the hopper and bottom dumps the sediment into the aquatic placement site. While in transit to the disposal site, there is no dredging activity. These dredges are more efficient at dredging to project depth than clamshell dredges and generally create less turbidity in the water. However, hopper dredges entrain more fish than mechanical dredges due to the suction pumps. The hopper dredges that are used in San Francisco Bay are the Essayons and the Jaquina, two government dredges owned by the USACE, that service the federal navigation channels along the west coast, Alaska and Hawaii.

2. **Environmental Review.** In 2014-15, the USACE and the Water Board circulated and then finalized an Environmental Assessment and Environmental Impact Report (FEA/FEIR) entitled "Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay Fiscal Years 2015 – 2024." The joint National Environmental Protection Act (NEPA) and California Environmental Quality Act (CEQA) review considered impacts from the USACE's dredging program over ten years, including deep and shallow water channels, and the proposed disposal/placement options. The NEPA/CEQA review became necessary to address changed conditions since the 1975 NEPA review, and the 1999 LTMS EIS/EIR, specifically the listing of several endangered species, including longfin and Delta smelt and green sturgeon, but continued to rely on the LTMS Final Environmental Impact Statement and Report completed in 1998 for programmatic issues.

In 2010 and 2011, at the request of the Resource Agencies, US Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the USACE undertook a limited monitoring effort to assess whether the USACE's hydraulic dredge was entraining Delta or longfin smelt, federally and state and listed species, respectively. The monitoring revealed take of both longfin and Delta smelt, triggering the environmental review process.

At the conclusion of the process, the Water Board found that the reduced hopper dredge alternatives (use of one hopper dredge or no hopper dredges in the Bay) were environmentally superior to the no project or proposed project and alternative, made

findings of significance due to the take of listed species. The USACE found that the proposed project alternative had less than significant impacts and, therefore, was the preferred alternative. In all alternatives, use of a hopper dredge was included for the main ship channel (outside the Commission's jurisdiction), due to safety issues at that location. For all other resources examined, both the Water Board and the USACE determined there were less than significant impacts.

The Bay Plan policies on natural resources direct the Commission to examine the impacts of the project on Bay resources, including the potential to introduce or spread invasive species, tidal hydrology and sediment movement, aquatic plants, fish and wildlife, the Bay's bathymetry, and habitat. With the proposed project impacts could occur in the dredged channels, adjacent to the dredged channels, in the water column, to wildlife living in or passing through the dredging footprint, and at aquatic placement sites.

3. **Invasive Species.** Regarding the introduction or spread of invasive species, the EA/EIR found that because the dredge equipment would comply with United States Coast Guard (USCG) regulations for vessels intended to minimize the spread of invasive nonnative species, the potential for this impact would be minimized. While dredging equipment is used in other locations, the USCG, along with the State Lands Commission have implemented safeguards to lessen the import of invasive species in the Bay. Salinity differences between embayments would likely limit spread of between them that has not already occurred. Therefore, the project would not be expected to substantially increase the spread of invasive nonnative species.
4. **Tidal Hydrology, Sediment Movement and Bathymetry.** Because the proposed project is dredging and dredged sediment disposal/placement, it affects tidal hydrology, sediment movement and Bay bathymetry. As described the deep draft channels and in-Bay disposal sites are the primary focus of these changes. Because the channels are dredged on an annual basis to the approved depth, the tidal hydrology likely shows little change from year to year. However, dredging does prevent the natural sedimentation process from occurring, but removal of sediment is necessary for safe navigation of deep draft vessels.

The request for consistency determination stated:

“During dredging, some sediment would be resuspended in the water column and settle out in the channel and adjacent areas. During in-bay placement of dredged material, as the sediment falls through the water column, some of it would also be separated by currents from the descending plume and be transported through the water column. Other than actual dredging of approximately 2 million cubic yards of sediment per year and transporting it to in-bay and ocean sites for placement, the proposed dredging is not expected to result in significant effects on sediment transport in subtidal areas. Sediment transport is likely to be the same as before maintenance dredging occurred.”

Sediment movement throughout the Bay is affected by the proposed project as is the sediment transport to the outer coast. Sediment in the Bay is in constant movement, and once dredged, the channels begin to fill in again seeking natural equilibrium. In addition, the deep water channels are the sediment pathways connecting the embayments and the coast. Of the five channels proposed for dredging within the Commission's jurisdiction, two channels have sandy sediment: Suisun Bay Channel and Pinole Shoal. Suisun Bay channel is regularly fine grain sized sand with little variation from year to year. Pinole Shoal channel has portions that are sand and portions that are mud, and the amount of either varies from year to year. Sand in both of these channels is likely moving into Central Bay over time, as shown in Dr. Barnard's work on sediment transport.<sup>3</sup> Sand in Suisun Bay is dredged and disposed of within Suisun Bay, in a disposal site to the northwest of the channel, allowing sand to stay within the system, it is unknown whether this placement impedes or increases sand movement in this area.

The Pinole Shoal channel is more variable, and the grain size and volume of sand changes from year to year. The sediment from this project has been historically disposed of at the San Pablo disposal site, but in recent years when portions of the channel have been greater than 80% sand the LTMS agencies have urged to USACE to direct the project to SF-8, a disposal site within the coastal littoral cell and considered a beneficial reuse site for sand because it is thought to contribute to coastal beaches. However, this request has resulted in little success. It is unknown whether sand from the Pinole Shoal channel would feed Bay beaches, but it would likely contribute to the Central Bay sand shoals over time.

The remaining channels contain various types of Bay mud with greater or lesser amounts of silts and clays depending on the channel. This sediment is of the same type found in marshes and mudflats around the Bay, and therefore the potential for reuse of this sediment is high and would support necessary habitat restoration projects. The LTMS agencies consider placement at beneficial reuse sites keeping the sediment within the Bay system, albeit not in sediment transport.

The in-Bay disposal of sediments at the dispersive disposal sites likely hastens the sediment transport out of the Bay system as shown by model exercises completed in 1998 and again in 2011. Once out of the Bay, the muds join the deeper water fine grain sediment pool just off the outer shelf of the coast. Some have suggested that in-Bay disposal increases the amount of sediment in the system, but in fact, it only redistributes it, and does not provide a net gain in Bay sediment. Deep ocean disposal of dredged sediments takes Bay sediments and places them at a depositional site, 50-miles from the Bay, where they no longer contribute to the coastal system. LTMS studies of the site have shown that sediment placed at this location remains there, as designed.

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<sup>3</sup> Special Issue of Marine Geology 2014, multiple papers by Dr. Patrick Barnard.

In recent years, with the observed decrease in sediment supply from the Delta, increase restoration activity in subsided baylands, and increasing sea level, concerns have been raised by both the environmental community and wetland restoration advocates regarding ocean disposal. The community is recognizing that this practice, when involving clean sediment, is wasting a valuable resource that is in short supply. Difficulties in directing the sediment to restoration sites includes both a lack of funds to support the effort and lack of equipment dedicated to offload the sediment and place it on site. Unfortunately, the Commission does not have authority over disposal at the ocean site. The EPA has the ability to deny ocean disposal if the feasibility analysis shows other alternatives are feasible under the Clean Water Act 404(b)(1) guidelines.

5. **Aquatic Plants.** Aquatic plants cannot grow in the deep water channels due to lack of light. Richmond Outer channel and Oakland Inner Harbor channels have adjacent eelgrass beds. As part of the 2011 LTMS NOAA Essential Fish Habitat consultation, projects within a two hundred and fifty meter buffer zone are required to use silt curtains to reduce suspended sediments potential deposition on the eelgrass beds, and within 50 meters, must survey the dredging footprint to ensure that there would be no direct impacts to eelgrass beds. In surveys that the USACE has submitted to date, there have been no apparent impacts to the adjacent eelgrass beds. However, to ensure that eelgrass beds remain protected, Special Condition II – J(4) requires the USACE conduct pre and post dredging eelgrass surveys to ensure that dredging activity is not impacting the adjacent eelgrass beds.
6. **Habitat.** Dredging and aquatic disposal degrades habitat over time by regularly disrupting the bottom of channels and disposal sites, through sediment removal or disposal; temporary increases in turbidity and suspended sediments; and entrainment of organisms. Potential impacts from these actions include: removal of bottom habitat; removal of bottom dwelling organisms; burial of organisms; increased respiratory issues; entrainment of individuals and prey organisms. In evaluating these impacts, the USACE, in accordance with Subtidal Areas Policy 1, has provided minimization measures where it believes they are feasible and warranted.

Regarding these potential impacts, the USACE stated that several fish, other aquatic organisms, and birds utilize the San Francisco Bay waters. Dredging has the potential to affect these organisms. Turbidity and noise generated from clamshell dredging could affect fish and other aquatic organisms at the dredge site. Additionally, fish could be directly injured by a clamshell dredge, dredge spuds, dump scows, or tugs used to maneuver the dredge equipment and scows. These impacts would be limited to the immediate area around clamshell dredging activities, the areas where dredged material would be transported to, and the aquatic placement sites. Additionally, benthic organism would be removed from the dredge site.

The EA/EIR found that dredging would have localized, direct impacts on benthic communities through physical disruption and direct removal of benthic organisms. Effects would be temporary because benthic habitat is quickly recolonized. Studies from outside the Bay Area regarding the recovery of benthic species show recovery in

anywhere from 3 months to 3 years. In an effort to better characterize impacts from dredging, the USACE is contributing to a Bay study that will provide a further understanding of effects of dredging on the benthic community and its forage value to fish.

While removal of bottom habitat and organisms is unavoidable during dredging activities, entrainment from the water column can be reduced through changes to equipment type and operational measures. The USACE proposed a number of measures to further reduced the level of wildlife entrainment from hopper dredging that have been incorporated into Special Condition II – J(2)(b). To further reduce impacts from turbidity on aquatic organisms from turbid hopper overflow water, the USACE installed “anti-turbidity valves” on the hopper dredge *Essayons*, which reduce air in the overflow water, and thereby turbidity.

The consistency determination further states, “the District believes that only short-term impacts result from our maintenance dredging and disposal actions.” The deep water channels and the in-Bay disposal sites have been maintained and used for many decades. Therefore, the channels are considered a disturbed habitat that is perhaps adapted to the periodic disturbance of dredging.

The disposal sites, particularly the Alcatraz Island site, receive large volumes of sediment with each dispose event. Organisms that live at that site must be able to avoid the falling dredged sediment or are buried by it. If buried, it is unlikely that many would survive, but it is assumed that new benthic organisms would emigrate from adjacent sediments or settle out of the water column during the next spawning period, which could be seasonally or annually depending on the species. As with the dredged deep water channels, the disposal sites are considered disturbed habitat and likely offer less value than similar adjacent habitats.

Bay Plan Subtidal Area Policy 2 states, “areas that are scarce in the Bay or have an abundance and diversity of fish, other aquatic organisms and wildlife (e.g., eelgrass beds, sandy deep water or underwater pinnacles) should be conserved. Filling, changes in use; and dredging projects in these areas should therefore be allowed only if: (a) there is no feasible alternative; and (b) the project provides substantial public benefits.” The USACE has stated, “dredging would occur in existing, authorized, deep-draft navigation channels, and there is no feasible alternative to dredging in these areas.” Further, as previously discussed, “the federal deep-draft navigation channels not only provide a substantial public benefit to the region, but also to California and the nation.”

For the reasons stated above, the Commission concurs that there is no feasible alternative to maintenance dredging of the federal deep water channels, and that impacts to habitat have been minimized through the conditions contained herein.

7. **Species.** The Bay Plan policies on Fish, Other Aquatic Organisms, and Wildlife seek to protect habitats necessary to support native species, and to preserve the species for future generations. Subtidal Area Policy 1 states that dredging projects that occur in a subtidal area should be designed to minimize and, if feasible, avoid harmful effects. It

should be noted that the discussion of measures to protect species described herein are in response to these enforceable policies of the Bay Plan and the Commission's independent authority as required under CZMA, not in response to the listing of species by the CDFW, USFWS and NOAA's National Marine Fisheries Service (NOAA Fisheries Service), although the Commission concurs with these agencies. The Commission staff has sought the advice of these agencies in accordance with Fish, Other Aquatic Organisms and Wildlife Policy 4(a) and (c).

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 entrainment. Mechanical dredging is generally accepted to entrain far fewer fish than hydraulic dredging, because much less water is removed along with the sediment; it still may remove bottom dwelling 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. The USACE has sought to reduce entrainment impacts to species through the listed minimization measures in the FEA/FEIR and incorporated in special conditions herein.

By partnering in the LTMS Program and adhering to its goals and management measures, the USACE has further minimized potential impacts to Bay species. However, there are native species that use parts of the Bay for all or a portion of their lifecycle that are experiencing severe declines in their population that can be impacted by the proposed dredging project. These species include Chinook and Coho salmon, steelhead trout, green sturgeon, least tern, Delta and longfin smelt, as well as one species that using the Bay as its spawning grounds, the Pacific herring. Other species of concern are those managed by NOAA Fisheries Service that are commercially important and include species that live in the water column, bottom dwelling fish and salmonids. One tool used is environmental work windows, which limits dredging to the time of year certain species are not present and minimizes in-Bay disposal. The Commission implements these work windows in accordance with the Resource Agencies to provide protection for these species, under its own authority as the Coastal Zone Manager for the region.

Salmon species are in serious decline due to damming, changes to the Delta and river modification, overfishing and other impacts of development. Dredging and disposal can impact these species as they travel through the deep water channels or by increased turbidity, as well as loss of foraging opportunities. However, these species move through the Bay relatively quickly during their well-documented migration period. The primary measure for reducing impacts from dredging for these species is the implementation of the environmental work windows as required by Special Condition II – J(1). The USACE has stated in their consistency determination request that they will adhere to the work windows, or seek additional consultation with the Resource Agencies if they cannot.

The LTMS agencies have requested an amendment to the 1998 NOAA biological opinion, which is nearly complete. It is understood that the amended biological opinion would allow for mechanical dredging outside the environmental work window if the sediment is dredged is beneficially reused at restoration site that would benefit NOAA listed species. NOAA has tentatively agreed with this measure, commenting that in-Bay disposal outside of the work windows would presumably have impacts to salmon that could be mitigated for by providing sediment to habitat restoration projects that benefit fish. In correspondence from Lt. Colonel Morrow, the USACE has committed to compliance with the amended biological opinion after the close of the work window, unless further individual consultation with NOAA is completed.

Green sturgeon are present year round in the Bay. Commission staff has sought the advice of NOAA Fisheries Service for measures that would protect this species from impacts of dredging because Green sturgeon can be impacted by clamshell or hopper dredging. NOAA Fisheries did not provide any dredging minimization measures for this species because the main issue for this species is the dams blocking their spawning grounds, the environmental work windows already in place for other species are protective, and entrainment of this species by dredging equipment is considered low.

Least terns are indirectly impacted by dredging through increased turbidity in shallow water areas where eelgrass grows. Measures to minimize impacts this species include dredging work windows in areas where the birds forage that limit the dredging to when the species are not present contained in Special Condition II – J(1).

Longfin and Delta smelt are small fish that are easily entrained in large hydraulic suction dredges. It is presumed that these fish would better avoid entrainment by a clamshell dredge. Longfin smelt have the potential to occur in any of the project areas in any season, with different life stages occurring in different embayments in higher numbers at different times of year. Delta smelt have potential to occur in the portions of the Estuary that include the 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.

Over the past decade, according to CDFW fish survey data, both longfin and Delta smelt populations are at a record low, and both species are listed by either the federal or state resource agencies. In 2013, the United States Army Engineer Research and Development Center's (ERDC) modeling study of entrainment of longfin and Delta smelt concluded that entrainment of both species would likely be between 395 and 10,260 individuals (varies by species and scenario) if present adjacent to the USACE hydraulic dredges. There are many factors are associated with the accuracy of modeling projections, however these findings require an abundance of caution when dealing with species in severe decline.

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 suggested limiting any hopper dredging during certain periods and implementing the avoidance, minimization, and measures described in the Special Condition II – J(2). In an additional letter commenting on the FEA/FEIR, the CDFW further recommended that for Central Bay, hopper dredging should occur “later” in the suggested work window of August 1<sup>st</sup> to November 30<sup>th</sup> of any year.

During the Water Board hearing on this project, concern was raised regarding the timing of Central Bay dredging proposed between August 1<sup>st</sup> to November 30<sup>th</sup>, in that high numbers of adult longfin smelt congregate in large numbers in Central Bay in the Fall prior to migrating to their spawning grounds. The BCDC staff has since conferred with CDFW management to clarify this issue and has been advised that hopper dredging operations in Central Bay may be reduced if dredging would be limited to August 1<sup>st</sup> through November 30<sup>th</sup>. Understanding that densities of adult longfin in the Central Bay are higher in August, CDFW determined that, in combination with the avoidance and minimization measures identified by the USACE and the Water Board, it believes that impacts may be minimized. CDFW further clarified that impacts to longfin smelt would be even more reduced if dredging would begin later in the window, for example, from September through November of any year. The Commission has required the later period if feasible given the size of potential dredging projects, and closure of work windows at the end of November, and the start of the herring spawning season in December.

Regarding Delta smelt, the USACE has requested a biological opinion from the USFWS offered compensatory mitigation for take with the hydraulic dredge. The USFWS recommended that the request include entrainment monitoring (as did CDFW) to better understand impacts to the species from hydraulic hopper dredges. USFWS, CDFW, the Water Board and Commission staff agree that monitoring is a necessary element of this activity. In the Water Board’s WQC/WDR and the Special Condition II – J(2)(c) of this permit, entrainment monitoring is required when a hopper dredge is employed in the Bay.

Based on the ERDC entrainment modeling study and advice from CDFW, the Water Board and the Commission has implemented the recommended minimization measures, including reducing the use of a hopper dredge, and limiting its use in Suisun Bay urgent dredging needs, to be protective of both Delta and longfin smelt in Special Condition II – J(2).

The reduction in use of a hydraulic dredge requires the USACE seek additional funding to support the use of a clamshell dredge in a minimum of two additional channels (because the USACE uses the federal hoppers, which are by far the least expensive dredge for them). The Water Board and the Commission have required that the USACE request such funding (Special Condition II – K) but are aware that

Congress may allocate the necessary funds. In the event that the funding is not provided, the USACE would be in violation of the Water Board Order and this consistency determination, and dredging in channels that previously used hopper dredges may

be deferred until a resolution is reached at higher level. The Commission would then refer the issue to NOAA as laid out in the federal code of regulations. Having both Water Board and BCDC take up the issue in the Order and consistency determination strengthens the case that the USACE should reduce impacts to important Bay species.

Herring, while not listed species, are a species of special concern in the Bay because they use hard substrates and aquatic plants for spawning. Dredging activities that increase turbidity in spawning areas have been shown to cause failure of eggs to hatch and abnormal development of fish larvae. To protect these species during their sensitive spawning period, environmental work windows have been instituted. In addition, when limited dredging must occur during the spawning season, CDFW has required observers be present to identify spawning events. If spawning occurs near an active dredge, the dredging is required to stop for 14 – 21 days, and cannot be restarted without the concurrence of the CDFW and the Commission staff. These requirements are included in Special Condition II – J(3).

8. **Mitigation.** The Commission's Bay Plan policies on mitigation require that when adverse impacts cannot be avoided, they should be minimized to the greatest extent practicable and that unavoidable adverse impacts to the natural resources of the Bay should be mitigated. As described above, there are several minimization measures proposed, many specifically to address impacts from entrainment to special status species. However, when a hopper dredge is used, there is likely entrainment of species that are in critical population decline as reflected in their listed status from the Resource Agencies.

The USACE has proposed to mitigate for the potential entrainment of fish in hydraulic hopper dredges by purchasing credit at the Liberty Island Conservation Bank, or other approved conservation bank. The Resource Agencies have agreed on the amount of mitigation that is required when using a hydraulic dredge based on the volume of water pumped through the dredge, and the USACE has made initial purchases of credit. Special Condition II – J(2)(d) requires the USACE purchase additional credits depending on the frequency and location of use of hydraulic dredges in 2015 through 2107.

Table 5 provides the maximum amount of compensatory mitigation that would be purchased each year over the next 3 years.

<b>Table 5: Maximum Compensatory Mitigation Proposed for Hopper Dredge Entrainment<sup>1,2</sup></b>				
<b>Year</b>	<b>Pinole Shoal (acre)</b>	<b>Outer Richmond (acre)</b>	<b>Suisun Bay / New York Slough (acre)</b>	<b>Total (acre)</b>
2015	0.19	0.34	0	0.53
2016	0.19	0.34	0.39	0.92
2017	0.19	0.34	0.39	0.92

**NOTES:**

<sup>1</sup> Mitigation includes purchasing conservation bank credits at Liberty Island or a CDFW-approved conservation bank.

<sup>2</sup> Mitigation credits would not be purchased when a clamshell dredge is used.

The Bay Plan policies further discuss the need for the mitigation required to be coordinated by all agencies with jurisdiction over the project. The mitigation proposed by the USACE has been discussed among the USFWS, CDFW, BCDC and the Water Board, and these agencies are in agreement that the acreage of mitigation to be purchased is appropriate when a hopper dredge is used. The agencies have also agreed that purchasing credit at the Liberty Island or Honker Bay (when it become available) are the only appropriate mitigation banks for Delta and longfin smelt. While mitigation is not being required for take of salmonids, these mitigation banks provide benefits to salmon as well. There is no appropriate mitigation bank available nearer to the project impacts in Central Bay.

Further, it should be noted that, due circumstances beyond the Bay Area, it is highly unlikely that a hopper dredge would be employed at any of the federal channels in the Bay this year. It is also unlikely, but less certain, that a similar circumstance will occur in 2016. Thus reducing impact for these two years and potentially eliminating the need for mitigation. By 2017, the USACE may succeed in requesting funds to reduce the hopper dredge use to only one channel, which would then reduce the need for mitigation, but not fully eliminate it. The mitigation required at that point would be adjusted to be proportional to the impacts.

For the reasons stated above, the Commission concurs that, as conditioned, this project is consistent to the maximum extent feasible with the Commission's policies regarding fish, other aquatic organisms, and wildlife; subtidal areas; and mitigation.

**C. Water Quality.** The Bay Plan Water Quality Policies 1 and 2 state, respectively, that "Bay water pollution should be prevented to the greatest extent feasible. The Bay's tidal marshes, tidal flats, and water surface area and volume should be conserved and, whenever possible, restored and increased to protect and improve water quality..." and "Water quality in all parts of the Bay should be maintained at a level that will support and promote the beneficial uses of the Bay as identified in the San Francisco Bay Regional Water Quality Control Board's *Water*

*Quality Control Plan, San Francisco Bay Basin* and should be protected from all harmful or potentially harmful pollutants. The policies, recommendations, decisions, advice and authority of the State Water Resources Control Board and the Regional Board, should be the basis for carrying out the Commission's water quality responsibilities.”

Further, Dredging Policy 2 states that “[d]redging should be authorized when the Commission can find:...(b) the materials to be dredged meet the water quality requirements of the San Francisco Bay Regional Water Quality Control Board....” In addition, the Bay Plan Dredging Policy 3(c) requires, in part that “the quality of material disposed is consistent with the advice of the Regional Board and the Dredged Material Management Office” (DMMO).

As part of any dredging and disposal/placement of dredged sediments in San Francisco Bay, the project sponsor must show that the sediment proposed for dredging is relatively free of contaminants, and that the dredging and disposal would not have harmful effects to water quality, habitat or the organisms that live in the Bay. This requirement is met through sediment testing and data analysis as describe by the Inland Testing Manual (for in-Bay disposal) or the Ocean Testing Manual (for ocean disposal) and as refined to address known San Francisco Bay contaminants. In addition, the Water Board has instituted Total Maximum Daily Loads (TMDLs) for specific contaminants with the goal of reducing the Bay’s load of these contaminants over time. Also, specific requirements to protect managed fish species under the Magnuson-Stevens Fish Conservation and Management Act through a programmatic Essential Fish Habitat (EFH) consultation for the LTMS program were instituted Bay-wide in 2011. This consultation further refined sediment contaminant limits for dredging and in-Bay disposal. The LTMS agencies have incorporated the TMDL’s requirements and the EFH recommendations in the DMMO testing program.

In its consistency determination request, the USACE stated that because the dredging activity does not alter fresh water flow into San Francisco Bay, it is fully consistent with Water Quality Policy 1. In discussion of Water Quality Policy 2, it discussed the issue of protection of water quality in all parts of the Bay and identified areas of known contamination in or adjacent to federal channels proposed for dredging, primarily Richmond Inner Harbor and Redwood City Channel.

Richmond Inner Harbor, specifically the Santa Fe Channel portion, is contaminated with DDT, PCB and other legacy contaminates due to the historic production of these chemicals in this area. The United Heckathorne site has been designated as EPA superfund clean up site, and while efforts have been made to remediate the contamination, the site continues to contribute DDT into the Bay. The EPA is actively working to further address clean up of contaminants. As a result, areas adjacent to the superfund site often have elevated levels of contaminants. The USACE does not currently, nor has it proposed to dredge the Santa Fe Channel during the period of this consistency determination. Further, because of the known contamination, the areas proposed for dredging are regularly tested prior to dredging and disposal or placement of the sediment at proposed sites. The 2015 episode testing program is currently under review at the DMMO office and sampling and analysis will be completed prior to dredging activities.

Similarly, portions of Redwood City Harbor Channel has shown elevated levels of contamination, in this case, PCB's in the turning basin area of the channel (Exhibit F). Higher resolution testing of this area is underway and a determination of suitable disposal or placement options will be made by the DMMO agencies once the final results are available, and prior to dredging. The PCB's in this channel seem to be limited to the turning basin and portions of the Port of Redwood City's berthing areas, but have not been identified in other areas of the channel.

The USACE has provided a description of the proposed testing schedule, which appears to be in alignment with the DMMO approved program for the USACE projects. Further the USACE has stated that if additional contamination is revealed beyond what was described, they will coordinate with the DMMO and the Resource Agencies. The USACE has also committed to providing sampling and analysis plans and test results to the DMMO agencies for review and a suitability determination for disposal/placement options. If the DMMO determines that the sediment is not appropriate for the proposed placement option, the USACE has committed to working with the agencies to identify and a suitable disposal or placement site. Special Condition II – E requires that the USACE tests the sediments prior to dredging and conduct dredged sediment disposal in accordance with the DMMO.

The Water Board's Order, the LTMS Management Plan as well as the Commission's policies and regulations have set annual, disposal site specific, in-Bay disposal volume limits to reduce impacts to water quality, habitat and species. In response to the USACE's request for a WQC, the Water Board adopted WQC/WDR, on May 13, 2015. It included a discussion of the LTMS in-Bay disposal targets and the individual in-Bay disposal site limits. The Water Board Order requires that the USACE continue management and monitoring of the in-Bay disposal site limits for all dredgers, including the USACE. Further it requires the USACE to enforce the limits as shown in Table 4 on page 20, in order to minimize impacts to water quality.

The Water Board's WQC/WDR authorizes the USACE to conduct up to 12.4 million cy of dredging over five years, and a maximum in-Bay disposal of 3.5 million cy over the same period. The total in-Bay disposal limited authorized by the WQC/WDR is based on an average annual in-Bay disposal volume of 700,000 cy per year, although it does not set annual volume limits. The Order discusses the need to provide in-Bay disposal availability for other small and medium sized dredging projects. According to the WQC/WDR, the Water Board will monitor dredging and disposal/placement volume through the episode approval process, in which the USACE provides equipment type, pre-dredge surveys, volumes for dredging and disposal/placement, and the disposal and/or placement sites on a channel by channel basis for review and approval. The USACE has committed to providing a pre-dredge survey for each project to the Commission prior to commencing the project, which would provide a more accurate project volume. It is also likely that some of the actual project volumes would be less than what is estimated and that some would be slightly higher than the estimated volumes, but the cumulative volumes. In this way, the LTMS agencies can monitor in-Bay disposal volumes to ensure targets are not exceeded, or if necessary the contingency volume is used. Special Conditions II – B, D, E, F and G are included to ensure the water quality of the Bay is protected through limiting in-Bay disposal, requiring compliance with the Water Board Order, and limiting overflow from barges to reduce turbidity associated with dredging.

For these reasons, the Commission concurs, that as conditioned, the project is consistent to the maximum extent practicable with the Bay Plan's policies on Water Quality.

**D. Navigational Safety and Oil Spill Prevention.** The Bay Plan Navigational Safety and Oil Spill Prevention Policies 1 and 3 state respectively: “[p]hysical obstructions to safe navigation...should be removed when feasible when their removal would contribute to navigational safety and would not create significant adverse environmental impacts.” and that “[t]o ensure navigational safety and help prevent accidents that could spill hazardous materials, such as oil, the Commission should encourage major marine facility owners and operators, the U. S. Army USACE of Engineers and the National Oceanic and Atmospheric Administration to conduct frequent, up-to-date surveys of major shipping channels, turning basins and berths used by deep draft vessels and oil barges....”

The consistency determination states that the purpose of the USACE' maintenance dredging program is to remove obstructions to safe navigation, thereby ensuring the safe movement of maritime vessels, the protection of the surrounding habitat, and the continuation of the economic well-being and national defense of the nation. In addition, as part of the operations and maintenance program, the USACE performs quarterly condition surveys, pre-dredging and post-dredging surveys of the federal channels and all federal maintenance dredging project areas, which are accessible to the public. USACE contractors are required to maintain oil and hazardous material containment plans and equipment on board the vessel when operating within San Francisco Bay in compliance with the US Coast Guard and the Oil Spill Response Program (OSPR).

For these reasons, the Commission concurs that the proposed project is fully consistent with the Commission's policies regarding navigational safety and oil spill prevention.

**E. Public Trust.** The Commission's policies on public trust state that when it takes an action affecting public trust lands, the Commission should assure that the project is also consistent with the public trust needs of the area. The public trust is a common law doctrine that guarantees the right of the public to use the state's waterways for navigation, commerce, fisheries, boating, recreation, natural habitat protection, and to preserve lands in their natural state for protection of scenic and wildlife habitat values. The maintenance dredging of navigation channels is a water dependent activity. The navigation channels are used by the public for recreation, the military, and commercial vessels that support the regional, state and national economy. Maintaining the federal navigation channels through dredging and disposal/or placement of the dredged sediment is consistent with public trust needs for navigation; facilitates water borne commerce's ability to access local ports; and recreational boating. Because the deep water channels are regularly maintained, they are considered disturbed habitat, and may recover somewhat between dredging episodes, but have not been in a natural state for decades.

For these reasons, the Commission has determined that the proposed project is fully consistent with the Public Trust needs of the Bay.

**F. Coastal Zone Management Act.** The Commission, pursuant to the Coastal Zone Management Act of 1972, as amended (16 USC Section 1451), and the implementing Federal Regulations in Title 15 Code of Federal Regulations Part 930, is required to review Federal projects within San Francisco Bay and agree or disagree with the Federal agency's determination

that the project is consistent to the maximum extent practicable with the Commission's amended coastal zone management program for San Francisco Bay. This letter constitutes such review and comment.

The Commission finds and certifies that the work proposed by the USACE, as described and conditioned herein, and the information submitted, is either within the coastal zone or affects the coastal zone and is consistent to the maximum extent practicable with the Commission's amended coastal zone management program for San Francisco Bay, as approved by the Department of Commerce, so long as the USACE complies with the conditions contained herein.

**G. Environmental Review.** In 2014, the USACE and the Water Board completed a joint Environment Impact Assessment and Environment Impact Report (EA/EIR) *Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay Fiscal Years 2015–2024*. The Water Board certified the Final EIR (FEIR) on May 13, 2015. The FEA/FEIR examined four project alternatives, and a number of issues, including: geology, soils and sediment quality; hydrology and water quality; air quality and climate change; biological resources, cultural and paleontological resources; land use; hazards and hazardous materials; and transportation.

The California Environmental Quality Act (CEQA) review identified significant impacts to Delta and longfin smelt in the alternatives that maximized use of hydraulic dredge equipment. The Water Board (the lead agency) found that either of the reduced hopper dredge alternatives reduced impacts and determined that using one hydraulic dredge in the Bay, coupled (Reduced Hopper Dredge Alternative 1) with minimization measures and mitigation for take of listed species was feasible. In certifying the FEIR, the Water Board made a finding of overriding considerations regarding the delay in implementing the reduced project alternative until 2017, when funding may be available. The overriding considerations balanced the economic, legal, social, technological and other benefits, including the associated unavoidable environmental impacts are acceptable due to the San Francisco Bay's importance to international, national and state navigation, trade, commercial and recreational fishing. The Water Board included minimization and mitigation measures in its WQC/WDR to further reduce impacts of the project, and required reducing hydraulic dredging in 2017 to further protect the Delta and longfin smelt.

The USACE, through the National Environmental Quality Act (NEPA) review made a Finding of No Significant Impact (FONSI), and found that, "based on a review of the information incorporated in the FEA and supported by the administrative record, the proposed activity would not significantly affect the quality of the physical, biological, and human environment. In addition, avoidance, minimization, and mitigation measures are proposed to further support this determination." The FONSI was signed on May 29, 2015, which completed the NEPA process.

**H. Conclusion.** For all the above reasons, the Commission finds that the project will sufficiently protect fish and wildlife resources, will mitigate for those impacts that are unavoidable, maintain water quality in the Bay, assist in implementing beneficial reuse of dredged sediment and the LTMS Management Plan. Therefore, the project, as conditioned, is consistent to the maximum extent practicable with the Commission's amended coastal zone management program for San Francisco Bay.