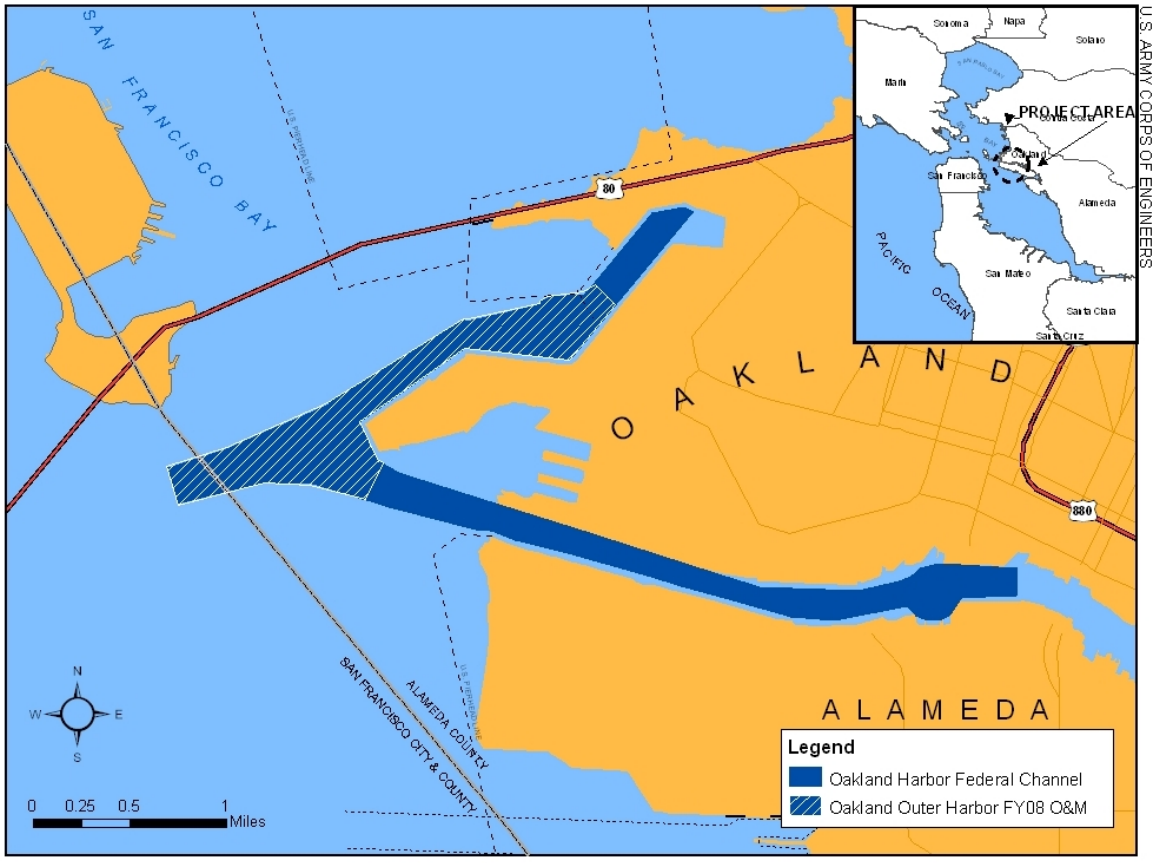
Environmental Assessment
(with Draft FONSI)

for

Fiscal Year 2008 Maintenance Dredging
Of Oakland Outer Harbor, Oakland, California



Prepared By

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May 2008

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 Proposed Project

1.1 Description and Location. The proposed action is the maintenance dredging of the Entrance Channel and the Oakland Outer Harbor (Figure 1) by the U.S. Army Corps of Engineers, San Francisco District (USACE). Oakland Harbor consists of the Entrance Channel, Outer Harbor, Inner Harbor, and Middle Harbor (Middle Harbor is now a subtidal habitat restoration site). Oakland Harbor is located in the city of Oakland, Alameda County, California; a portion of the Entrance Channel extends into San Francisco County.

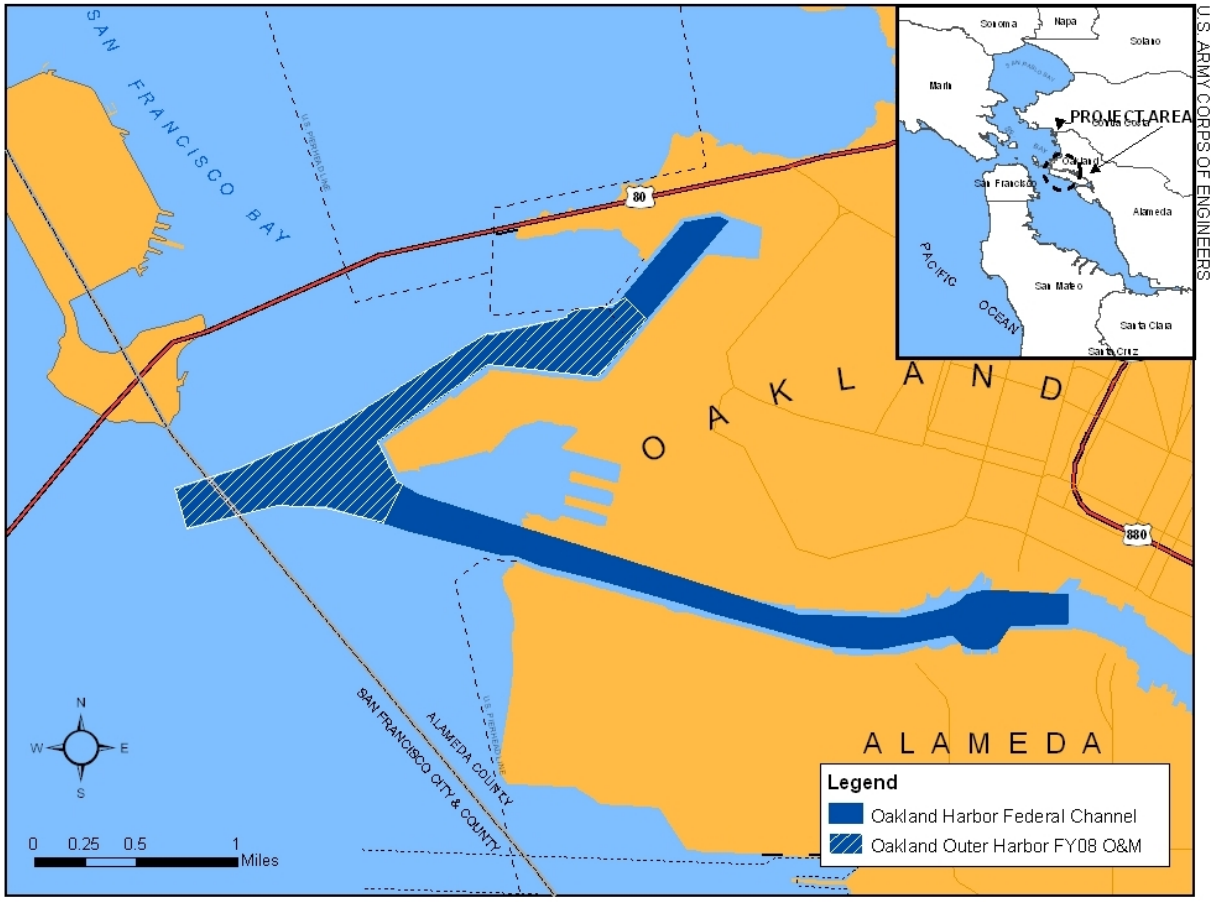

Figure 1. Location of proposed maintenance dredging.

The Outer Harbor Channel and the Entrance Channel will be maintained by dredging to the depth of -50 feet Mean Lower Low Water (MLLW). Up to two additional feet of material (one ft. paid, one ft. unpaid overdepth) may be dredged as part of this work. Approximate volumes of shoaled sediment to be removed, based on surveys performed on March 14, 17-18 2008 are: 40,000 cubic yards (CY) (based on an estimate to the authorized depth); 105,000 CY (an estimate to the authorized depth plus one foot paid overdepth); and 150,000 CY (an estimate to the authorized depth plus one foot paid and one foot unpaid overdepth). It is expected that material will continue to accumulate between now and the start of dredging; this additional material is included in the 150,000 CY estimate; 150,000 CY is the maximum volume of material to be dredged for this project. The historical range (1975-2000) of O&M material dredged from Oakland Outer Harbor ranges from 6950 CY in 1984 to 475,769 in 1987. The

USACE intends to deliver all dredged material to the Hamilton Wetland Restoration Project (HWRP) via the offloader. The HWRP is an upland beneficial use project located on the northwestern bank of San Pablo Bay (Figure 2). If, in the event placement at the HWRP becomes infeasible due to schedule, logistical or financial reasons, the remainder of the dredged material would be placed at the San Francisco Deep Ocean Disposal Site (SF-DODS) (Figure 3). The dredging is expected to commence on or after August 1, 2008, and expected to be completed on or before November 30, 2008. Dredging operations may be conducted 24 hours a day, seven days a week. Offloading at HWRP site, however, may only occur Monday through Saturday. The duration of dredging and disposal activity would last approximately 60 days.

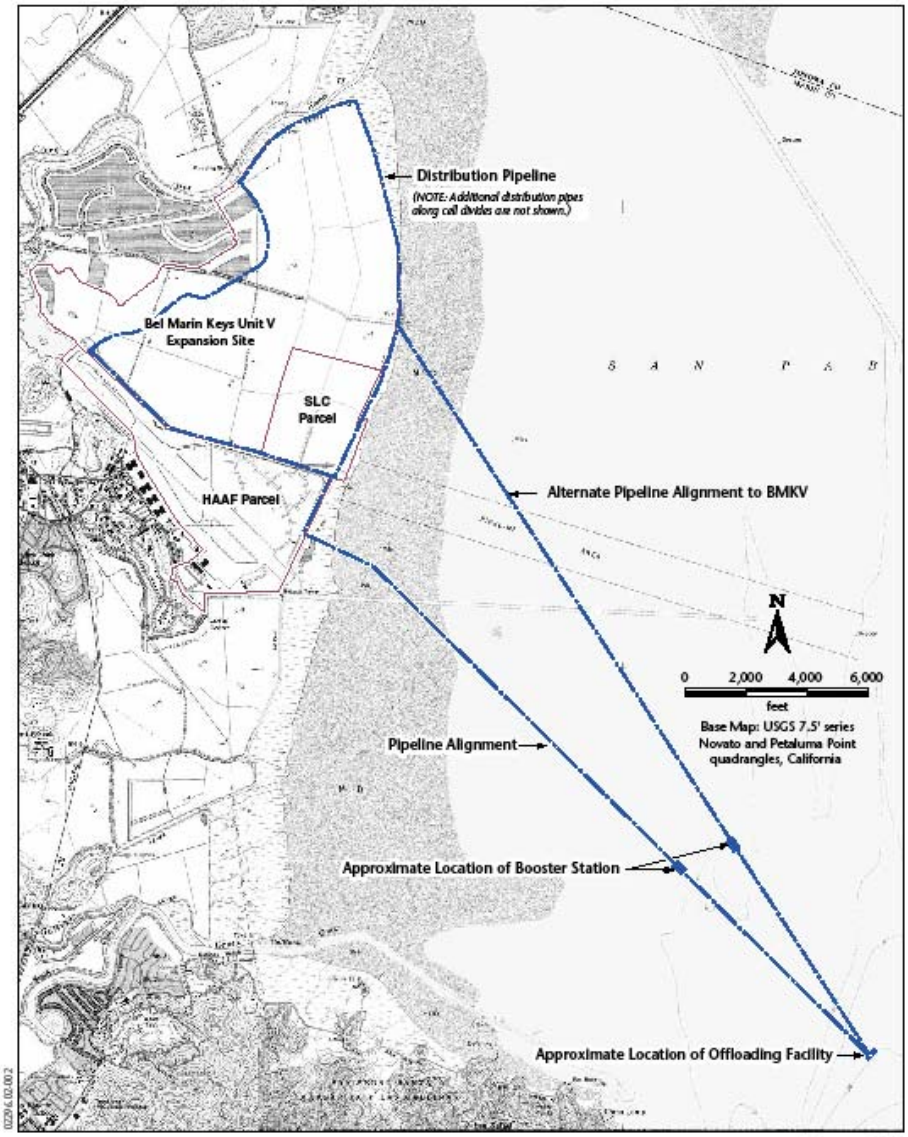

Figure 2. Approximate location of the offloading facility for the Hamilton Wetlands Restoration Site.

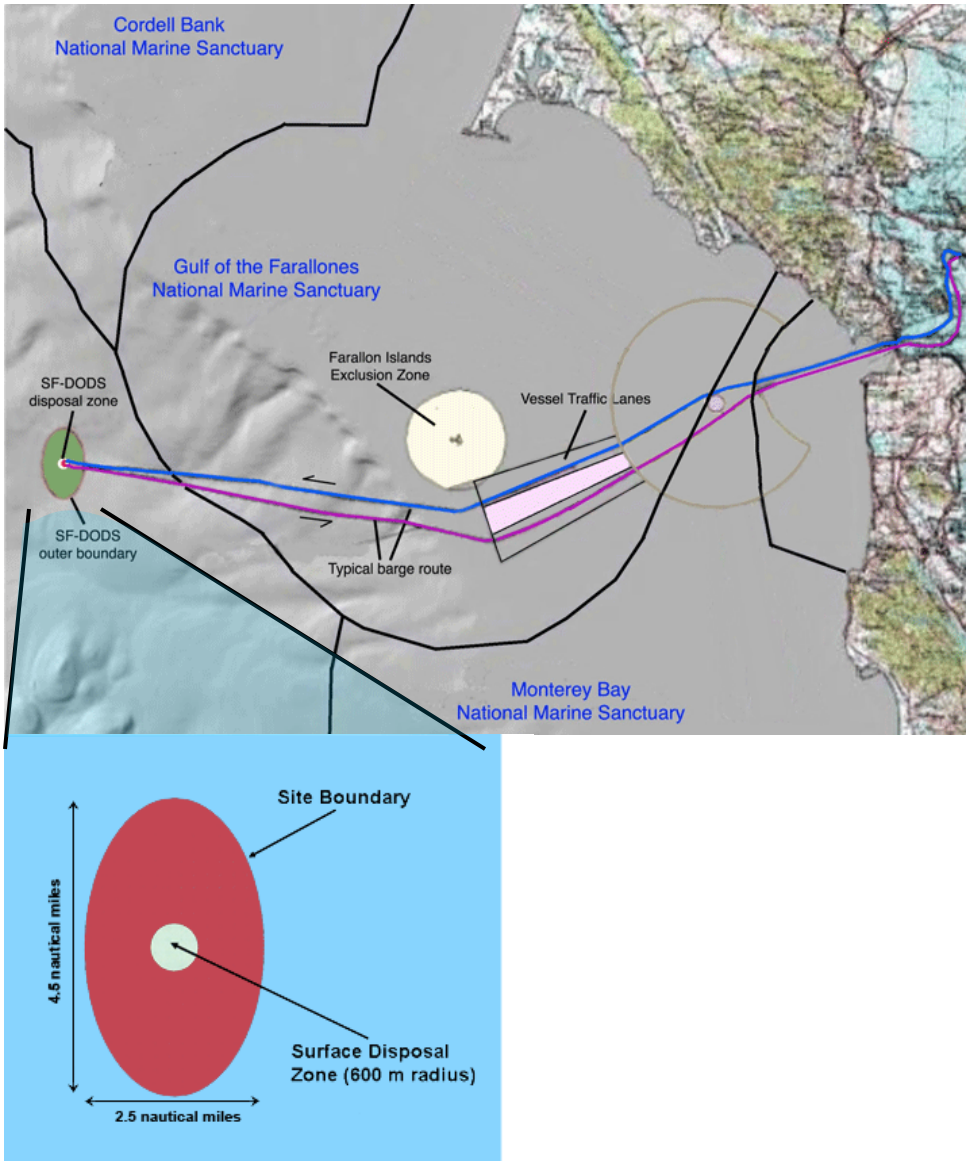

Figure 3. SF Deep Ocean Disposal Site (SF-DODS) location and vessel route. The bottom figure is an inset of the SF-DODS disposal area.
(Source: EPA website: http://www.epa.gov/region09/water/dredging/sfdods/sfdods-map.html)

Considerable background material on all phases of this proposed project is presented in three documents: (U.S. Army Corps of Engineers et al. 1998); (U.S. Army Corps of Engineers et al. 2001); and (U.S. Army Corps of Engineers 1998) (for information on transportation to the HWRP offloader). All documents are available upon request.

1.2 Purpose and Need for Proposed Action. The purpose of this proposed action is to ensure continued navigability of the Federal Channel by commercial vessels requiring depths at the authorized level. The project is needed because sediment which naturally settles in the channel impedes or prevents such navigability and must be removed if navigability to authorized depths is to be maintained.

1.3 Study Authority. Under the Water Resources Development Act (WRDA) of 1999, Pub. L. No. 106-53, 113 Stat. 269, 273, USACE is authorized to deepen the harbor to -50 feet to accommodate the upcoming generation of deep draft ships. The deepening work will be completed to the depth of -50 feet MLLW in the Oakland Outer Harbor by the time the maintenance dredging cycle comes due, in this case, by August 2008. In prior years, improvements to and maintenance dredging of the federal project has been accomplished pursuant to the following authorities: River and Harbor Act of 1910, Pub. L. No. 61-264, 36 Stat. 630, 661; River and Harbor Appropriations Act of 1917, Pub. L. No. 65-37, 40 Stat. 250, 259; Rivers and Harbors Act of 1927 Pub. L. No. 69-560, 44 Stat. 1010, 1014; River and Harbor Act of 1930, Pub. L. No. 71-520, 46 Stat. 918, 931; River and Harbor Act of 1945, Pub. L. No. 75-14, 59 Stat. 10, 21; and Water Resources Development Act of 1986, Pub. L. No. 99-662, § 202, 100 Stat. 4082, 4092.

2.0 Scope of Analysis

The scope of analysis under NEPA will consider direct, indirect, and cumulative environmental factors at the site of dredging, associated surface operations, transport to the placement site, and at the placement site (SF-DODS only). The areas within the scope of analysis for this proposed activity include the Oakland Outer Harbor Channel and Entrance Channel, transport routes to both the HWRP offloader and SF-DODS, and SF-DODS. Environmental factors for placement at the HWRP offloader site have been addressed in the Hamilton Wetland Restoration Plan, Volume II: Final EIR/EIS (Jones and Stokes 1998).

3.0 Proposed Action and Alternatives

3.1 Proposed Action. Maintenance dredging of the Entrance Channel and the Oakland Outer Harbor Channel (Figure 1) to -50 feet MLLW (as described in section 1.1) and placement of all the dredged material at HWRP (Figure 2) with SF-DODS (Figure3) as a secondary site. The maximum amount of dredged material will be placed at the HWRP; the maximum amount is contingent on funding and offloader availability.

3.1.1 Maintenance Dredging. Maintenance would be performed using a clamshell dredge. Dredging would occur to the depths of -50 feet MLLW plus up to 2 feet of depth (one foot paid, one foot unpaid). Please refer to the Proposed Project Description and Location, section 1.1 on pgs. 1 and 2 for a complete description of volumes to be dredged, placement locations, and timing of the project. It is expected that material will continue to accumulate between now and the start of dredging; this additional material is included in the 150,000 CY estimate. Revised estimates will be made shortly before dredging commences and will be provided to interested parties.

3.1.2 Transportation of Dredged Material. Material will be transported to the placement site(s) in 3,000-5,000 CY scows. Dredged material to be placed at the HWRP offloader will be towed by tugs to the site in San Pablo Bay. In the event that disposal at SF-DODS is necessary, dredged material will be towed by ocean-going tugs to the open-ocean disposal site. All loading, transportation and disposal operations at SF-DODS would be conducted in accordance with 40 CFR 228.15(l)(3). This statute describes the EPA Standard

Ocean Disposal Conditions for SF-DODS, dated October 10, 2006, and can be found in Appendix C, section 1.0. Transportation of dredged material will be conducted 24 hours a day.

3.1.3 Placement of Dredged Material. The HWRP is a 980-acre wetland restoration site being constructed by the USACE and State Coastal Conservancy. The site, with elevations that average five feet below sea-level, will beneficially reuse about 10.6 million CY of dredged material to raise existing levels to approach marsh plain elevations. The project would utilize a hydraulic offloader to facilitate the transfer of dredged material from the dredge scows to the pipeline. During operation, dredge scows would tie up to the off-loader structure (which includes 6 flat-deck barges and an attendant equipment barge) and a snorkel would be used to vacuum the dredged material from the scows. Water would be added to the dredged material in the scows to facilitate this process, and the dredged material would be transferred directly into the transport pipeline. Due to the silty nature of the material from Oakland Outer Harbor and Entrance Channel, the material would be used for the tidal wetlands at the restoration site. If placement of all the material at the HWRP offloader is not practicable, the remainder of the material will be placed at SF-DODS. Please see Alternative A below for a description of this scenario.

3.2 No Action Alternative. The no action (or no dredging) alternative would result in the continued shoaling of the channel, hindering navigation for some commercial deep draft vessels. Parts of the entire Harbor would eventually become inaccessible to such vessels. Such inaccessibility might contribute to moderate to significant short-term economic losses to some localized sectors of the economy. Thus, this alternative does not meet the project need. The no action alternative would prevent temporary, minor impacts to the marine substratum, water quality, and air quality resulting from dredging, transportation, and placement activities.

3.3 Alternatives for placement of dredged material. The alternative analysis for placement of dredged material discussed below is a reflection of the *Draft Integrated Alternative Analysis for San Francisco District Federal Navigation Channels Years 2007-2009 Operation and Maintenance Dredging* (IAA), which is based on the goals of the LTMS (USACE et al. 2001). The LTMS 40/40/20 plan emphasizes placement of dredged material at upland and ocean environments (approximately 40 percent of material at each) with limited in-Bay disposal (no more than 20 percent of material). This plan provides the best balance of the overall goals and objectives of the LTMS, and combines the maximum environmental benefit with the minimum environmental risks.

Alternative A: HWRP. The HWRP placement site is the preferred dredged material placement site identified in the IAA for the O&M Program in 2008. The USACE intends to deliver all the dredged material to the HWRP. If, in the event placement at the HWRP becomes infeasible due to schedule, logistical or financial reasons, the remainder of the dredged material would be placed at the San Francisco Deep Ocean Disposal Site (SF-DODS). Other federal dredging projects may preclude the placement of all the O&M material dredged from Oakland Outer Harbor and Entrance Channel.

Alternative B: SF-DODS. SF-DODS is a deep ocean disposal site located 50 miles west of the Golden Gate Bridge over the bottom edge of the continental slope. To fulfill the goals of the

LTMS, USACE proposes beneficial use of dredged material at upland sites, such as HWRP. SF-DODS is to be available as an alternative placement site in the event the HWRP becomes unavailable.

Alternative C: Winter Island**.** Winter Island is a privately owned and operated site located at the confluence of the Sacramento and San Joaquin Rivers and Suisun Bay in Contra Costa County. The dredged material is used to re-nourish the island and maintain five miles of perimeter levees. Due to levee breaches two years ago, the site is limited to receive 12,000-20,000 CY of dredged material disposal per year, which is a fraction of the volume of the O&M material that must be disposed of from Oakland Outer Harbor and the Entrance Channel. Aside from the unavailability, this site is located approximately 50 miles inland. The air quality impacts due to the long-distance transport route are greater than the impacts associated with the sites in San Francisco Bay, such as SF-11.

Alternative D: Carquinez Strait Disposal Site (SF-09). The Carquinez disposal site measures 1,000 feet by 2,000 feet, and is located 0.9 miles west of the entrance to Mare Island Straits in eastern San Pablo Bay in Solano County. Because of the greater distance traveled for disposal at SF-09, the associated increase in air emissions and travel costs are expected to be greater than those at SF-11. The USACE is committed to the LTMS goal of reducing in-bay disposal and therefore elects to place material at upland beneficial-use sites or off-shore at SF-DODS.

Alternative E: San Pablo Bay Disposal Site (SF-10)**.** This site is located 3.0 miles northeast of Point San Pedro in southern San Pablo Bay in Marin County, and measures 1,500 feet by 3,000 feet. Because of the greater distance traveled for disposal at SF-10, the increased air emissions and travel costs associated are expected to be greater than those at SF-11. The USACE is committed to the LTMS goal of reducing in-bay disposal and therefore elects to place material at upland beneficial-use sites or off-shore at SF-DODS.

Alternative F: Alcatraz Disposal Site (SF-11)**.** The Alcatraz Island disposal site is located approximately 1,200-1,500 feet south of the Alcatraz Island in San Francisco Bay. While maintenance-dredged material has been previously disposed of at SF-11, the site was screened out as an option to comply with target limits outlined in the 2001 LTMS Management Plan. The USACE is committed to the LTMS goal of reducing in-bay disposal and therefore elects to place material at upland beneficial-use sites or off-shore at SF-DODS. SF-11 will only be used for emergency dredging disposal.

Alternative G: Montezuma Wetlands Restoration Project (MWRP). This site is located at the eastern edge of Suisun Marsh, adjacent to Montezuma Slough, and is completely isolated from Suisun Bay and its tributaries. Dredged material placed at this site would meet beneficial reuse requirements and contribute to the restoration of approximately 1,820 acres of wetlands. This disposal site complies with LTMS Management Plan guidelines. MWRP is impracticable as a disposal site not only because of the substantial increase in cost associated with placement at the site due to additional transportation costs and tipping fees, but also because logistical reasons and increased air emissions would preclude it's use. The offloader, which is required for use of this site, would be unavailable because it is being used at HWRP. Thus, use of this site is not feasible and would not meet the project needs.

4.0 Impact Assessment

Potential Impacts. Consideration of possible impacts for the proposed alternative is presented below from the perspective of a comparison with the no-project alternative and includes, as appropriate, considerations for dredging, transportation to HWRP and SF-DODS. The impacts associated with the proposed wetland restoration efforts at the HWRP offloader site (e.g., offloading, sediment conveyance) are not factored into the comparison of impacts with the other reuse/disposal sites presented in this assessment. The HWRP offloader is addressed in the NEPA compliance documents for the Wetland Restoration Project and the Oakland Harbor Navigation Improvement (-50 Foot) Project. The cumulative effects of disposal at SF-DODS involve the consideration that other dredging projects also dispose of dredged material at this site. SF-DODS is an EPA designated off-shore disposal site. The cumulative effects of disposal at SF-DODS are considered and addressed in the EIS for the site designation.

Water

(X) Quality - temp, salinity patterns, pH, and other parameters: There are no anticipated significant changes to any of the water quality parameters including temperature, salinity or pH. A USACE study (USACE 1998; USACE 1976a) on the effects of hydraulic cutterhead and clamshell dredge operations on the water column revealed that the operations did not typically cause significant fluctuations in salinity, temperature or pH over the short and long term. It was noted from the USACE study (COE 1976a) that changes in these parameters were localized and short in duration; ambient concentrations of these parameters were regained usually within 10 minutes following the release of the material (USACE 1998). Surface water quality objectives for these parameters are expected to be satisfied based on this San Francisco Bay study (USACE 1998; SFRWQCB 1995). Special conditions specified in agency permits would be in place to minimize the risk of any material being released during the transportation portion of dredging operations; please see Appendix C for a detailed account of the special conditions.

Generally, the reduction of dissolved oxygen in the water column is minimal (1 to 2 parts per million) and temporary during active dredging, persisting until the suspended sediments settled (USACE 1989). Most estuarine organisms are capable of tolerating low dissolved oxygen conditions for such short periods of time. As such, reduced dissolved oxygen concentrations would be expected to be localized and short term, with minimal substantial impacts (USACE 2007; United States Navy 1990).

Impacts are not determined to be significant.

(X) Turbidity, suspended particulates: Resuspension of sediments during clamshell dredging is primarily caused by the impact, penetration, and withdrawal of the bucket from the seafloor; secondary causes of resuspension are loss of sediment as the bucket is pulled through the water column. Depending on the effectiveness of the bucket/clamshell dredge, turbidity plumes generated by the use of these dredges can extend approximately 1,000 feet at the surface and 1,500 feet near the seafloor for rather ineffective equipment and remains fairly close to dredging activities for more effective equipment (USACE 2007). The project would result in temporarily elevated levels of turbidity and suspended particles at the site of dredging and the

placement site. Such elevation would be for relatively short periods of time and levels would quickly return to that of ambient.

Potential impacts of dredging and dredged material disposal on fish from increased suspended particulates include impaired oxygen exchange due to clogging or laceration of gills, reduced food availability due to burial of benthic organisms, reduced visibility for foraging activities, and burial of slower-moving bottom fish (O'Conner 1991; USACE 1998). Avoidance of the plume is expected to be the dominant reaction by fish, which are highly mobile, so that effects of turbidity are expected to be negligible. Many of the demersal species should also be able to avoid burial during the disposal, although they may be displaced from the area until the disposal area is recolonized by prey species. The effects of this temporary displacement are expected to be minimal because the displaced fish would be able to feed in adjacent areas (USACE 1998). Potential direct and indirect effects are not considered significant in light of magnitude and duration of this proposed activity.

Demersal fish eggs attached to structures within the vicinity of the plume could be affected by the particles settling on the eggs. Of particular concern would be Pacific herring eggs; the herring fishery is considered commercially important. A studied conducted by the Bodega Marine Laboratory for the LTMS Science and Data Gaps Work Group and USACE showed that during the first two hours after eggs contacted water with suspended sediment eggs did not significantly reduce percent fertilization or percent larval hatch, but did lead to a significant increase in precocious or early hatch, abnormal larvae, and larval mortality. After the initial two hours sediments that contacted embryos do not bind permanently and did not have an impact (Griffin et al. 2008). This phenomenon will not significantly impact herring eggs due to the timing of the project, since it will not overlap with the timing of the herring spawn.

For a detailed account of the precautions that would be taken to minimize the risk of any material being released during the transportation portion of dredging operations, please refer to the Special Conditions as specified by the EPA, BCDC, and SFBRWQCB in Appendix C

(X) Substrate: Dredging would remove material from the substratum thus altering the surface characteristics. Additionally, slumping of material adjacent to the immediate area of dredging would also be expected to take place. The surface characteristics at the placement area would also be changed.

Potential impacts of dredging and dredged material placement on substrate include habitat alteration and the physical removal of soft-bottom substrates. Burial of existing habitats and of benthic infauna and epifauna in the substrate may occur during proposed disposal at SF-DODS. Although Oakland Outer Harbor and the Entrance Channel are highly disturbed habitats due to regular maintenance dredging and ship traffic, organisms in an assemblage similar in species composition and abundance would recolonize relatively rapidly. It is possible that when clamshell dredging is used, some material would be redeposited on nearby non-dredged areas and adversely affect resident organisms by burial and smothering. However, these organisms would similarly recolonize. Indirect effects for dredging sites would include decreased availability of any impacted organisms which may be used as prey for foraging fishes; a comparable pattern of direct and indirect effects are predicted at SF-DODS.

(X) Currents, circulation or drainage patterns: The proposed project would not impact existing currents or circulation patterns.

(X) Mixing zone (in light of the depth of water at the disposal site; current velocity, direction and variability at the disposal site; degree of turbulence; water column stratification; discharge vessel speed and direction; rate of discharge; dredged material characteristics; number of discharges per unit of time; and any other relevant factors affecting rates and patterns of mixing): The mixing zone boundaries at open-water disposal sites are negotiated with the SFBRWQCB. The mixing zone refers to the diameter and depth of the dredged material plume that forms when material is released from a scow or barge. The concentration of particulates within the mixing zone is considered near-field; the high concentration within the zone is short-term due to the mixing with ambient concentrations and consequently becomes diluted. The concentration outside of the mixing zone must be less than 10% of the concentration within the mixing zone, and is considered far-field with effects that are long-term. The potential effects of dredged material disposal within the mixing zone are discussed in the *Water Quality - temp, salinity patterns, pH, and other parameters* and *Turbidity, suspended particulates* sections above. If all the material is placed at the HWRP offloader, the effects discussed in these sections will be not be considered for the mixing zone.

( ) Flood control functions: NA
( ) Storm, wave and erosion buffers: NA

(X) Erosion and accretion patterns: The proposed project would not affect the existing erosion & accretion patterns.

( ) Aquifer recharge: NA
( ) Base flow: NA
( ) Water supplies, conservation: NA

Aquatic Habitat

(X) Geomorphology: There will be minimal changes to the existing channel geomorphology as a result of removal of accreted sediment.

( ) Vegetation: NA: There is no vegetation in or within the immediate vicinity of the dredging or placement locations.

(X) Organisms: Direct, indirect, and cumulative effects are covered above.

The dominant benthic species in Central Bay is the clam *Macoma balthica*, particularly in the intertidal areas. Common subtidal species include the mollusks *Mya arenaria*, *Gemma*, *Musculista senhousia*, and *Venerupis phillipinarum*; the amphipods *Ampelisca abdita*, *Grandierella japonica*, and *Corophium sp.*; and the polychaetes *Streblospio benedicti*, *Glycinde sp.*, and *Polydora sp.* SF-DODS has depths that range from 2500 to 3200 meters; flora and fauna at the site are typical pelagic and benthic species of central offshore California.

The Pacific herring *Clupea harengus pallasi*, while not a listed species, is a species of concern in San Francisco Bay. See the *Turbidity, suspended particulates* section of the Impacts Assessment for information on the potential impacts to herring. The California Department of Fish and Game (CDFG) recommend that dredging should not be conducted from December 1 to March 1, providing a window for peak herring spawning activity. The proposed O&M dredging schedule at Oakland Outer Harbor will not overlap with the window for peak herring spawning activity since the work will commence near the first of August 2008, and will take a maximum of 60 days.

Fish and shellfish organisms are most sensitive to impacts during early life-history stages, such as the egg and larval stages. Organisms during these stages have limited avoidance capabilities and a dependence on local hydrodynamic conditions for transport into and out of dredging activity areas. Demersal eggs and sessile or nonmotile life-history stages are perceived as particularly susceptible because of their longer exposure to elevated suspended sediments or due to smothering by increased sedimentation. Concerns for motile fish and shellfish life-history stages focus upon direct effects of suspended sediments on respiration, feeding, and movement patterns. These organisms are expected to avoid the project area and any of the temporary negative effects it may have. Results of previous studies are available upon request.

(X) Special aquatic sites (wetlands, mudflats, coral reefs, pool and riffle areas, shallows, sanctuaries and refuges, other): The proposed dredging activities do not affect special aquatic sites. Placement of the dredged material at HWRP will result in ultimate creation of wetlands. Placement of dredged materials at SF-DODS would not impact special aquatic sites.

Terrestrial Habitat

( ) Geomorphology: NA
( ) Vegetation: NA
( ) Organisms: NA

(X) Endangered or Threatened Species: Species List was requested from USFWS and NMFS; please see Appendix D for these lists. The following is a consideration of the applicable endangered, threatened, and species of concern as specified in the agencies' lists. More detailed species accounts are presented in the 1998 Final Environmental Impact Report / Environmental Impact Statement Oakland Harbor Navigation Improvement (-50 Foot) Project, (USACE 1998).

Fishes: The Southern Distinct Population Segment of green sturgeon was listed as a threatened species in April 2006. Direct effects related to dredging may include entrainment of the fish by the dredging vessel, direct collisions with the dredging vessel, and burial of prey species. Entrainment of green sturgeon is not considered an impact for this project because a clamshell dredge will be used; entrainment may only occur with a hydraulic dredge. Burial of prey species may also be eliminated as an impact if all the material is placed at the HWRP offloader. Furthermore, the potential to bury prey species at SF-DODS is unlikely due to the depth. USACE is currently consulting with NMFS on a programmatic Biological Opinion that will address the green sturgeon.

The Sacramento River winter-run chinook salmon was listed as threatened in 1990, but was reclassified to endangered in 1994. Sacramento winter-run chinook occur occasionally in Oakland Harbor during migration season (November to May), as well as at the two placement sites. The San Francisco District prepared a Biological Assessment (January 1991) assessing the effects of maintenance dredging the Guadalupe Slough on winter-run chinook salmon. This assessment concluded that the effect of dredging and disposal operations on winter-run chinook is minimal, if occurring at all.

The threatened coastal steelhead (both Central Valley and Central California Coast ESU's) may pass through the project areas during outmigration as well as on their way to their natal streams in the South Bay from June through May. Central Valley spring-run chinook may also occasionally stray into the Oakland Harbor area while migrating in and out of the Sacramento Delta. Coho salmon occur in San Francisco Bay during fall months. All of these species occur at SF-DODS. Species migrating to and from the Central Valley may swim within the vicinity of the HWRP off-loader. Oakland Harbor is not located within these species' main migration routes and accordingly, few if any individuals are expected to occur in the Harbor during dredging, and these would be likely to avoid the immediate dredging site where effects could occur. These fish are expected to avoid the brief disposal plume at SF-DODS as well. In addition, the EIS addressing the designation of SF-DODS found that potential effects such as impaired visibility for foraging and reduced food availability within the area of disposal, which would alter normal feeding or passage activities, would be temporary and localized at the disposal site. Impacts on winter-run chinook, coho, and steelhead are not expected. The benthic community is expected to recover quickly enough following dredging that there should be no long-term effect on potential food sources for the salmon in the harbor. The potential for impacts is further reduced because migrating adult chinook salmon have largely ceased to feed by the time they enter the Bay for their upstream migration. Because there are no chinook, coho, or steelhead spawning areas near or upstream of Oakland Harbor, juvenile salmon and steelhead are not expected to occur in the harbor.

US FWS and NMFS have also indicated that the project could affect critical habitat, either designated or proposed, for Central Coast steelhead, winter-run chinook salmon and Central Valley fall-run chinook salmon. The dredging portion of this project would not impact the critical habitat for either chinook or coho, as Oakland Harbor lies south of the San Francisco/Oakland Bay Bridge, which is the southern boundary in San Francisco Bay for these species' entire critical habitat. However, barges transporting dredged material from Oakland Harbor to SF-DODS and the HWRP offloading site would pass through critical habitat for both of these species as they transit the area between the Bay Bridge and the Golden Gate Bridge. One of the conditions for use of the disposal sites is that no material shall be allowed to spill or leak from barges at any time enroute to or from the site. Therefore, there would be no water quality impacts within designated or proposed critical habitat as a result of dredged material transportation. The increase in vessel traffic (between 1 and 3 barges per day) would be insignificant.

Oakland Outer Harbor lies within the boundaries of designated Central Coast steelhead critical habitat. Temporary turbidity impacts would occur as mentioned above. The harbor would not be altered in any appreciable way from its current condition.

Operations and maintenance dredging is governed by the existing LTMS biological opinions, which allow maintenance dredging to occur in Oakland Harbor without further consultation for salmon and steelhead from June 1st to November 30th. All activities will be conducted in compliance with the biological opinion. The dredging will not extend into the window protecting salmonids since the work will commence near the beginning of August 2008 and the work will last no longer than 60 days. Therefore, we determine that the activities are not likely to adversely affect listed species and their critical habitat.

Birds: The California least tern is listed by both the state of California and the federal government as an endangered species. The least tern breeds in California from mid-May to August. Nesting sites for least terns exist at a sandy upland site at the Oakland International Airport and along the runway apron at the Alameda Naval Air Station (NAS). Least terns have been observed to forage primarily along the breakwaters and shallows of the southern shoreline of NAS Alameda and in Ballena Bay during May through August. The least tern generally migrates from the San Francisco Bay Area in August and winters south of the United States. Most, if not all of the population would have left for their wintering ground by the time dredging is scheduled to commence. No nesting habitat would be disturbed by the project.

The California brown pelican was listed as endangered in 1970. The brown pelican migrates as far north as Oregon in the warmer weather to feed and molt. Anacapa Island is the northern limit of their breeding range. Brown pelicans are common in the study area, and have been observed to forage in Oakland Harbor. These birds are likely to avoid the immediate dredging area during dredging operations, with an insignificant effect on their feeding success. The California brown pelican is a transient in the HWRP offloader project vicinity, and therefore potential impacts to this species are insignificant (USACE 1998).

The remainder of the listed birds requires salt, tidal, or freshwater marsh and upland habitat such as scrub or open range. These habitats do not occur in the project area and the candidate species would not be affected.

Mammals, Reptiles, Amphibians, Invertebrates, and Plants: The remainder of the listed species provided by NMFS and USFWS are terrestrial or fresh water organisms and are not found in a marine subtidal habitat like the project area. However, the provided list did not contain a number of listed species that occur at the SF-DODS disposal site. These include humpback, blue, fin, and sperm whales, leatherback turtle, and Steller's sea lion. As mentioned above, the dredged material plume during disposal would reduce visibility at the disposal site temporarily having a potential effect on foraging ability and food availability at the site. These listed species forage throughout the region off the central California coast, so that any temporary reduction in food supply in an area as small as the disposal site would be insignificant.

(X) Air Quality: NA In accordance with 40 CFR § 51.853(c)(2)(ix), the USACE has determined that the proposed agency action is exempt from the requirement to prepare a

conformity determination with the State Implementation Plan under the Clean Air Act because the project consists of maintenance dredging, no new depths are required, and disposal would be at approved disposal sites.

Geology and Soils

(X) Contaminants in dredge or fill material: An issue of concern may be the release of certain chemical constituents from the sediment into the water column. Dredging may resuspend contaminants if they are present in the dredged sediments. Contaminants of particular concern in various parts of the Bay include silver, copper, selenium, mercury, cadmium, polychlorinated biphenyls (PCBs), DDT and its metabolites, pesticides, polynuclear aromatic hydrocarbons (PAHs), and tributyltin. Release of dioxins, PAHs, and other contaminants could be lethal to some organisms or bioaccumulate up the food chain. However, most contaminants are tightly bound in the sediments and are not easily released during short-term resuspension (USACE 2007). Generally, disposal plumes that are generated during disposal activities are short-lived; potential release of contaminants is expected to be short-term. Disposal plume studies performed by the USACE have shown that levels of chlorinated hydrocarbons increase immediately after disposal, then return to background levels within a short period of time (less than 1.5 hours) (USACE 1976b).

In consultation with the EPA, USACE requested a Tier I Exclusion from OTM and ITM sampling and testing requirements for the O&M material to be dredged from Oakland Harbor and disposed of at HWRP and/or SF-DODS. The Tier I Exclusion is in accordance with the 5-Year Sampling and Testing Schedule that was proposed to and adopted by the DMMO agencies. A Tier I consultation involves a consideration of the history of previous sediment testing. In the past, Oakland Harbor maintenance dredged sediments have been deemed suitable for aquatic disposal.

USACE also submitted a Sampling and Analysis Plan (SAP) to the USFWS to demonstrate the suitability of Oakland Harbor O&M material for disposal at the HWRP. This plan proposes to sample and test the newly-shoaled sediment using the USFWS criteria presented in the HWRP Biological Opinion. The sediment was analyzed for metals, organics, and modified elutriate test (MET); the MET elutriates was assessed in accordance with procedures specified in the Biological Opinion.

Once the Tier I Exclusion letter and the results of the SAP have been reviewed and approved by the DMMO, the sediment test results, the Tier I Exclusion letter and the SAP will be incorporated into the final draft of this document. Although abnormal sediment test results are not expected, any dredged material deemed not suitable for placement at HWRP will be placed at an alternative site. Please see Appendix A section 8.0 for interim results and further discussion of the sediment testing report.

In November 2007, a cargo ship collided with the protective guard of a support of the Bay Bridge causing a 58,000-gallon oil spill. Based on the relatively-low density of the oil, the spilled oil was expected to have floated on the water surface rather than have submerged into the water column or sunk to the bottom. Due to the concern of the possibility that oil may have

combined with particles in the water column and sunk to the bottom, the water was tested for the presence of submerged oil. In late December 2007, USACE surveyed two 1000 ft. x 8 ft. transects along the bottom of Oakland Outer Harbor using absorbent "pom-poms" and detected no traces of oil. In early January 2008, Cal Trans used the same survey technique to look for traces of oil. Cal Trans' survey included extensive transects on the bottom of the Bay in the area of the origin of the oil spill at the Bay Bridge, and detected no traces of oil. The United Command also surveyed six areas in the vicinity of Treasure Island, Angel Island, Keil Cove, and Horseshoe Cove and found no indication of submerged oil. The United Command surveys employed "pom-poms" both dragged on the bottom and anchored in place in eel grass beds.

Other:

( ) Mineral Resources: NA

(X) Noise: NA While it is expected there would be noise generated during dredging and transportation, the noise levels would be less than existing ambient noise levels; intervening buildings and the I-880 freeway (and its associated noise barrier) would effectively serve to attenuate the noise levels between residences and dredging equipment. In addition, the large distances between the noise sources and receptors would further reduce dredging-related noise levels at these receptors. Further analysis on dredging-related noise levels can be found in the Oakland Harbor Navigation Improvement (-50 Foot) Project FEIS/EIR, which is available upon request. Noise impacts associated with the transport of material to the HWRP offloader and SF-DODS are attributable to the Oakland Outer Harbor and Entrance Channel O&M dredging project; noise impacts associated with the operation of the HWRP offloader can be found in the 1998 Final Environmental Impact Report / Environmental Impact Statement Oakland Harbor Navigation Improvement (-50 Foot) Project, (USACE 1998).

(X) Recreation (boating, fisheries, other): During the period of dredging operations, there would be minor disruptions of access and possibly right-of-way to other vessels because of the presence of project-related watercraft. There are no anticipated significant direct effects.

( ) Land use classification: NA

( ) Transportation and traffic: NA

(X) Navigation: During the period of dredging operations, and possibly transportation, there could be minor disruptions of access and possibly right-of-way to other vessels because of the presence of project-related watercraft. There are no anticipated significant direct or cumulative effects. This project would have long-term beneficial impacts to some navigation by commercial deep draft vessels.

( ) Agricultural Resources, Prime and unique farmland: NA

(X) Aesthetics/visual impact: Temporary minor impacts may result from the presence of equipment used in dredging, transportation of dredged material, and placement of dredged material and also from possible discoloration of the water due to sediment plume. The site of

dredging is used mainly for industrial shipping activities; any additional visual adverse effects would be minimal.

( ) Public facilities, utilities and services: NA

(X) Public health and safety: All federal, state, and local statutes would be followed. There are no significant impacts to health or safety in any aspect of this project.

(X) Hazardous and toxic materials: All federal, state, and local statutes would be followed. There are significant impacts that would result in risks of hazardous and toxic materials in any aspect of this project.

(X) Energy consumption or generation: All aspects of dredging operations would consume non-renewable energy. The energy consumed during all activities of this project does not create significant impacts to the environment.

(X) Cultural and historical resources, historic monuments, parks, national seashores, wild and scenic rivers, wilderness area, research sites, etc: There are no cultural or historical resources eligible or potentially-eligible for listing that the proposed project would affect.

( ) Archaeological site: NA

(X) Socio-economic: Due to existing shoaling, the Outer Harbor channel is currently experiencing some restrictions on movement of deeper draft vessels. The no-action alternative would result in further shoaling and restrictions of the type of vessel movement through the Port. The no-action alternative may ultimately have a significant socio-economic effect to some sectors of the region.

(X) Environmental Justice: The proposed project is in a largely industrial area thus not directly or indirectly affecting any group (e.g. people who rely on subsistence fishing), more than another. There are no known environmental justice issues associated with this proposed project or the project area.

(X) Growth inducing impacts - community growth, regional growth: The proposed maintenance dredging would not further induce growth.

(X) Conflict with land use plans, policies or controls: The project is consistent with land use plans. The project area has been in continuous use as is for a number of decades.

(X) Irreversible changes, irretrievable commitment of resources: There are no irreversible changes or commitments. If in the future it is decided that the authorized channel depths are no longer required, they would naturally shoal in or could be filled and restored or rehabilitated to their pre-disturbance habitat type. The proposed project is independent and does not result in irretrievable commitment of resources.

(X) Other Cumulative effects not related to the proposed action: Minor cumulative impacts are covered in the LTMS for the Placement of Dredged Material in the San Francisco Bay Region Final Policy EIS/Programmatic EIR (USACE et al. 1998) and the Final Environmental Impact Statement for Designation of a Deep Water Ocean Dredged Material Disposal Site off San Francisco, California (USEPA 1993).

1. Occurred on-site historically: The site has been subject to major disturbance in historical times, including removal of original saltmarsh and or mudflats, building and operation of port facilities, and navigation. These produced similar effects to the proposed action, including negative impacts on air quality and water quality,
2. Contextual relationship between the proposed action and (1) above: The previous activities have already diminished the original habitat functions such that future deepening and maintenance activities would not add a significant incremental cumulative impact to this project site.

5.0 Summary of indirect and cumulative effects from the proposed action

The indirect and cumulative effects from the proposed maintenance project are minimal to insignificant. The overall impacts of long term projects are to be further diminished as the goals of the LTMS are achieved.

A consideration of cumulative effects on water quality, turbidity and suspended sediments for the site to be dredged suggests that any effects caused by dredging would be possibly additional to those caused by natural resuspension due to currents and anthropogenic disturbance from navigation by deep draft vessels stirring up bottom sediments. Potential indirect effects on these parameters are minimal in light of magnitude and duration of this proposed activity.

Cumulative effects on substrate at the site of dredging include the consideration that dredging takes place regularly as well as continuous movement of ships which maintain the community at a disturbed state. In neither case are cumulative effects thought to significantly adversely affect resident biota. The cumulative effects of disposal at SF-DODS involve the consideration that other dredging projects also dispose of dredged material at this site.

( ) Other: NA

6.0 Environmental Compliance

A summary of environmental compliance is presented in Table 1 starting on the next page. Detailed compliance information, supporting reports, and environmental compliance history for this project can be found in Appendix A - Environmental Compliance.

Table 1: Summary of Environmental Compliance

Statute	Status of Compliance
National Environmental Policy Act (NEPA) of 1969 (42 USC 4341 *et seq*) Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the NEPA (40 CFR 1500-1508) dated July 1986	This EA has been prepared for continuing compliance with NEPA. All agency and public comments will be considered and evaluated. If appropriate, a FONSI will be signed with a conclusion of no significant impacts which would complete compliance with NEPA.
Clean Air Act (42 USC 7401 *et seq*)	In accordance with 40 CFR § 51.853(c)(2)(ix), the USACE has determined that the proposed agency action is exempt from the requirement to prepare a conformity determination with the State Implementation Plan under the Clean Air Act because the project consists of maintenance dredging, no new depths are required, and disposal would be at approved disposal sites.
Clean Water Act of 1972 (33 USC 1251 *et seq*) Rivers and Harbors Act of 1899 (33 USC 403) Executive Order 11990, Protection of Wetlands, (42 FR 26961, 1977)	The San Francisco Bay Regional Office of the California Water Quality Control Board (SFBRWQCB) granted water quality certification for this project as Order NO.R2-2007-0020, *Updated Waste Discharge Requirements*. This project is in compliance with the waste discharge requirements cited in this document. This document serves as compliance of the 404(b)(1) Guidelines. Compliance with RHA is accomplished by this EA. No wetlands are expected to be affected by this project.
National Oceanic and Atmospheric Administration Federal Consistency Regulation (15 CFR 930) Coastal Zone Management Act of 1972, 16 USC 1451 *et seq* California Coastal Act of 1976	USACE submitted a concurrence on a programmatic consistency determination (CD) for all in-bay maintenance dredging and disposal operations of federal navigation channels in the San Francisco Bay to the San Francisco Bay Conservation and Development Commission (BCDC). This letter was adopted as *CN 9-05* on March 29, 2007. Thus, the following is complied with: Coastal Zone Management Act of 1972 (Public Law 92-583, 86 Stat. 1280) and the National Oceanic and Atmospheric Administration (NOAA) regulation 15 CFR 930, *Federal Consistency With Approved Coastal Management Programs, As Amended*.
Endangered Species Act of 1973 (16 USC 1531, as amended)	An inventory of listed and proposed endangered and threatened species and candidate species that may occur in the project area was requested from both the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS). These inventories are provided in Appendix D. More detailed species accounts are presented in the *Final Supplemental Environmental Impact Report / Environmental Impact Statement Oakland Harbor Navigation Improvement (-50 Foot) Project) 1998.* This project is compliant with the terms and conditions established in the NMFS and FWS Biological Opinions prepared for the Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region, California issued in September 1998 and March 1999 respectively

Fish and Wildlife Coordination Act (16 USC 661-666c)	NA
Magnuson-Stevens Fishery Conservation and Management Act Fishery Conservation Amendments of 1996, (16 USC 1801 *et seq*) – Essential Fish Habitat (EFH)	A draft EFH analysis has been completed and is available upon request. The USACE is currently working with NOAA Fisheries for compliance with MSFCMA.
Migratory Bird Treaty Act (16 USC 703-711)	No impacts to migratory birds are expected
Marine Mammal Protection Act (16 USC 1361 *et seq)*	No impacts to marine mammals are expected.
National Marine Sanctuaries Act (16 USC 1431 *et seq*)	Neither the dredging nor disposal would take place in or near a Marine Sanctuary; however, transportation of dredged material would take place through the Gulf of the Farallones and Monterey Bay Marine Sanctuaries.
Marine Protection Research and Sanctuaries Act of 1972 (33 USC 1401 *et seq*) Or Ocean Dumping Ban Act of 1988 (Public Law 100-688; § 2030)	The proposed project will incorporate and adhere to restrictions relating to critical areas on the use of EPA designated SF-DODS pursuant to section 102(c) of ODA as specified in Appendix C.
National Historic Preservation Act (16 USC 470 and 36 CFR 800): Protection of Historic Properties	Per 36CFR 800.3(1), the proposed project has no potential to cause effects, and therefore the agency official has no further obligation under section 106 of the NHPA.
Executive Order 11593: Protection and Enhancement of the Cultural Environment	NA
Archaeological and Historic Preservation Act of 1974, (16 USC 469 *et seq*)	NA. None occur on site.
Abandoned Shipwreck Act of 1987, (43 USC 2101 *et seq*)	None occur on site.
Submerged Lands Act, (Public Law 82-3167; 43 USC 1301 *et seq*)	None occur on site.

7.0 Agencies Consulted and Public Notification

The notification process includes mailing a project notice to agencies and other stakeholders regarding the availability of this EA. The following agencies are listed as placeholders; a summary of the comments will be entered after the comment period has ended. A list of agencies is provided in Appendix B.

7.1 Summary of comments (See Appendix X for comments and responses)

A. Federal agencies:

1) U.S. Environmental Protection Agency (EPA Region 9)
2) U.S. Coast Guard (USCG)
3) Advisory Council – Historic Preservation
4) National Oceanic and Atmospheric Administration- National Marine Fisheries Service
5) U.S. Fish and Wildlife Service

B. State and local agencies:

1) Bay Conservation and Development Commission (BCDC)
2) California Coastal Commission (CCC)
3) State Lands Commission
4) State Historic Preservation Officer
5) San Francisco Bay Regional Water Quality Control Board Region

8.0 Mitigation Measures

Considerable information on mitigation measures is available in (1) the Long-Term Management Strategy (LTMS) EIS/EIR; (2) Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region, Management Plan; (3) site designation for SF-DODS; and (4) the Oakland Harbor Improvement (-50 Foot) Project Final Environmental Impact Statement/Environmental Impact Report. These documents are available upon request. Mitigation Measures and Special Conditions provided in the compliance permits for this project include: Order No. R2-2007-0020 Updated Waste Discharge Requirements and Rescission of Order No. R2-2003-0111 for: U.S. Army Corps of Engineers, San Francisco District Maintenance Dredging Program, 2007 through 2009; these mitigation measures are included in Appendix C.

9.0 Determinations and Statement of Findings

A Finding of no Significant Impact (FONSI) (33 CFR Part 325) is anticipated. The FONSI will be prepared after agency and stakeholder comments to this Environmental Assessment. A draft FONSI is attached.

9.1 Draft Finding Of No Significant Impact (FONSI)

Environmental Assessment
Oakland Outer Harbor Maintenance Dredging
May 2008

I. Proposed Action. The proposed action is the authorized maintenance dredging by the U.S. Army Corps of Engineers (USACE) of portions of Oakland Outer Harbor for Fiscal Year (FY) 2008. The channel would be dredged to a depth of -50 feet MLLW with two feet of allowable over depth (one paid, one non-paid), generating an estimated 150,000 cubic yards (CY) of material to be removed. The resulting dredged material will be disposed of at the Hamilton Wetland Restoration Project offloader site for placement at the Hamilton Wetland Restoration Project site. San Francisco Deep Ocean Disposal Site (SF-DODS) may be utilized as an alternative disposal site in the event the Hamilton site becomes unavailable. This project is described in the Environmental Assessment (EA) for the Oakland Outer Harbor Maintenance Dredging project, Oakland, Alameda County, California, which is incorporated herein.

II. Additional References. (1) Long-Term Management Strategy (LTMS)for the Placement of Dredged Material in the San Francisco Bay Region Policy Environmental Impact Statement (EIS)/Programmatic Environmental Impact Report (EIR); (2) Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region, Management Plan; (3) Site Designation for SF-DODS; and (4) Oakland Harbor Improvement (-50 Foot) Project Final Environmental Impact Statement/Environmental Impact Report; (5) U.S. Army Corps of Engineers. 1975. Final Composite Environmental Statement for Maintenance Dredging, Existing Navigation Projects, San Francisco Bay Region, California. USAED, San Francisco. Loose-leaf pub. n.p.

III. Factors Considered. Factors considered for this FONSI are impacts on air and water quality, fish and wildlife, endangered/threatened species and marine mammals, navigation, aesthetics, dredge soil contaminants, and commercial/recreational fisheries. In addition, indirect and cumulative impacts were addressed in the attached Environmental Assessment for this action.

4. Conclusion. Based on the information obtained in the preparation of the Environmental Assessment for this proposal, the mitigation measures identified in the document, and the associated permits, it is concluded the proposed action will not have a significant impact on the quality of the human environment. Therefore, the preparation of an Environmental Impact Statement is not required.

_____ _____

Date

Craig W. Kiley
Lieutenant Colonel, U.S. Army
Commanding

Appendix A - Environmental Compliance

Appendix A - Environmental Compliance

1.0 Project history of NEPA compliance and other associated studies

Dredging operations have been conducted in Oakland Harbor since the mid 1800s. In 1859 the Inner Harbor was opened to commerce when a sandbar was dredged from the harbor's mouth. In recent years it has become necessary to deepen the harbor to accommodate new deep draft commercial vessels. Maintenance dredging occurs on an annual basis. In 1984 the *Oakland Inner Harbor California, Deep Draft Navigation Final Feasibility and Environmental Impact Statement was* prepared by USACE. An optimum depth of -42 feet MLLW was indicated. In 1992 an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) were prepared to deepen a portion of the Oakland Inner Harbor channel from -35 feet MLLW to -38 feet MLLW. This portion of the harbor was deepened in September of 1992, removing approximately 517,000 CY of sediment. In June of 1994 the *Final Supplemental Environmental Impact Report / Environmental Impact Statement Oakland Harbor Deep Draft Navigation Improvements* was prepared by USACE and the Port Of Oakland. In May of 1995 construction began, deepening the channel to -42 feet MLLW in both the Inner and Outer Harbors. The deepening was completed in 1998. Approximately 6.7 million CY were removed with material placed at Sonoma Baylands (a marsh restoration site), SF-DODS, and an upland site. The WRDA of 1999 authorized the USACE to deepen the harbor to -50 feet MLLW to accommodate the upcoming generation of deep draft container ships. In May 1998 the *Oakland Harbor Improvement (-50 Foot) Project Final Environmental Impact Statement/Environmental Impact Report* was released. Dredging began in September 2001. Due to funding constraints, the project is continuing to be implemented. The Inner and Outer Harbors and Entrance channel were deepened to -46 ft MLLW in 2004-2005 and continue to be deepened to -50 ft MLLW through 2008. The proposed maintenance dredging would remove material which has shoaled in the Outer Harbor about -50 ft.

Maintenance dredged material from the Oakland Harbor has historically been disposed of at the Alcatraz Disposal Site (SF-11). However, as a participant in the Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS), the USACE has committed to reducing the amount of dredged material disposed of in the Bay and also to the concept of upland reuse. Hamilton Wetland Restoration Project is the upland reuse site that receives the most dredge material at this time. The Hamilton Army Airfield Wetland Restoration, Volume II: Final Environmental Impact Report/Environmental Impact Statement was released in 1998.

2.0 Endangered Species Act (ESA)

ESA compliance for the proposed project is consistent with a programmatic Biological Opinions for the San Francisco Bay Long Term Management Strategy (SF Bay LTMS) with NMFS and US FWS (available upon request). Since maintenance dredging would be complete before November 30, 2008, potential impacts to listed species would be avoided. In the event the project extends beyond this date the USACE would reinitiate consultation with NMFS and USFWS, as appropriate.

3.0 EFH Assessment

Essential Fish Habitat:

The USACE is currently coordinating a programmatic consultation under the MSFCMA under the auspices of the San Francisco Bay Long Term Management Strategy (SF Bay LTMS) for the following Fisheries Management Plans (FMP): Pacific Groundfish FMP, Coastal Pelagic FMP, and Pacific Salmon FMP. Coastal Pelagic (CP) FMP protects fishes found in all areas of activity relevant to the O&M dredging at Oakland Outer Harbor with the exception of SF-DODS. Pacific Coast Groundfish (GF) FMP protects fishes that are found at all sites of project activity. Pacific Salmon (PS) FMP covers juvenile and adult salmonids that may be migrating within the vicinity of the project action areas. The FMPs cover specific regions related to the project, such as: South-Central SF Bay, where Oakland Outer Harbor lies; San Pablo Bay, the region where the HWRP offloader site is located, and Outer Central SF Bay, which covers the area of where SF-DODS is located. The Central SF Bay region is also considered because scows are barged across the Central Bay during the transfer of the dredged material. Please see Table 1 in Appendix A for a list of species protected under the Coastal Pelagic and Pacific Coast Groundfish FMPs that may occur in the project area.

The Pacific Salmon FMP EFH includes marine, estuarine and freshwater habitat within Washington, Oregon, California and Idaho. Chinook salmon (Central Valley spring-run and Sacramento River Run chinook salmon) are the only Pacific Salmon FMP salmonid that utilize San Francisco Bay as a migratory pathway (coho salmon is believed to be extirpated) (USACE 2007).

Impacts to be considered for the EFH analysis include temporary adverse impacts on FMP species resulting in avoidance of immediate area of dredging. Impacts to EFH species of concern are those of ESA species presented above. We conclude maintenance dredging is likely to have temporary, adverse, localized effects on EFH which are more than minimal but less than substantial.

Impacts to be considered under the aspects of EFH include temporary adverse impacts on FMP species resulting in avoidance of immediate area of dredging and placement. A comprehensive EFH assessment document for the LTMS O&M projects is currently under development. USACE concludes that the maintenance dredging is likely to have temporary adverse localized effects on EFH which are more than minimal but less than substantial.

FMP	Fish Species	Region A= abundant, P= Present, F=Few, R=Rare			
		So. Central SF Bay	Central SF Bay	San Pablo Bay	Outer Central SF Bay
CP	Northern anchovy	A	A	A	
	Pacific sardine	P	R	P	
	Jack mackerel		P		
GF	English sole		A	A	
	Starry flounder	P	A	A	P
	Leopard shark	P	P	P	P

	Spiny dogfish	P	P	P	
	Brown rockfish	P	A	P	
	Cabezon	F	F	R	P
	Big skate	P	P	P	
	Soupfin shark	P	P		
	Sand sole	R	P	P	
	Lingcod	R	P	P	P
	Pacific sanddab		P		
	Pacific whiting (hake)		P	R	
GF	Kelp greenling		P		P
	Curlfin sole		P		
	Bocaccio		R		
	Yellowtail rockfish				P
	Blue rockfish				P
	Black-and-yellow rockfish				P
	Olive rockfish				P
	California scorpionfish				P
	Other Rockfish		R		

Table 1. Fish species protected under the Coastal Pelagic and Ground Fish FMPs that may occur within the vicinity of the Oakland Outer Harbor dredging or disposal activities. (Source: information for this table was gathered from the NOAA Fisheries website.)

4.0 Clean Water Act (CWA)

Section 404(b)(1) Guidelines

As defined in the regulations, the dredging activities do not result in discharge of dredged material. 33 CFR Part 323.2 (d). Portions of disposal activities would occur within the territorial seas. There are no waters of the U.S. currently at the HWRP.

Sec 401 – Water Quality Certification or Waiver

Water Quality Certification: Section 401 of the CWA requires the District Engineer to obtain State water quality certification or waiver for the discharge of dredged material in Section 404 waters. The San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) granted water quality certification for this project as Order NO. R2-2007-0020, *Updated Waste Discharge Requirements For: U.S. Army Corps Of Engineers, San Francisco District Maintenance Dredging Program, 2007 Through 2009*. This project is in compliance with the waste discharge requirements cited in this document.

5.0 Clean Air Act (CAA)

Conformity Analysis/Determination

The project consists of maintenance of dredging; no new depths are required and disposal would be at approved disposal sites. In accordance with 40 CFR § 51.853(c)(2)(ix), the proposed agency action is exempt from the requirement to prepare a conformity determination with the State Implementation Plan under the Clean Air Act because the project consists of maintenance dredging, no new depths are required, and disposal would be at approved disposal sites.

6.0 Coastal Zone Management Act (CZMA)

Determination of Consistency

USACE submitted a blanket consistency determination (CD) for all in-bay maintenance dredging and disposal operations of federal navigation channels in the San Francisco Bay to the San Francisco Bay Conservation and Development Commission (BCDC). This letter was adopted as *Amended Letter of Agreement for Consistency Determination No. CN 19-05* on March 29, 2007. The letter states that this project is consistent with the Bay Plan and no further action is required to comply with the Coastal Zone Management Act of 1972 (Public Law 92-583, 86 Stat. 1280) and the National Oceanic and Atmospheric Administration (NOAA) regulation 15 CFR 930, *Federal Consistency With Approved Coastal Management Programs, As Amended.*

7.0 Marine Protection Research and Sanctuaries Act of 1972 (Ocean Dumping Act)

Five general criteria are used in the selection and approval of ocean disposal sites for continuing use (40 CFR 228.5). First, sites must be selected to minimize interference with other activities, particularly avoiding fishery areas or major navigation areas. Second, sites must be situated such that temporary (during initial mixing)water quality perturbations caused by disposal operations would be reduced to normal ambient levels before reaching any beach, shoreline, sanctuary, or geographically limited fishery area. Third, if site designation studies show that any interim disposal site does not meet the site selection criteria, use of such site shall be terminated as soon as an alternate site can be designated. Fourth, disposal site size must be limited in order to localize for identification and control any immediate adverse impacts, and to facilitate effective monitoring for long-range effects. Fifth, EPA must, wherever feasible, designate ocean dumping sites beyond the edge of the continental shelf and where historical disposal has occurred. As described in the Final EIS, SF-DODS was specifically selected to comply with these general criteria. The SF-DODS meets these 5 general criteria. First, SF-DODS is not a significant fishery area, is not a major navigation area and otherwise has no geographically limited resource values that are not abundant in other parts of this coastal region. Second, dredged material deposited at the site is not expected to reach any significant area such as a marine sanctuary, beach, or other important natural resource area. Third, SF-DODS is not an interim disposal site. Fourth, the site has an appropriately limited size and has been selected to allow for effective monitoring. Fifth, the site is beyond the continental shelf and is located in an area historically used for dumping**.** The proposed project is in compliance with environmental impact criteria and restrictions relating to critical areas on the use of EPA designated SF-DODS pursuant to section 102(c) of ODA (See Appendix C).

8.0 Sediment Testing Evaluation

The regulations and criteria of the sediment testing program are based on the premise that a certain amount of environmental degradation or change is acceptable within the boundaries of the disposal site. The degree of change is linked to water quality criteria and limiting permissible

concentrations of the dredged material or toxic constituents below which impacts are believed to be insignificant.

In consultation with the EPA, the USACE has obtained a Tier I determination for the material to be dredged. In the past, Oakland Harbor maintenance dredged sediments have been deemed suitable for aquatic disposal; the Tier I determination was granted in consideration of this history.

The Oakland Harbor Channels sediments were analyzed to determine suitability of the material to be dredged for placement at the HWRP. See Table 2 below for a list of HWRP placement dredged material acceptance criteria. Sediment samples representative of the material proposed for dredging were analyzed for chemical, physical, and biological parameters required by the HWRP WDR R2-2005-0034 and USFWS July 20, 2005 Biological Opinion.

Based on interim reports, all bulk sediment contaminants measured in the Oakland Harbor Channels sediment composites were lower than SF Bay ambient sediment concentration values and the chemical contaminant criteria established for HWRP by the USFWS BO. Bioassay results showed that Oakland Harbor Channel sediment treatments should not be expected to elicit toxicity results in decant water discharged from the HWRP. Based on insignificant contaminant concentrations, absence of MET toxicity, and bioassay results reported (USACE 2008) for the last Oakland Harbor Channel sediment suitability assessment, all Oakland Inner and Outer Harbor Channel dredge material are not be expected to elicit adverse effects in the wetland environment at HWRP. The final report on the SAP results will be available shortly and upon request.

Table 2 HWRP Dredged Material Acceptance Criteria

Constituent	Dredged Material Acceptance Criteria
Metals	**mg/kg**
Arsenic	15.3
Cadmium	1.2
Chromium	122
Copper	68.1
Lead	43.2
Mercury	0.43
Nickel	122
Selenium	0.64
Silver	0.58
Zinc	158
Organochlorine Pesticides	**µg/kg**
DDTs, sum	7.0
Chlordanes, sum	2.3
Dieldrin	0.72
PCBs, sum	22.7
Polycyclic Aromatic Hydrocarbons (PAH)	**µg/kg**
PAHs, total	3,390

Sources: USFWS July 20, 2005; SFRWQCB 2005

Appendix B - Agency and Public Participation

Appendix B - Agency and Public Participation

1.0 Mailing Lists

California Coastal Commission
ATTN: Larry Simon
45 Fremont, Suites 1900 & 2000
San Francisco, CA 94105-2219

California Department of Fish and Game
ATTN: George Isaac
20 Lower Ragsdale Drive #100
Monterey, CA 93953

Milford Wayne Donaldson
State Historic Preservation Officer
P.O. Box 94296
Sacramento, CA 94296-0001

San Francisco Regional Water Quality Control Board
ATTN: Ms. Beth Christian
Suite 1400
1515 Clay Street
Oakland, CA 94612-1499

National Marine Fisheries Service
501 West Ocean Blvd
Long Beach, CA 90802-4213

National Marine Fisheries Service
777 Sonoma Avenue
Santa Rosa, CA 95404-4731

U.S. Environmental Protection Agency, Region IX
Dredging & Sediment Management Team
ATTN: Brian D. Ross
75 Hawthorne Street
San Francisco, CA 94105

U.S. Fish and Wildlife Service
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003

California State Lands Commission
Ms. Mary Howe

Public Land Management Specialist
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

Port of Oakland
530 Water Street
Oakland, CA 94607

California State Coastal Conservancy
1330 Broadway, 11th Floor
Oakland, CA 94612-2530

San Francisco Bay Conservation and Development Commission
50 California Street, Suite 2500
San Francisco, CA 94111

U.S. Coast Guard
Commander, 11th District
U.S. Coast Guard
Building 50-2
Coast Guard Island
Alameda, CA 94501-5100

2.0 Agency Comments

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3.0 Public Comments/Responses

Appendix C - Mitigation Measures and Standard Conditions

Appendix C – Mitigation Measures and Standard Conditions

1.0 EPA Standard Ocean Disposal Conditions for the San Francisco Deep Ocean Disposal Site

October 10, 2006

For enhanced clarity and understanding, the following updated Special Conditions combine and re-number many of the previously-published special conditions for SF-DODS. Note that the substantive provisions of EPA's 1999 rule (64 FR 141, pages 39927-39934), and EPA's most recent SMMP Implementation Manual for SF-DODS must be incorporated by reference as part of the project authorization/contract, except as the following specific provisions update them. Also note that the term "permit" as used here applies both to USACE ocean dumping permits issued under Section 103 of the MPRSA, and to contracts or other authorizations for USACE dredging projects.

Generic Ocean Disposal Special Conditions for use of the San Francisco Deep Ocean Disposal Site (SF-DODS)

1. Dredged material shall not be leaked or spilled from disposal vessels during transit to the SF-DODS. Transportation of dredged material to the SF-DODS shall only be allowed when weather and sea state conditions will not interfere with safe transportation and will not create risk of spillage, leak or other loss of dredged material in transit to the SF-DODS. No disposal vessel trips shall be initiated when the National Weather Service has issued a gale warning for local waters during the time period necessary to complete dumping operations, or when wave heights are 16 feet or greater. The permittee must consult the most current version of the SMMP Implementation Manual for additional restrictions and/or clarifications regarding other sea state parameters, including but not limited to wave period.

2. Vessels used for dredged material transportation and disposal must not be loaded beyond a level at which dredged material would be expected to be spilled in transit under anticipated sea state conditions, and in no case may disposal vessels be filled to more than 80 percent of the vessel's maximum bin or hopper volume. Before any disposal vessel departs for the SF-DODS, an independent quality control inspector ("*Independent*" means not a direct employee of the permittee or dredging contractor) must certify in writing that the vessel is not over-loaded, and otherwise meets the conditions and requirements of a Scow Certification Checklist that contains all of the substantive elements found in the example contained in the most current SMMP Implementation Manual. EPA and USACE must approve the permittees' proposed Scow Certification Checklist prior to the commencement of ocean disposal operations. No ocean disposal trip may be initiated until both the vessel captain and the independent inspector have signed all relevant entries on the Scow Certification Checklist.

3. Disposal vessels in transit to and from the SF-DODS must remain at least three nautical miles from the Farallon Islands whenever possible. Closer approaches should occur only where the designated vessel traffic lane enters the 3-mile limit. In no case should disposal vessels leave the designated vessel traffic lane within the 3-mile limit, or transit north of a

line extending westward from the termination of the designated vessel traffic lane while within the 3-mile limit.

4. Surface Disposal Zone: When dredged material is discharged within the SF-DODS, no portion of the vessel from which the materials are to be released (e.g. hopper dredge or towed barge) may be further than 1,960 feet (600 meters) from the center of the disposal site at latitude 37°39'N; longitude 123°29'W.

5. No more than one disposal vessel may be present within the SF-DODS Surface Disposal Zone at any time.

6. The primary tracking system for recording ocean disposal operations shall be disposal vessel-(e.g., scow-) based. Disposal vessels shall use an appropriate Global Positioning System (satellite) tracking system capable of indicating and recording the position of the disposal vessel with a minimum accuracy of 10 feet during all transportation and disposal operations. Draft and bin sensors must be positioned near both the forward and aft ends of the disposal vessel, and calibrated to accurately record vessel draft and load level within the bin, respectively. The primary disposal tracking system must indicate and record the position, draft, and load level within the bin of the disposal vessel throughout transit to the disposal site, during dumping and for at least one-half hour after disposal is complete, as well as indicate and record the time and location of the beginning and end of each disposal event. This primary disposal tracking system must indicate and automatically record the position, draft and load level within the bin of the disposal vessel at a maximum 5-minute interval while outside the SF-DODS disposal site boundary, and at a maximum 15-second interval while inside the SF-DODS disposal site boundary.

7. Data recorded from the primary disposal tracking system must be posted by a third party contractor on a near-real time basis to a World Wide Web (Internet) site accessible by EPA Region 9, the San Francisco District USACE, and NOAA's Gulf of the Farallones National Marine Sanctuary. The Web site must be searchable by disposal trip number and date, and at a minimum for each disposal trip it must provide a visual display of: the disposal vessel transit route to SF-DODS; the beginning and ending locations of the disposal event; and the disposal vessel draft and load level in the bin throughout the transit. The requirement for posting this information on the Web is independent from the hard-copy reporting requirements listed in Special Condition 9, below. The third-party system must also generate and distribute "e-mail alerts" regarding any degree of apparent dumping outside the Surface Disposal Zone of SF-DODS, and regarding any apparent substantial leakage/spillage or other loss of material en route to SF-DODS. Substantial leakage/spillage or other loss shall be defined as an apparent loss of draft of one foot or more between the time that the disposal vessel begins the trip to SF-DODS and the time of actual disposal. E-mail alerts for any disposal trip must be sent within 24 hours of the end of that trip to EPA Region 9, the San Francisco District USACE, the relevant National Marine Sanctuary if the event triggering the alert occurred within a Sanctuary boundary, and to other addressees as may be indicated by EPA or USACE on a project-specific basis.

8. A functioning back-up navigation system, meeting the minimum accuracy requirement listed above, must also be in place on the towing vessel (tug, if any). If the primary (disposal vessel's) navigation tracking system fails during transit, the disposal trip may continue only so long as the back-up (towing vessel's) navigation and tracking system remains operational, by placing the towing vessel in such a location that, given the compass heading and tow cable length to the scow ("lay back"), the estimated scow position would be within the surface disposal zone [i.e., within 1,960 feet (600 meters) of the center of the disposal site]. In such cases the towing vessel's position and the tow cable length and compass heading to the disposal vessel, must be recorded and reported. Further disposal operations using a disposal vessel whose navigation tracking system fails must cease until those primary capabilities are restored.

9. In addition to the requirement in Special Condition 7, above, for posting data on the Web, the permittee shall maintain daily records (using the approved Scow Certification Checklist) of: the amount of material dredged and loaded into barges for disposal; the location from which the material in each barge was dredged; the weather report for and sea-state conditions anticipated during the transit period; the time that each disposal vessel departs for, arrives at and returns from the SF-DODS; the exact location and time of each disposal; and the volume of material disposed at the SF-DODS during each disposal trip. The permittee shall also maintain, for each ocean disposal trip, both electronic data and printouts from the GPS-based primary disposal tracking system (or the backup navigation tracking system when appropriate) showing transit routes, disposal vessel draft readings, disposal coordinates, and the time and position of the disposal vessel when dumping was commenced and completed. These daily records shall be compiled at a minimum for each month during which ocean disposal operations occur, and provided in reports, certified accurate by the independent quality control inspector, to both EPA and USACE. For each ocean disposal trip, these reports shall include the electronic tracking and disposal vessel draft data on CD-ROM (or other media approved by EPA and USACE), as well as hard copy reproductions of the Scow Certification Checklists and printouts listed above. The reports shall include a cover letter describing any problems complying with the Ocean Disposal Special Conditions, the cause(s) of the problems, any steps taken to rectify the problems, and whether the problems occurred on subsequent disposal trips.

10. An independent quality control inspector ("*Independent*" means not a direct employee of the permittee or dredging contractor) shall observe all dredging operations, and inspect each disposal vessel prior to its departure for SF-DODS. The inspector shall certify (along with the disposal vessel captain) whether the specifications on the approved Scow Certification Checklist have been met. The inspector shall promptly inform the permittee whether there are any inaccuracies or discrepancies concerning this information, and shall provide a summary for the calendar month in a report to EPA and USACE by the 15th day of the following month.

11. The permittee shall report any anticipated, potential, or actual variances from compliance with the above Ocean Disposal Special Conditions, and any additional project-specific Special Conditions, to the District Engineer and the Regional Administrator within 24 hours of discovering such a situation. If any of these compliance problems occur within the

boundaries of a National Marine Sanctuary, the permittee must also report any such situation to the relevant Sanctuary office within 24 hours. An operational "e-mail alert" system, as described in Special Condition 7 above, will be considered as fulfilling this 24-hour notification requirement. In addition, the permittee shall prepare and submit a report of any such compliance problems, certified accurate by the independent quality control inspector, on a weekly basis by noon Monday, to the District Engineer and the Regional Administrator.

12. Within 60 days following the completion of ocean disposal operations, the permittee shall submit to the District Engineer and Regional Administrator a completion letter summarizing the total number of disposal trips and the overall (bin and in-situ) volume of material disposed at SF-DODS for the project, and whether any of this dredged material was excavated from outside the areas authorized for ocean disposal or was dredged deeper than authorized by the permit.

2.0 Water Board Order No. R2-2007-0020, U. S. Army Corps of Engineers Maintenance Dredging 2007-2009

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder and to the provisions of the Federal Water Pollution Control Act, as amended, and regulations and guidelines adopted thereunder, that the USACE shall comply with the following:

A. RECEIVING WATER LIMITATIONS

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

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

3. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:
a. Dissolved Oxygen:
5.0 mg/l minimum downstream of the Carquinez Bridge, 7.0 mg/l minimum upstream of the Carquinez Bridge. When natural factors cause lesser concentrations, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
b. Dissolved
Sulfide:

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

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

B. PROVISIONS
Project and Project Changes

1. This Order authorizes:
a. At the San Francisco Bar Channel - Dredging of up to 2.8 million cubic yards and disposal of the dredged material at SF-08 or the Ocean Beach nourishment demonstration project.
b. Within San Francisco Bay - Dredging of up to 12 million cy of dredged material and disposal of up to 5.4 million cubic yards at the in-Bay disposal sites (assuming maximum dredging volumes and least-preferred disposal options). Disposal of dredged material may also occur at the Deep Ocean Disposal Site, beyond the jurisdiction of the Water Board. Disposal of dredged material at beneficial reuse locations within the Water Board's jurisdiction is regulated through site-specific Water Board orders for each location.

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

Dredging and Disposal Operations

3. Dredging at each project location shall be limited to the project depth with no more than two feet of over-dredge allowance.

4. No overflow shall be discharged from any barge, with the exception of spillage incidental to clamshell dredge operations.

5. Return water overflow from hopper-type suction dredges shall be limited to no longer than 15 minutes at the dredge site during any one excavation action (cut).

6. Dredging shall not occur during the Pacific herring spawning season (December 1 through March 1) in spawning areas (Figure 3) unless otherwise authorized in writing by the California Department of Fish and Game.

7. Dredging and disposal activities shall be limited to the work windows set out by the California Department of Fish and Game, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service in their Biological Opinions on the LTMS, unless through a consultation process, the appropriate agencies provide written authorization to work outside these windows.

8. Discharges of dredged material shall comply with annual and seasonal volume target limits for disposal at in-Bay sites listed in Table 2 of this Order.

Episode approval

9. Individual dredging and disposal episodes, including knockdown events, shall not commence until authorized by Water Board staff following review by the DMMO. The review process for individual dredging episodes shall occur through the DMMO by the same process as is used for other Bay Area dredging projects. Project descriptions, requests for dredged material suitability determinations, and evaluations of disposal alternatives (see Provision 10, below) shall be reviewed by the DMMO. Submittals to the DMMO shall be made no later than one week prior to the meeting at which the project will be discussed or else the information will not be considered. The USACE shall follow applicable federal and state guidance on a tiered testing framework and on the preparation of reports.

10. For each dredging episode where in-Bay disposal is proposed, the USACE shall, as part of the episode approval process, submit to the DMMO an evaluation of alternative disposal sites pursuant to Section 404(b)(1) of the Clean Water Act. Evaluations shall include analyses of the feasibility of the following disposal options:

a. Habitat Restoration: The USACE shall evaluate the feasibility of placing dredged material at habitat restoration sites within the San Francisco Bay region and take dredged material to those sites where it is feasible. The USACE shall make good faith efforts to coordinate with habitat restoration projects that are seeking dredged material.

b. Levee Restoration: The USACE shall evaluate the feasibility of placing the dredged material in question at levee restoration sites within the San Francisco Bay region and take dredged material to those sites where it is feasible. The USACE shall make good faith efforts to coordinate with levee restoration projects that are seeking dredged material.

c. Beneficial Reuse and Rehandling Sites: The USACE shall evaluate the feasibility of placing the dredged material in question at beneficial reuse sites and dredged material rehandling sites within the San Francisco Bay region and take dredged material to those sites where it is feasible.

d. Ocean Disposal: The USACE shall evaluate the feasibility of placing the dredged material at SF-DODS.

e. Coordination with other USACE Projects: The USACE shall evaluate the feasibility of combining disposal of dredged material with that from other USACE projects using ocean

disposal or beneficial reuse when both projects will occur at similar times or locations, or will be performed by the same contractor.

Beneficial Reuse Coordination
11. The USACE shall make good faith efforts to coordinate with and, if appropriate, to enter into agreement(s) with the state Department of Water Resources, the State Coastal Conservancy, and other local sponsors, as necessary, in order to facilitate the placement of dredged material at beneficial reuse sites.

Management and Monitoring of in-Bay Disposal of Dredged Material
12. The USACE shall maintain administrative controls on disposal volumes at the in-Bay disposal sites so that target volumes in Table 2 of this Order are not exceeded. The USACE shall manage overall disposal volumes and disposal locations within each site to prevent build-up of dredged material at the sites.

13. The USACE shall provide technical reports regarding the impacts of the discharge on waters of the State, pursuant to Section 13267 of the California Water Code (CWC). In previous years, the USACE has participated in the Regional Monitoring Program for Trace Substances (RMP) through support of the United States Geological Survey (USGS) for study of suspended sediment processes in the San Francisco Estuary. Implementation or funding of the RMP study program or other Water Board-approved study will constitute fulfillment of this provision.

14. The USACE shall provide to Water Board staff quarterly reports, acceptable to the Executive Officer, summarizing dredging and disposal activities in the San Francisco Bay region. The reports are due on June 1 (covering January 1 -March 31), September 1 (covering April 1 - June 30), December 1 (covering July 1 - September 30), and March 1 (covering October 1 - December 31) of each year.
The quarterly report shall contain the following information for each dredging project: name of project, dates dredged, volume of dredged and disposed (”insitu” volume where available, otherwise “bin” volume), disposal site(s) used, and name of any affiliated dredging permit holders (permittees). In addition to the printed version of the Quarterly Report, the USACE shall provide a digital version of the relevant data to the Water Board staff to facilitate ongoing evaluation of the impacts of dredging and dredged material disposal.
At any time, the USACE may submit a request in writing to the Executive Officer to discontinue submitting quarterly reports if it can demonstrate that the data listed above is immediately accessible to Water Board staff in electronic format via the web-based DMMO data management system (database) discussed in Finding 20. The USACE may discontinue submitting the reports upon receiving the Executive Officer’s written approval.

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

16. No later than July 1 of each year, the USACE shall submit to the Water Board an annual report acceptable to the Executive Officer (the Alcatraz Trend Study) analyzing the status of the mound at the Alcatraz Disposal site. This report shall include:
a. A description of results of previous year's bathymetric surveys and a description of 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 Mean lower Low Water;
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 items d and e, above.

Standard Provisions
17. The discharge of dredged material to the waters of the States shall cease immediately whenever violations of the Order are detected by the USACE or by Board staff as determined by the Executive Officer, and the discharge shall not resume until compliance can be assured to the Executive Officer's satisfaction.

18. The USACE shall permit the Water Board or its authorized representative in accordance with California Water Code Section 13267(c) as follows:
a. Entry upon premises in which any required records are kept.
b. Access to copy any records required to be kept under terms and conditions of this order.
c. Inspection of monitoring equipment or records.
d. Sampling of any discharge.
e. Provide small craft transport to offshore locations or vessels for the purpose of inspection, provided that it is within normal business hours.

19. This Order supersedes Order No. R2-2003-0311. Order R2-2003-0111 is hereby rescinded.

3.0 Letter of Agreement for Consistency Determination NO. CN 9-05

U. S. Army Corps of Engineers, San Francisco District
Issued on March 28, 2007

II. Special Conditions.

If the USACE does not agree with the following conditions or fails to incorporate them into the project, 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 K to the project depths for each channel as listed in the authorization section plus two feet allowable over-dredge depth. No dredging in other areas is authorized.

B. **Water Quality Approval.** At least thirty days prior to the commencement of any dredging episode authorized herein, the USACE shall submit to the Executive Director 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 USACE agrees to amend this authorization in a manner specified by or on behalf of the Commission, this consistency determination shall become null and void.

C. **Barge Overflow.** For clamshell dredging operations, no overflow shall be discharged from any barge, with the exception of incidental spillage. In hopper suction dredging, return water overflow is limited to 15 minutes at the dredge site during any single excavation action.

D. **Annual Schedule.** No later than November 30th of each year, the USACE shall provide the DMMO agencies a schedule of the projects confirmed for execution in the following calendar year. If a project receives funding after November 30th of any year, the USACE shall provide a project description and schedule to the DMMO agencies within two weeks of receiving funding.

E. **Dredging and Disposal Activity.**

1. **In-Bay Disposal Volumes.** In the event that beneficial reuse sites, upland or the deep ocean disposal sites are not available or feasible, in-Bay disposal of dredged sediments shall not exceed the monthly or annual disposal targets set forth in the LTMS Management Plan, or state regulations. The USACE shall also give consideration to other dredging projects using in-Bay disposal sites when planning the disposal of sediment from federal projects.

2. **Pre- Dredging and Disposal Report and Notice.** At least thirty days before the commencement of any dredging and disposal episode authorized herein, the USACE shall submit to the Commission's Executive Director:

   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 the scheduled date of commencement of any dredging episode, the USACE shall notify the Commission staff by telephone or in writing or, if the date of commencement changes, provide an updated schedule; and

b. A written statement to the Executive Director that contains: (1) the proposed beneficial or upland disposal site and quantity of material to be disposed; (2) dates within which the disposal episode is proposed; (3) the results of chemical and biological testing of sediment proposed for reuse or disposal. If the USACE proposes to dispose of the material in-Bay, then an evaluation of alternative disposal sites shall be provided to the Commission. This evaluation should analyze the feasibility of all reuse or disposal options including habitat restoration, levee restoration,

beneficial reuse, rehandling sites, and ocean disposal. The analysis should equitably compare the total cost to the Government of using Montezuma Wetlands and all other available beneficial reuse and upland disposal sites.

3. **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 writing 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; or (2) does not respond to the USACE pre-disposal report 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 shall be terminated.

4. **Post-Dredging Requirements.** Within sixty days of completion of each dredging episode authorized by this consistency determination, 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 from each channel and disposed, and the disposal location.

F. **Knockdown Dredging.** The knockdown episodes proposed in this consistency determination must meet the following conditions: (1) the shoal must be located within the maintenance dredging footprint for 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 individual shoal to be knocked down must be no greater than 3,000 cy; (4) the USACE must use either a clamshell or towed I-beam to knock down the shoal into the depression; (5) each knockdown episode must be conducted to minimize the re-suspension of sediment; (6) the knockdown material must meet chemical and biological criteria specified by Water Board and/or BCDC before being knocked down; and (7) the USACE must meet the knockdown dredging episode notification requirements in Special Condition G.

G. **Knockdown Dredging Episode Notification.**

1. **Prior Notice of Knockdown Episode.** The USACE shall notify the staff by telephone or in writing at least seven days prior to undertaking any knockdown episode. At this time, the USACE must also confer with BCDC and the Regional Water Board as to whether any testing for this knockdown material is required, and must submit a description of the project and a pre-dredge bathymetric survey of the knockdown area.

2. **Approval of Knockdown Episode.** Approval (by letter or email) by the Commission's staff authorizing each individual knockdown episode will be required before a knockdown episode may commence. Please be advised that consultation and subsequent approval may be required from appropriate resource agencies before a knockdown episode may commence if the knockdown episode falls outside the LTMS environmental work windows.

3. **Knockdown Episode Report.** Within thirty days of completion of each knockdown dredging episode authorized by this consistency determination, the USACE shall submit to the Commission a report which contains: (1) a post-dredge bathymetric survey showing (a) the location of all areas authorized to be knocked-down and the authorized depth based on MLLW,

and (b) the actual areas, and the depth after completion of the knockdown episode based on MLLW, and any knockdown activity that occurred outside the area authorized to be knocked-down or below the authorized depths; and (2) the actual volume of the material relocated in the knockdown episode.

4. **Knockdown Study**. If the knockdown episode is larger than 5,000 cy, a plume study will be required, unless and until sufficient information is provided to the Commission staff regarding the potential impact of knockdown episodes. The USACE shall provide the plume study results and analysis to the Commission staff no later than ninety days after the knockdown episode has concluded.

H. **Seasonal Limitations.** Dredging and disposal operations shall be confined 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. No work inconsistent with the time and location limits contained in these tables may be conducted without the approval of the Executive Director. Such approval may only be issued after: (1) consultation with the US. Fish and Wildlife Service and/or NOAA Fisheries have occurred; and (2) the Executive Director has determined that dredging and disposal outside of the work window would be consistent with the Commission's laws and policies.

To protect the Pacific herring fishery, no dredging shall occur between December 1st and February 28th of any year without the written approval of the Executive Director, provided that such approval may only be issued: (1) after the USACE representative requests from the California Department of Fish and Game that they be allowed to dredge outside of the work window, discussions between the USACE and the Department of Fish and Game has occurred and the outcome of those discussions has been provided to the Commission staff; and (2) the Executive Director has determined that dredging and disposal outside of the work window would be consistent with the Commission's laws and policies.

I. **Environmental Assessment.** At least thirty days prior to the commencement of any dredging episode authorized herein, the USACE shall submit to the Executive Director the project description and Environmental Analysis as described in the statement of consistency.

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

1. **Quarterly Reports.** The USACE shall provide to the Commission staff quarterly reports, acceptable to the Executive Director, summarizing dredging and disposal activities in San Francisco Bay Region. The reports are due on June 1st (covering January 1st through March 31st), September 1st (covering April 1st through June 30th), December 1st (covering July 1st through September 30th), and March 1st (covering October 1st through December 31st) of each year. The USACE shall also provide the quarterly reports not provided from January 1st 2004 through December 31st 2006 no later than September 30, 2007. The quarterly reports shall include the following information for each dredging project: (1) project name; (2) dates dredged; (3) volume dredged and disposed ("in-situ" volumes when available, if not available "bin" volumes); (4)

disposal sites used; and (5) the name of any affiliated permittees. The USACE shall also provide, upon request, digital information regarding the above describe dredging projects.

At any time, the USACE may submit a written request to the Executive Director to discontinue submitting quarterly reports if it can demonstrate that the data listed above is immediately accessible to the Commission staff in electronic format via the Web-based DMMO data management system (database).

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

3. No later than July 1st of each year, the USACE shall provide to the Commission an annual report acceptable to the Executive Director, analyzing the status of the mount 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.

g.

K. **Observation of Dredging and Disposal Operations.** The USACE 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.

Appendix D - Species Lists

Appendix D - Species Lists

1.0 National Oceanic Atmospheric Administration Fisheries Service

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
777 Sonoma Ave., Room 325
Santa Rosa, CA 95404-4731

April 25, 2008

In response refer to:
SWR/F/SWR3:GS

Allison Bremner
Environmental Section A
U.S. Department of the Army
San Francisco District, Corps of Engineers
1455 Market Street
San Francisco, California 94103-1398

Dear Ms. Bremner:

Thank you for your phone message of April 17, 2008, regarding the presence of Federally listed (or proposed for listing) threatened or endangered species or critical habitat that may be affected by the U.S. Army Corps of Engineer's (Corps) proposed dredging of the Port of Oakland's outer harbor, located in south San Francisco Bay, California. Disposal of the dredged material will occur at the San Francisco Deep Ocean Disposal Site, located 50 miles off the coast, and at the Hamilton upland disposal site, located adjacent to San Pablo Bay.

Available information indicates that the following listed species (Evolutionarily Significant Units [ESU] or Distinct Population Segments [DPS]) and designated critical habitat may occur at, or en route to, these sites:

Sacramento River winter-run Chinook salmon ESU (*Oncorhynchus tshawytscha*)
endangered (June 28, 2005, 70 FR 37160)
critical habitat (June 16, 1993, 58 FR 33212)
Central Valley spring-run Chinook salmon ESU (*Oncorhynchus tshawytscha*)
threatened (June 28, 2005, 70 FR 37160)
Central Valley steelhead DPS (*Oncorhynchus mykiss*)
threatened (January 5, 2006, 71 FR 834)
Central California Coast steelhead DPS (*Oncorhynchus mykiss*)
threatened (January 5, 2006, 71 FR 834) (in Novato Creek and Petaluma River)
critical habitat (September 2, 2005, 70 FR 52488)
North American green sturgeon southern DPS (*Acipenser medirostris*)
threatened (April 7, 2006, 71 FR 17757)

The U.S. Fish and Wildlife Service (USFWS) may also have listed species or critical habitat under its jurisdiction in the project area. Please contact Mr. Harry Mossman at USFWS, 2800

Cottage Way, W-2605, Sacramento, California 95825, or (916) 414-6600, regarding the presence of listed species or critical habitat under USFWS jurisdiction that might be affected by your project.

The project site is located within an area identified as Essential Fish Habitat (EFH) for various life stages of fish species managed with the following Fishery Management Plans (FMP) under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA):

Pacific Groundfish FMP - rockfish, starry flounder, leopard shark, lingcod, *etc.*
Coastal Pelagics FMP - northern anchovy, Pacific sardine
Pacific Coast Salmon FMP - Chinook salmon

Amendments to the MSFCMA in 1996 require Federal agencies to consult with NOAA's National Marine Fisheries Service (NMFS) regarding any action or proposed action that may adversely affect EFH for Federally-managed fish species. For more information on EFH, see our website at "http://swr.nmfs.noaa.gov".

If you have questions concerning these comments, please contact David Woodbury at (707) 575-6088.

Sincerely,

Dick Butler
Santa Rosa Area Office Supervisor
Protected Resources Division

cc: Korie Schaeffer, NMFS, Santa Rosa

2.0 United States Fish and Wildlife Service

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

March 27, 2008

Document Number: 080327125100

Allison Bremner
US Army Corps of Engineers, CESPN-ET-PA
1455 Market Street, 15th Floor
San Francisco, CA 94103

Subject: Species List for Oakland Harbor O&M Dredging

Dear: Ms. Bremner

We are sending this official species list in response to your March 27, 2008 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be June 25, 2008.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 080327125100

Database Last Updated: January 31, 2008

Quad Lists

Listed Species

Invertebrates

- Haliotis sorenseni
  - white abalone (E) (NMFS)
- Icaricia icarioides missionensis
  - mission blue butterfly (E)
- Incisalia mossii bayensis
  - San Bruno elfin butterfly (E)
- Syncaris pacifica
  - California freshwater shrimp (E)

Fish

- Acipenser medirostris
  - green sturgeon (T) (NMFS)
- Eucyclogobius newberryi
  - critical habitat, tidewater goby (X)
  - tidewater goby (E)
- Hypomesus transpacificus
  - delta smelt (T)
- Oncorhynchus kisutch

- coho salmon - central CA coast (E) (NMFS)
- Critical habitat, coho salmon - central CA coast (X) (NMFS)

- Oncorhynchus mykiss
  - Central California Coastal steelhead (T) (NMFS)
  - Central Valley steelhead (T) (NMFS)
  - Critical habitat, Central California coastal steelhead (X) (NMFS)
  - Critical habitat, Central Valley steelhead (X) (NMFS)

- Oncorhynchus tshawytscha
  - California coastal chinook salmon (T) (NMFS)
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - Critical habitat, winter-run chinook salmon (X) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Rana aurora draytonii
  - California red-legged frog (T)

Reptiles

- Caretta caretta
  - loggerhead turtle (T) (NMFS)

- Chelonia mydas (incl. agassizi)
  - green turtle (T) (NMFS)

- Dermochelys coriacea
  - leatherback turtle (E) (NMFS)

- Lepidochelys olivacea
  - olive (=Pacific) ridley sea turtle (T) (NMFS)

- Masticophis lateralis euryxanthus
  - Alameda whipsnake [=striped racer] (T)

Birds

- Brachyramphus marmoratus
  - Critical habitat, marbled murrelet (X)
  - marbled murrelet (T)

- Charadrius alexandrinus nivosus
  - western snowy plover (T)

- Diomedea albatrus

    - short-tailed albatross (E)

- Pelecanus occidentalis californicus
    - California brown pelican (E)

- Rallus longirostris obsoletus
    - California clapper rail (E)

- Sternula antillarum (=Sterna, =albifrons) browni
    - California least tern (E)

- Strix occidentalis caurina
    - northern spotted owl (T)

Mammals

- Arctocephalus townsendi
    - Guadalupe fur seal (T) (NMFS)

- Balaenoptera borealis
    - sei whale (E) (NMFS)

- Balaenoptera musculus
    - blue whale (E) (NMFS)

- Balaenoptera physalus
    - finback (=fin) whale (E) (NMFS)

- Enhydra lutris nereis
    - southern sea otter (T)

- Eubalaena (=Balaena) glacialis
    - right whale (E) (NMFS)

- Eumetopias jubatus
    - Critical Habitat, Steller (=northern) sea-lion (X) (NMFS)
    - Steller (=northern) sea-lion (T) (NMFS)

- Physeter catodon (=macrocephalus)
    - sperm whale (E) (NMFS)

- Reithrodontomys raviventris
    - salt marsh harvest mouse (E)

Plants

- Arctostaphylos hookeri ssp. ravenii
    - Presidio (=Raven's) manzanita (E)

- Calochortus tiburonensis
    - Tiburon mariposa lily (T)

- Castilleja affinis ssp. neglecta
    - Tiburon paintbrush (E)

- Clarkia franciscana
    - Presidio clarkia (E)

- Hesperolinon congestum
    - Marin dwarf-flax (=western flax) (T)

- Lessingia germanorum
    - San Francisco lessingia (E)

- Streptanthus niger
    - Tiburon jewelflower (E)

Candidate Species

Invertebrates

- Haliotis cracherodii
    - black abalone (C) (NMFS)

Quads Containing Listed, Proposed or Candidate Species:

SAN QUENTIN (466B)

SAN FRANCISCO NORTH (466C)

OAKLAND WEST (466D)

POINT BONITA (467D)

PETALUMA POINT (483C)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Appendix E - Acronyms

Appendix E – Acronyms

ACHP.....Advisory Council on Historic Preservation
APE.....Area of Potential Effects
ASBS.....Area of Special Biological Significance
CAA.....Clean Air Act
CCC.....California Coastal Commission
CCMP .....California Coastal Management Program
CEQ.....Council on Environmental Quality
CWA.....Clean Water Act
CY.....Cubic yards
CZMA.....Coastal Zone Management Act
EA .....Environmental Assessment
EFH.....Essential Fish Habitat
EIS.....Environmental Impact Statement
EPA.....Environmental Protection Agency
ESA.....Endangered Species Act
FMP.....Fishery Management Plan
FONSI.....Finding of No Significant Impact
FWCA.....Fish and Wildlife Coordination Act
FWS .....U.S. Fish and Wildlife Service
FY .....Fiscal year
HHW.....Higher High Water
HLW .....Higher Low Water
LCP .....Local Coastal Program
LHW .....Lower High Water
LLW.....Lower Low Water
MLLW .....Mean Lower Low Water
MMPA .....Marine Mammal Protection Act
MET.....Modified Elutriate Test
NAAQS.....National Ambient Air Quality Standards
NEPA.....National Environmental Policy Act
NHPA.....National Historic Preservation Act
NMFS.....National Marine Fisheries Service
NOAA.....National Oceanographic and Atmospheric Administration
O&M.....Operations and Maintenance
PL.....Public law
SHPO .....State Historic Preservation Officer
SPN…….San Francisco District
USACE .....U.S. Army Corps of Engineers
WDR .....Waste Discharge Requirement

Appendix F – References

Appendix F – References

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