



# LONG TERM MANAGEMENT STRATEGY

## Dredged Material Management Office (DMMO) Report of Dredging and Placement of Dredged Material in San Francisco Bay in 2010



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in San Francisco Bay in 2010  
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# **DMMO Report of Dredging and Placement of Dredged Material in San Francisco Bay in 2010**

## **I. Introduction**

Since 1996, the Dredged Material Management Office (DMMO) has been promoting economically and environmentally sound management of navigation by reviewing and making recommendations on dredging and dredged material placement projects in the San Francisco Bay region. Each year, the DMMO compiles and analyzes data on these projects, including sediment quality and compliance with environmental windows, and provides this information to the public. In addition, DMMO data is used to track success in meeting the placement volume targets set forth in the Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS) Program for individual aquatic placement sites and the San Francisco Bay region as a whole.

## **II. Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region Program Description**

In 1990, due to concerns regarding mounding of dredged material at the main placement site, near Alcatraz Island, and potential impacts from dredging and dredged material placement to water quality, wildlife, and uses of the Bay, the San Francisco Bay Conservation and Development Commission (BCDC), the San Francisco Bay Regional Water Quality Control Board (RWQCB), the San Francisco District of the U.S. Army USACE of Engineers (USACE or USACE), the U.S. Environmental Protection Agency (EPA) and the State Lands Commission (SLC), created the LTMS program. The LTMS has four main goals:

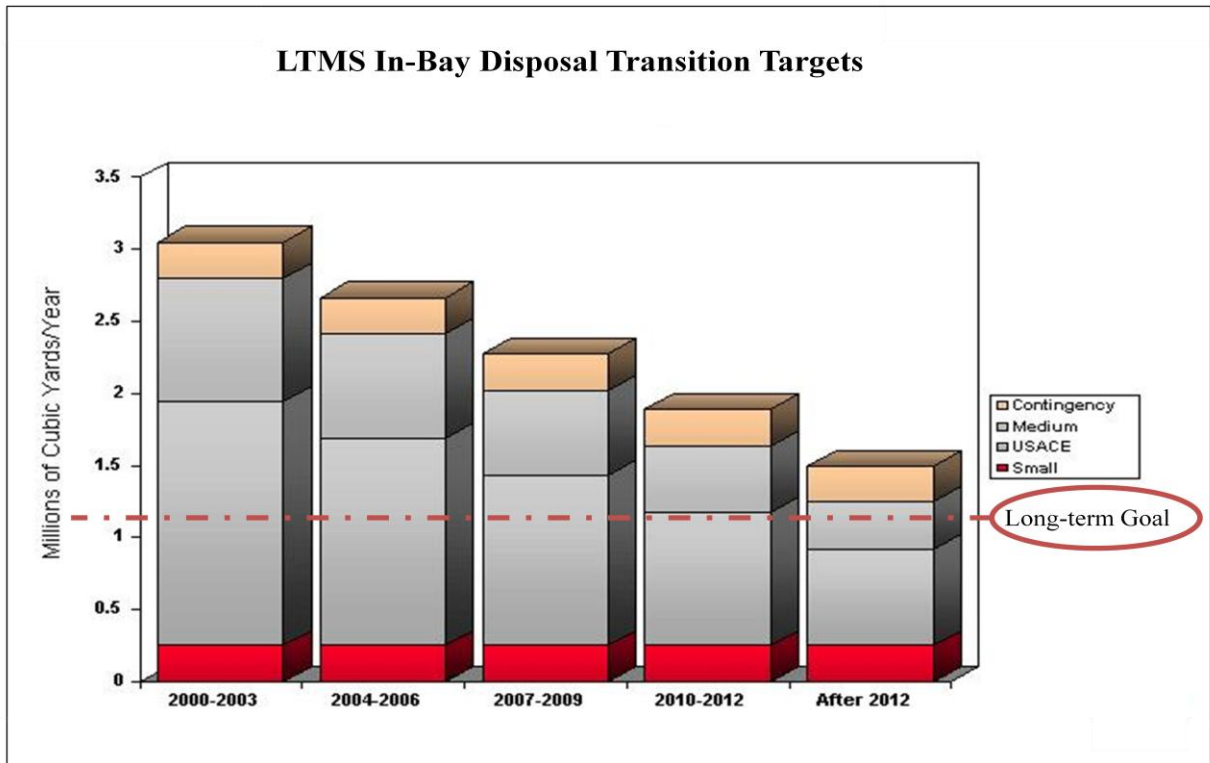
- In an economically and environmentally sound manner, maintain those channels necessary for navigation in the San Francisco Bay and Estuary and eliminate unnecessary dredging activities in the Bay and Estuary;
- Conduct dredged material placement in the most environmentally sound manner;
- Maximize the use of dredged material as a resource; and
- Establish a cooperative permitting framework for dredging and placement applications.

During the 1990's, the LTMS agencies analyzed the potential environmental impacts of dredging and disposal of dredged material from federal navigation channels, ports, refineries, marinas and privately owned docks; conducted demonstration projects; designated a new San Francisco Deep Ocean Disposal Site (SF-DODS); and proposed an LTMS Management Plan. In 2000, the LTMS agencies adopted the LTMS Management Plan to reduce in-Bay placement of dredged material and to maximize the beneficial reuse of dredged material. Beneficial reuse includes constructing wetland restoration projects in areas that had been historically diked-off from the Bay and subsided, such as the Hamilton and Montezuma Wetland Restoration Projects; levee repair in areas such as the Delta; and use as construction fill where appropriate.

### III. LTMS Transition

The 2001 LTMS Management Plan established a 12-year “glide path” for achieving the overall goal of reducing in-Bay disposal to approximately 1.25 million cubic yards (mcy) per year. Every three years, annual in-Bay disposal volume targets are reduced by approximately 387,500 cubic yards (cy) in order to meet this goal (Figure 1). If the average annual disposal volume for any three-year period exceeds the target, the agencies may impose mandatory volume allocations for individual dredging projects to ensure that the annual disposal limits will be met in the future. The intent of the LTMS program, in cooperation with the dredging community, is to develop sufficient beneficial reuse opportunities to enable the region to “beat” the disposal targets for each period and avoid the imposition of allocations. The LTMS Management Plan set a goal of achieving a minimum of 40 percent beneficial reuse and a maximum of 20 percent in-Bay disposal, with the remainder of the material going to the ocean. In order to ensure the effectiveness of the program in meeting its goals, a programmatic review occurs every three years. In addition to the three-year programmatic review, the DMMO conducts a six-year review involving the consideration of policy amendments, if necessary.

**Figure 1. LTMS In-Bay Disposal Transition Targets**



During the last “step-down” period from 2007 to 2009, the overall in-Bay disposal volume target of approximately 2.03 mcy was met each year. In 2007, 2008 and 2009, approximately 1.25, 1.51, and 1.1 million cubic yards, respectively, of sediment dredged from the LTMS program area was disposed at the four in-Bay disposal sites meeting the volume targets for this time period. 2010 marked the beginning of the next “step-down” permit. The in-Bay disposal volume target is 1.64 mcy per year for 2010 through 2012.

#### **IV. Dredged Material Management Office (DMMO)**

The DMMO was created as part of the LTMS program to provide a “one-stop shop” for processing applications for dredging and disposal projects in the San Francisco Bay region. Each LTMS agency provides personnel to help staff the DMMO. Also participating are representatives of the California Department of Fish and Game (DFG), the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA Fisheries or NMFS), and the U.S. Fish and Wildlife Service (FWS), who provide expertise and technical advice on potential biological impacts of proposed projects. The DMMO has five main tasks:

- Review sediment quality sampling and analysis plans;
- Analyze the results of sediment quality tests;
- Make suitability determinations for disposal;
- Review permit applications for dredging projects proposed for disposal in San Francisco Bay, the SF-DODS, and beneficial reuse sites; and
- Maintain current sediment contaminant testing protocols and provide testing guidance for dredging applicants and consultants;

Applicants use a consolidated DMMO permit application for dredging projects, and the agencies jointly review the applications and sediment data at public bi-weekly meetings before issuing their respective permits and authorizations.

The goal of this interagency group is to increase efficiency and coordination between the member agencies and to foster a comprehensive and consolidated approach to handling dredged material management issues. The DMMO also manages and tracks dredging and disposal projects in the region.

#### **V. 2010 Dredging Projects**

In San Francisco Bay, the majority of the approved dredging projects are considered maintenance projects because they are dredged to maintain the facilities’ design depth and the dredging area footprint. New-work projects either deepen an area that was previously maintained at a shallower depth or are areas that are dredged for the first time (including expansion of a previously dredged area). In addition, some projects have not been maintained for such a long period of time that they are considered new-work projects due to potential consolidation of the sediments in that area. In 2010, 28 of the projects involved just maintenance dredging and two were new work dredging projects. The new work dredging projects were Brickyard Cove Homeowners and the Port of Oakland Deepening projects. Appendix 1 summarizes the volume dredged and the disposal location for all of the dredging projects that occurred in 2010. To understand other beneficial reuse projects completed by USACE in the region but not within the LTMS boundary, Appendix 1 includes volumes for the San Francisco Main Ship Channel (MSC). However, because the MSC is not located within the LTMS program area, it is not included in the evaluation of progress toward meeting the LTMS goals.

In 2010, approximately 2 million cy of sediment, based on in-situ volumes, was dredged in San Francisco Bay, including both maintenance (1,973,962 cy) and new-work (31,643 cy) dredging projects. Table 1 shows that approximately 56.8% of the material dredged within San Francisco Bay was disposed at the in-Bay disposal sites, 13.5% at the deep ocean disposal site, and 29.7% at beneficial reuse or upland sites. Although the volume of material going to in-Bay disposal sites in 2010 was above the LTMS target of 40% in-Bay disposal, it is below the volumetric target of 1.64 mcy in-Bay disposal. The target volume percentages are based on a

3-year average over the LTMS step-down period. The current step-down period is 2010-2012, so this report covers only the first year of the 3-year step-down period. Each additional year will be evaluated to determine whether the program is on track to meet the goals, and approved disposal volumes will be adjusted accordingly.

The percentage of in-Bay disposal was higher in 2010 primarily because the Port of Oakland Deepening Project, which beneficially reused the majority of its dredged material, was near completion in the 2009 dredging season. The Hamilton Restoration Project was also near capacity in 2010 and additional beneficial reuse sites were either not available or did not have an offloading equipment in place. Therefore, beneficial reuse was a limited option in 2010.

**Table 1. 2010 Disposal by Location for All Dredging Projects within the LTMS Program**

Disposal Location	Volume (cubic yards)
Reuse/Upland	595,145 (29.7%)
Deep Ocean Disposal Site	270,680 (13.5%)
In-Bay Disposal Sites	1,139,780 (56.8%)
<b>TOTAL</b>	<b>2,005,605</b>

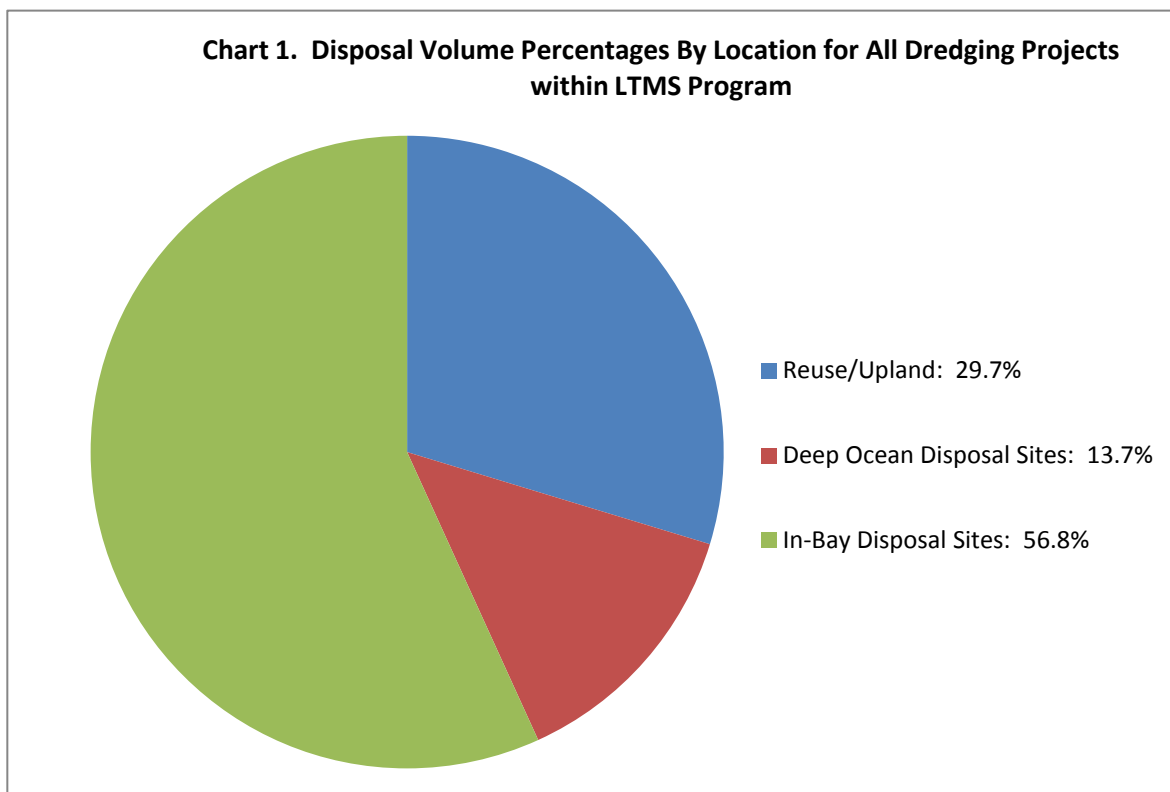
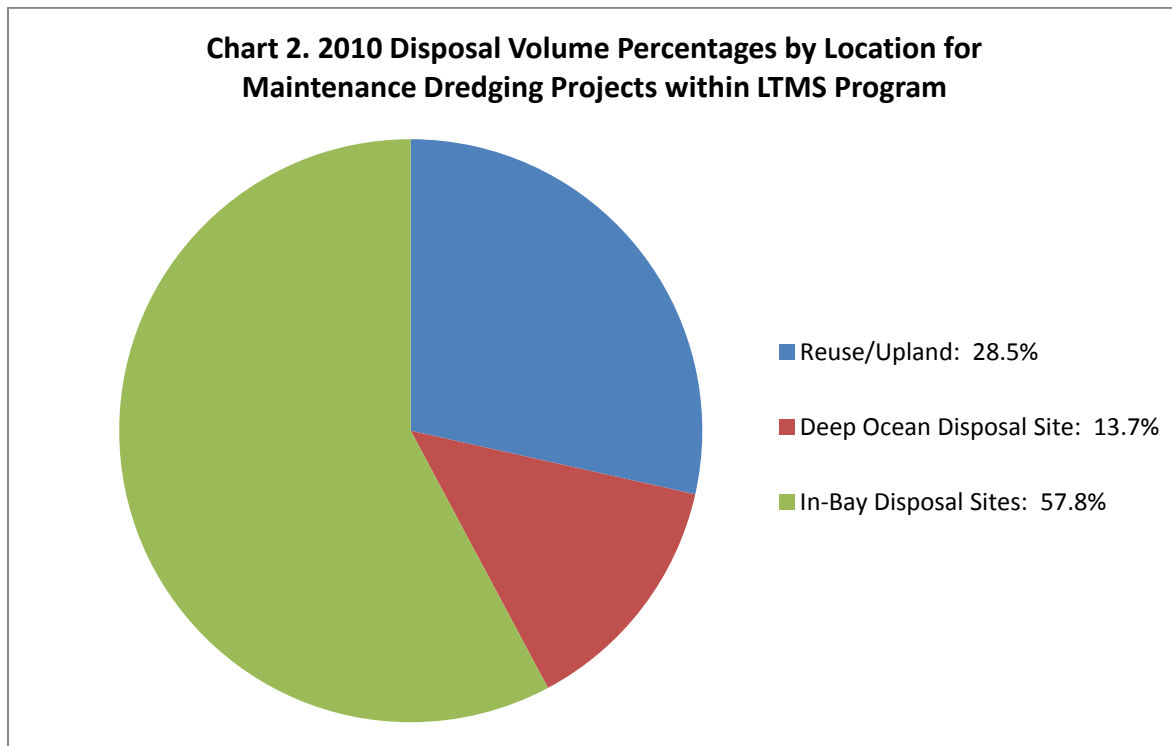


Table 2 shows the volume breakdown for just the LTMS maintenance dredging projects completed in 2010. Without the new-work projects, approximately 57.8% of the material was disposed of at the in-Bay disposal sites, 13.7% at the deep ocean disposal site and 28.5% at beneficial reuse or upland sites.

**Table 2. 2010 Disposal for Maintenance Dredging Projects within LTMS Program**

<b>Disposal Location</b>	<b>Volume (cubic yards)</b>
Reuse/Upland	561,283 (28.5%)
Deep Ocean Disposal Site	270,680 (13.7%)
In-Bay Disposal Sites	1,139,780 (57.8%)
<b>TOTAL</b>	<b>1,971,743</b>



In 2010, the DMMO continued to hold public meetings twice a month and reviewed 45 dredging projects throughout the year. Of these projects, 31 conducted dredging in 2010 and the remainder projects may move forward with dredging in the future. Typically, the DMMO reviews requests for exemption from testing (Tier 1 Exemptions), Sampling and Analysis Plans (SAPs), and Sampling Analysis Results Reports (SARs). SAPs are submitted to the DMMO by the project proponent. SAPs provide methods and protocols for sampling and testing (i.e. physical, chemical, and biological analyses) of the sediment proposed to be dredged. After the DMMO has approved a SAP, sampling and analyses can move forward. A SAR summarizes the

test results and must be reviewed for placement suitability by the DMMO prior to dredging. A “Tier I” decision by the DMMO is a suitability determination based on the review of existing physical, chemical, and biological data from the site where dredging is proposed.

Specifically, in 2010, the DMMO members reviewed 22 SAPs, 20 SARs, and 16 Tier I requests. Of these, the DMMO approved 19 SAPs and 16 Tier I requests. Of the 20 SARs that the DMMO reviewed, 9 projects were determined to have sediment that was not suitable for unconfined aquatic disposal (NUAD). Of the projects with material not suitable for unconfined aquatic disposal (NUAD), the unsuitable material was less than 10% of the total volume to be dredged and was either left in place or placed at a suitable upland or ocean disposal site.

## VI. In-Bay Disposal (Aquatic)

Currently, there are four open-water dredged material disposal sites in San Francisco Bay: the Alcatraz Island Disposal Site (SF-11); the San Pablo Bay Disposal Site (SF-10); the Carquinez Strait Disposal Site (SF-9); and the Suisun Bay Disposal Site (SF-16), which is only available to the USACE. There are two designated ocean disposal sites: San Francisco Deep Ocean Disposal Site (SF-DODS), which is approximately 55 nautical miles out to sea; and the San Francisco Bar Channel Disposal Site (SF-8), which accepts only sandy material. Appendix 2 summarizes the volumes placed at each disposal site in 2010.

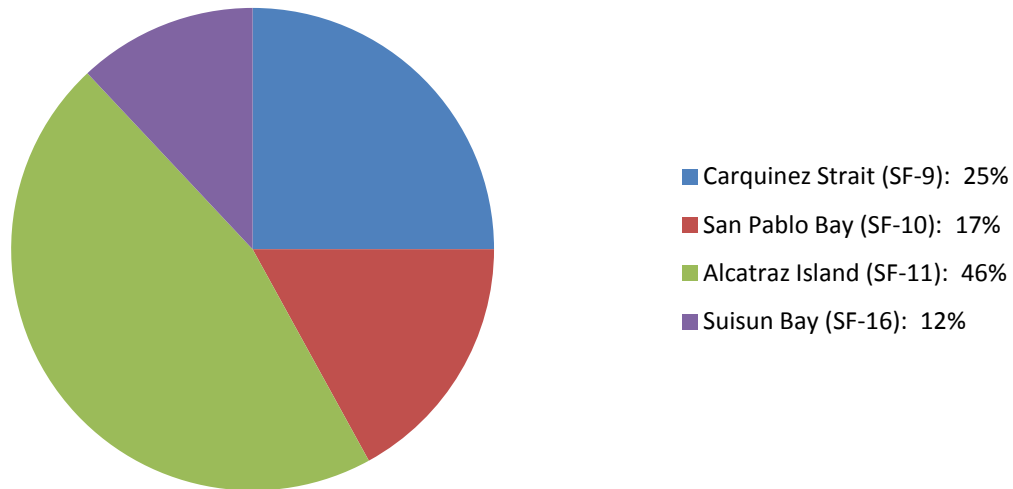
Reducing aquatic disposal in favor of beneficially reusing the sediment over time is the main focus of the LTMS program. In 2010, the total volume of sediment disposed of in the Bay at the four dispersive disposal sites was 1,139,780 cy. Of this total volume, 1,002,624 cy of sediment was placed at the three multi-user dispersive disposal sites: Carquinez Strait, San Pablo Bay and Alcatraz. Approximately 56.8% of the total dredging (maintenance and new work dredging projects) and 57.6% of maintenance-only dredging was disposed at the in-Bay disposal sites. Specifically, 523,327 cy or approximately 46% of the total dredging that was placed in the Bay was placed at the Alcatraz Island Disposal Site. Throughout the dredging season, the monthly volume limits for the individual in-Bay disposal sites were not exceeded. Appendix 2 summarizes the 2010 monthly disposal at the in-Bay sites, Table 3 summarizes the in-Bay disposal volumes.

**Table 3. 2010 In-Bay Disposal Volumes by Site**

<b>Disposal Location</b>	<b>Volume (cubic yards)</b>
Carquinez Strait (SF-9)	284,589 (25%)
San Pablo Bay (SF-10)	194,708 (17%)
Alcatraz Island (SF-11)	523,327 (46%)
Suisun Bay (SF-16)	137,156 (12%)
<b>TOTAL</b>	<b>1,139,780</b>



**Chart 3: In-Bay Disposal Volume Percentages by Disposal Site**



### VII. Ocean Disposal (Aquatic)

In 1995, the EPA developed and designated SF-DODS as an alternative to in-Bay disposal as part of the LTMS program. The annual disposal limit for this site is 4.8 mcy. Since the designation, the USACE and many private dredgers have used SF-DODS. With contributions from the private dredging project sponsors, the USACE and the EPA monitor SF-DODS annually and no deleterious effects of the dredged sediment disposal have been found.

In 2010, 270,680 cy of sediment were placed at SF-DODS, which is well below the annual volume limit. This volume is more than four times the volume placed at SF-DODS in 2009. This increase in volume was primarily the result of the Larkspur Ferry Terminal Access Channel Dredging Project, the BAE Systems Dredging Project, the Port of Redwood City Maintenance Dredging Project, and the Port of San Francisco's Berths 27 and 35 Maintenance Dredging Projects, which all placed large portions of their dredged material to SF-DODS in 2010. Appendix 2 summarizes the monthly disposal volumes at SF-DODS. With the exception of the Larkspur Ferry Terminal project, whose construction schedule and length of project prevented use of a beneficial reuse site, the sediment from these project contained elevated levels of contaminants that were shown to be safe for Ocean disposal through bioaccumulation testing.

### VIII. Beneficial Reuse and Upland Placement in 2010

In 2010, roughly 595,145 cy, or 30% of the total 2 mcy of sediment dredged was beneficially reused or taken to upland placement sites. Slightly less than half of this dredged material, 290,378 cy, came from the Port of Oakland's Inner and Outer Harbor Maintenance Dredging Project and was placed at the Hamilton Wetlands Restoration Site.

- A. **Hamilton Wetland Restoration Project (HWRP).** The majority of beneficial reuse in 2010 originated from USACE projects that provided 458,967 cy of dredged material to the HWRP at the former Hamilton Army Airfield in Marin County (30,312 cy from Oakland Harbor deepening and about 428,655 cy from federal channel maintenance dredging). In addition, several non-USACE maintenance dredging projects delivered a total of 76,979 cy of dredged material to the HWRP in 2010. The HWRP will restore almost 1000 acres of tidal and seasonal wetlands using 10.6 mcy of dredged material. Approximately 5.6 mcy of dredged material was placed at the HWRP via an offloader

system located in San Pablo Bay between December 2007 and December 2010. In 2010, HWRP received approximately 536,000 cy of dredged material, but is no longer receiving material because it is moving forward toward the levee breaching phase of the project. Additional dredged material could have been placed on the site in 2010, however contracting issues and a subsequent delay in the arrival of the offloader made the project inaccessible to several dredging projects in 2010.

- B. **Bair Island Restoration Project (BIRP).** No material was placed at Bair Island in 2010. The FWS is restoring 1,400 acres of diked salt marsh and uplands to predominantly tidal marsh and associated habitats. The BIRP lies within the 2,635-acre Bair Island Complex which is part of the Don Edwards San Francisco Bay National Wildlife Refuge managed by the FWS. Up to 1.5 mcy of fill is needed to raise the ground surface elevation on Inner Bair Island to support tidal marsh vegetation. However, no more dredged material is expected to be placed at Bair Island in the future due to an agreement between FWS and a construction firm to deliver upland soils to this site.
- C. **Carneros River Ranch.** In 2010, the Port Sonoma Marina placed 14,549 cy of dredged material at Carneros River Ranch, which is a privately owned and operated site located across Highway 37 from the Port Sonoma Marina near the mouth of the Petaluma River. Since 2007, the Port Sonoma Marina has been pilot-testing the feasibility of growing certain crops (i.e. tomatoes, oak trees, olives, and wine grapes) using dredged material from Port Sonoma. The property owner, Berg Holdings, has applied for a permit to construct an offloader facility at Port Sonoma, which will deliver dredged material to the Carneros River Ranch site. The offloader will use Port Sonoma Marina's existing dredge material transport pipeline that connects the Port Sonoma Marina to the Carneros River Ranch property. The barge load size will be limited to about 1,500 cy by the design depth of the Port Sonoma Marina entrance channel -6 ft mean lower low water (MLLW).
- D. **Winter Island Levee.** In 2010, 26,213 cy of dredged material were placed at the upland dredged material disposal site on Winter Island to the west of the confluence of the Sacramento and San Joaquin Rivers. Severe subsidence and only partial completion of repairs to a 2004 breach have caused sections of the levee to be in direct contact with aquatic habitat. As long as this situation persists, only material that meets wetland surface/cover quality chemical screening thresholds set by the San Francisco Bay Regional Water Quality Control Board will be approved for levee maintenance (i.e. beneficial reuse).
- E. **SF-8 Bar Channel Site, Eastern Portion.** In 2010, one medium sized dredging project, the Conoco-Philips Rodeo Terminal Project, placed 3,550 cy of sandy material within the eastern portion of SF-8. Placement of clean sand within the easternmost portion of SF-8 from projects other than USACE San Francisco Main Ship Channel dredging is considered beneficial reuse because this location is part of the littoral transport system that nourishes Ocean Beach and its environs. These projects must have 80% or greater sandy sediment at their project site to be eligible for this site. Including the USACE's dredging of the Main Ship Channel, the total volume of sandy sediment placed at the Bar Channel Disposal Site projects was 6,327 cy in 2010 (Appendix 2).
- F. **Ocean Beach Pilot Project Placement Site (SF-17).** In June 2010, the USACE placed 480,698 cy at the Ocean Beach Pilot Project Placement Site. The Ocean Beach pilot project involves beneficial reuse of dredged material along southern Ocean Beach in front of the Sloat Street parking area. In an effort to reduce erosion at the southern end of Ocean Beach at the City of San Francisco's Sloat Street outfall, the USACE, in cooperation with the City of San Francisco and the US Geological Survey, has been

placing sandy sediment dredged from the Main Ship Channel to the south of SF-8, directly offshore of Ocean Beach. While the LTMS agencies support this project, it is not currently part of the LTMS program because it is outside the LTMS Program boundary.

- G. **Upland Placement or Landfill Disposal.** In 2010, the California Maritime Academy, placed approximately 2,250 cubic yards of NUAD dredged material with elevated levels of contaminants at the Port of Oakland's Berth 10 rehandling facility where it was dried and then taken to an appropriate upland landfill.

## **IX. Additional Beneficial Reuse and Upland Placement Sites**

In 2010 two beneficial reuse sites in the Bay region were not utilized, primarily due to the lack of offloading equipment on site:

- A. **Montezuma Wetland Restoration Project (MWRP).** No dredged material was placed at the MWRP in 2010 due to the lack of offloading equipment. MWRP is a privately owned and operated project located at the eastern edge of the Suisun Marsh that will restore nearly 2,000 acres of tidal and seasonal wetlands. Since opening in December 2003, Montezuma has received approximately 3.0 mcy of dredged material from the Port of Oakland Deepening Project, including almost 300,000 cy of non-cover/wetland foundation material, distributed over 350 acres of the 600-acre Phase I portion of the site in 2006.
- B. **Cullinan Ranch.** No dredged material was placed at Cullinan Ranch in 2010 due to site preparation and lack of offloading equipment. Cullinan Ranch is State-owned and managed by the FWS and the DFG. It is located adjacent to San Pablo Bay just west of the Highway 37 Bridge over the Napa River. Approximately 1,500 acres of former hayfield farm lands are proposed to be restored to tidal marsh. Up to 400,000 cy of dredged material can be reused as part of this project. The restoration project is permitted, and should have an offloader in place making it available as a beneficial reuse site in 2011.

## **X. Alternatives Analysis**

Dredging projects in the Bay are divided into three types of dredging projects: small dredgers, medium dredgers or large dredgers. According to the federal and state Clean Water Act and the San Francisco Bay Plan policies on dredging, an alternatives analysis for placement of dredged material must be completed.

In 2004, due to the common characteristics of most small dredger projects, the LTMS agencies developed a Small Dredger Programmatic Alternative Analysis (SDPAA) for navigational maintenance dredging projects that dredge to a design depth that is no more than 12 feet below mean lower low water (MLLW) and dredge an average of 50,000 cy or less per year. This analysis was developed in recognition of this class of projects limited resources both in the ability to develop individual alternative analysis and ability to use beneficial reuse site due to lack of resources and the need to use small dredging equipment that is not typically capable of ocean disposal or beneficial reuse. In 2010, 14 small dredger projects dredged approximately 291,732 cy of material and placed the dredged material primarily at the Alcatraz Placement Site (SF-11).

If a dredging project does not qualify for the use of the SDPAA, the applicant is required by the regulatory agencies represented by DMMO to conduct an alternatives analysis or an Integrated Alternatives Analysis (IAA) for the placement options associated with the proposed dredging project. An alternatives analysis evaluates dredging placement options for a single episode of dredging and an IAA evaluates dredge material placement options for multi-site

and/or multi-episode dredging projects providing flexibility in meeting the LTMS goals. In 2010, nine medium-sized dredging projects, such as those completed by refineries and ports, conducted alternatives analyses or made use of an IAA. The medium-sized dredging projects dredged 993,888 cy and placed 94,142 cy of the dredged material at upland or reuse sites, and approximately 270,680 cy at SF-DODS.

The USACE has long been the largest dredger in San Francisco Bay, both in volume and acres dredged annually. As such, the USACE's maintenance dredging program is a key component determining the overall success of the LTMS program. As part of the USACE maintenance dredging program, the USACE usually dredges the San Francisco Main Ship Channel, New York Slough, Suisun Bay Channel, Pinole Shoal Channel, Richmond Outer and Inner Harbor Channels, Oakland Outer and Inner Harbor Channels, and Redwood City Channel, annually. In addition, there are several smaller projects such as San Rafael Canal and the Jack T. Maltester Channel in San Leandro that are dredged on a periodic basis. In 2010, the USACE conducted maintenance dredged a total of 719,985 cy from several of the ship channels, including Pinole Shoal Channel, Richmond Inner Harbor Channel, Port of Oakland Inner and Outer Harbor, and Suisun Bay Channel. The USACE beneficially reused and disposed of 462,967 cy of sediment at upland or reuse sites (Hamilton Wetland Restoration Site, and Winter Island), and 257,018 cy at in-Bay disposal sites.

## **XI. 2010 Environmental Work Windows**

In 1999, NOAA Fisheries and FWS issued programmatic biological opinions that established environmental work windows for dredging projects and disposal of dredged sediment in the Bay to protect species that are threatened, endangered or are species of special concern. The DFG issued a concurrence letter for the LTMS Management Plan. Since 1999, the LTMS agencies through the Environmental Work Windows Workgroup have been working with the dredging community to complete their dredging projects within the established work windows. When necessary, the LTMS agencies initiate informal consultations with NOAA Fisheries, FWS and DFG regarding permission to work outside of the environmental work windows. The requests to dredge outside of the work windows are normally limited to two weeks or less.

Each year, best efforts are made to complete the majority of the projects within the work windows. In 2010, thirteen (13) projects were dredged partly or completely outside of the environmental work windows. The volume dredged outside of the environmental work windows was 676,617 cy or approximately 34% of the total dredging volume completed outside the work windows in 2010. The USACE was responsible for more than half of that volume due to the need to complete four of the projects (e.g. Oakland Inner Harbor Turning Basin, Richmond Inner Harbor, Oakland Inner and Outer Harbor, and the Port of Oakland Deepening) outside of the environmental work window. For comparison, in 2009, twelve (12) projects dredged 474,474 cy partially or completely outside of the environmental work windows. In 2010, Congress allocated federal funding late in the federal fiscal year causing contracting problems, which resulted in delayed start dates. This issue confounded the use of the Hamilton Wetlands Restoration project because the same funding and contracting issues delayed the arrival of the off loader, and thereby the use of the site by both the federal dredging projects and the private projects. To maximize the opportunity to use the Hamilton site, a few larger private projects were asked by the LTMS agencies to delay their projects until the off loader was available and Hamilton could receive the dredged sediment.

As has been the agency practice since 2009, the DMMO will not grant episode approval for dredging projects that are proposed late in the dredging year unless the project sponsors can clearly show that dredging would be completed within the remaining environmental work windows and it is not feasible to suspend and restart the dredging project the next year.

## **XII. Related Issues and 2010 Program Update**

- A. **NOAA Fisheries Programmatic Biological Opinion.** NOAA Fisheries is in the process of updating the NOAA Fisheries Programmatic Biological Opinion for LTMS maintenance dredging projects in San Francisco Bay. The North American green sturgeon was federally listed as threatened on April 2, 2006, critical habitat was designated on October 9, 2009, and the final 4(d) rule was released on June 2, 2010. The green sturgeon will also be incorporated into the revised Biological Opinion. NOAA Fisheries anticipates that an updated Programmatic Biological Opinion for maintenance dredging in San Francisco Bay to be released sometime in 2012.
- B. **Essential Fish Habitat.** On July 13, 2010 a programmatic Essential Fish Habitat (EFH) Consultation, which included several EFH Conservation Recommendations, for maintenance dredging projects and placement of dredged material under the LTMS Program was issued to the USACE and EPA for their official response. On October 16, 2010, the USACE and EPA submitted their response to the EFH Conservation Recommendations (CRs). On November 19, 2010, NMFS responded with a clarification letter, which addressed issues of concern and disagreement between the agencies on EFH CRs. As part of the comment period between the agencies, the LTMS agencies solicited comments from the stakeholder community and included appropriate items in their response to NOAA Fisheries. The LTMS agencies expect to complete this process in early 2011.
- C. **Longfin Smelt.** In 2009, the California Fish and Game Commission listed longfin smelt as a threatened species under the California Endangered Species Act (CESA). The DFG will continue to require incidental take permits for projects that affect longfin smelt, particularly for hydraulic dredging projects, and is in the process of preparing official guidelines. At this time, all dredging project sponsors must submit an assessment of the potential for their project to take longfin smelt to the Regional Water Quality Control Board, BCDC and the DFG. To add in this process, the LTMS agencies developed a reference document, titled *Longfin Smelt: Information for Impact Assessments for Non-Federal Dredgers*. The document is available on the LTMS website at the following address: <http://www.spn.usace.army.mil/ltms/index.html>
- D. **DMMO Database.** LTMS funds are being used to develop a web-based data management system to store, retrieve, query and update data and information in support of the DMMO. The web-based database will further enhance the DMMO's goal of improving efficiency and coordination between the DMMO agencies and to foster a comprehensive and consolidated approach to dredged material management issues. The next steps for the DMMO Database include standardizing SAPs and test result reports format from permittees, applicants, and laboratories for ease of inputting into the database.
- E. **Management of the Alcatraz Island Disposal Site (SF-11).** In the past, there have been issues with mounding at the Alcatraz disposal site creating the potential for navigational hazards. Because the USACE is the largest dredger in the Bay Area and is responsible for maintaining safe navigation, they are responsible for monitoring and specifying the appropriate disposal areas within SF-11. During 2010, approximately 523,283 cy (26 % of total dredging volume) of dredged material were placed at SF-11

but monthly monitoring did not detect mounding at the site. As shown in Appendix 2, the heaviest use of SF-11 occurred during the months of August, October and November in 2010.

- F. **Regional Sediment Management.** In 2010, BCDC in collaboration with USGS and the LTMS agencies hosted a State of the Sediment Workshop in which sediment scientists and modelers presented information about the state of knowledge regarding sediment budget and transport issues facing the region in the nearshore coast, Bay, local watersheds and the Delta. This was the first conference of its kind and was intended to begin the conversation about scientific and technical needs to better manage sediment in the face of a changing estuarine system. The conference was well attended and next steps include developing the management questions that should be addressed by researchers focused on sediment science and engineering solutions. The development of the RSM Strategy will include flood control districts, watershed managers, state and federal parks, wetland specialists, sediment transport modelers and scientists.

### **XIII. Conclusion**

After review of the dredging and dredged material disposal and reuse data for 2010 there appear to be both positive and negative trends regarding meeting the LTMS targets for dredged material placement. In 2010, the LTMS program was still on track and the in-Bay placement of dredged material volumes are well below the annual volume target. However, the LTMS goals of placing a minimum of 40% of sediment at beneficial reuse and upland sites and no more than 20% at the in-Bay disposal sites, with the remainder going to the ocean disposal site in 2010, were not met. Approximately 56.8% of the total dredged material was placed at in-Bay disposal sites, which is above the LTMS goal of 20%. Approximately 13.5% of the total dredged material was placed at the ocean disposal site (SF-DODS) and approximately 29.7% of the dredged material was placed at beneficial reuse or upland sites, which are below the goal of 40%.

The main reason the placement percentages did not meet the LTMS program goals is primarily due to the fact that the large Port of Oakland Deepening Project sponsored by the Port of Oakland and the USACE only took a very small amount of material to HWRP in 2010 (i.e. 30,312) compared to nearly 1.4 mcy in 2009. The Deepening Project was underway for several years, and concluded in 2010 with the removal of a small amount of dredging and placement at HWRP in January. The HWRP still had some available capacity, but the high cost of placement of the remaining "small" volume made it infeasible for the project sponsors to keep the project open and available for another season.

It is important to remember that the step-down periods within the glide path for reducing in-Bay placement and meeting the LTMS goals stated above, are averaged over a three-year period. 2010 was the first in the 2010-2012 step-down period and will be averaged over the next two dredging seasons to determine if the LTMS goals have been met. It is important that there be beneficial reuse sites available to small, medium and large dredgers in order to meet the LTMS goals. The LTMS agencies and the project sponsors, the USACE and the State Coastal Conservancy, for the Hamilton Project had hoped to have the expansion site, Bel Marin Keys V Unit, available for beneficial reuse as soon as Hamilton reached capacity. However, legislation approved in 2007 changed the cost share percentages for the federal and local sponsor significantly, creating a challenging hurdle for the dredging and restoration community to overcome. This hurdle in combination with increased cost and economic hardships have delayed this project significantly. The LTMS agencies and the project sponsors continue to work to move the expansion forward.

New beneficial reuse sites are becoming available and others that have been underutilized, such as Montezuma Wetland Restoration Project, remain available. These new and available sites and the use of Montezuma may make up the difference now that HWRP is no longer accepting dredged material. With continuation of existing partnerships and exploration of new ones, the LTMS program can continue to successfully manage dredging and the placement of dredged material in an increasingly environmentally and economically sound and sustainable manner. If the Bay Area dredging and dredged material placement stakeholders continue to work together to use feasible alternatives to in-Bay placement of dredged material, LTMS goals can be met in future years, but not without the efforts and collaboration that has been shown in previous years.

## Appendix 1 - 2010 Dredging Volumes by Project

Project	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2010 'in-situ' VOL (cu yd)
AEOLIAN YACHT CLUB: SF-11	0	0	0	0	0	0	0	0	0	0	1,700	0	1,700 *
ALLIED DEFENSE RECYCLING: SF-9	0	0	0	0	0	0	0	0	0	0	61,403	89,925	151,328
BAE SYSTEMS - San Francisco Drvdock: OCEAN	0	0	0	0	0	0	0	0	0	22,220	14,527	0	36,747
BENICIA MARINA: SF-9	0	0	0	0	0	0	0	11,475	7,650	2,550	0	0	21,675 *
BRICKYARD COVE HOMEOWNERS: SF-11	0	0	0	0	0	899	432	0	0	0	0	0	1,331
CALIFORNIA MARITIME ACADEMY BOAT BASIN: SF-9	0	0	0	0	0	0	0	0	0	0	7,458	3,344	10,802 *
CALIFORNIA MARITIME ACADEMY BOAT BASIN: Winter Island	0	0	0	0	0	0	0	0	0	0	0	2,525	2,525 *
CHEVRON RICHMOND LONG WHARF: SF-11	0	0	0	0	0	0	0	0	0	0	81,625	0	81,625
CHEVRON RICHMOND LONG WHARF: Hamilton	0	0	0	0	0	0	0	0	0	0	0	23,839	23,839
CITY OF REDWOOD CITY, REDWOOD SHORES LAGOON	2,699	2,699	2,699	2,699	2,699	2,640	0	0	0	0	0	0	16,135
CONOCO PHILLIPS, RODEO TERMINAL: SF-8	0	0	0	0	0	0	0	0	0	0	3,550	0	3,550
CONOCO PHILLIPS, RODEO TERMINAL: SF-9	0	0	0	0	0	0	0	0	0	0	4,428	0	4,428
COYOTE POINT MARINA: SF-11	0	0	0	0	0	0	0	0	0	15,624	16,014	1,562	33,200
GLEN COVE MARINA: SF-9	0	0	0	0	0	0	0	19,000	21,250	12,750	6,200	0	59,200 *
GREENBRAE (LARKSPUR) MARINA: SF-10	0	0	0	0	0	0	0	0	0	5,107	11,065	0	16,172
GREENBRAE (LARKSPUR) MARINA: Winter Island	0	0	0	0	0	0	0	851	426	0	0	0	1,277
LARKSPUR FERRY TERMINAL: SF-10	0	0	0	0	0	0	0	22,002	23,962	7,876	3,934	0	57,774
LARKSPUR FERRY TERMINAL: SF-11	0	0	0	0	0	0	0	113,867	52,933	0	0	0	166,800
LARKSPUR FERRY TERMINAL: OCEAN	0	0	0	0	0	0	0	0	24,315	38,014	23,546	0	85,875
OYSTER POINT MARINA: SF-11	0	0	0	0	0	26,683	12,025	0	0	0	0	0	38,708
PARADISE CAY HOMEOWNERS: SF-11	0	0	0	0	0	7,714	7,379	503	0	0	0	0	15,596
PELICAN YACHT HARBOR: SF-11	0	0	0	0	0	0	0	0	0	16,664	4,506	0	21,170
PORT OF OAKLAND, BERTH Maintenance: SF-11	0	0	0	0	0	0	0	0	0	46,664	0	0	46,664
PORT OF OAKLAND, BERTH Maintenance: Hamilton	0	0	0	0	0	0	0	0	0	0	0	50,615	50,615
PORT OF REDWOOD CITY: SF-11	0	0	0	0	0	0	0	0	0	0	25,021	0	25,021
PORT OF REDWOOD CITY: OCEAN	0	0	0	0	0	0	0	0	0	0	14,216	0	14,216
PORT OF SAN FRANCISCO, PIER 27: SF-11	0	0	0	0	0	0	0	0	0	20,551	16,574	0	37,125
PORT OF SAN FRANCISCO, PIER 27: OCEAN	0	0	0	0	0	0	0	0	0	0	28,490	0	28,490
PORT OF SAN FRANCISCO, PIER 35: OCEAN	0	0	0	0	0	32,269	58,408	14,675	0	0	0	0	105,352
PORT SONOMA MARINA (Reuse)	0	0	0	0	0	0	0	0	0	0	14,549	0	14,549
SAN FRANCISCO MARINA WEST BASIN: SF-11	0	0	0	0	0	0	4,317	19,904	12,571	0	0	0	36,792
SAN RAFAEL YACHT HARBOR: SF-10	0	0	0	0	0	0	0	0	900	0	0	0	900
VALERO REFINERY TERMINAL: SF-9	0	0	0	0	0	0	0	0	31,616	0	5,540	0	37,156
VALERO REFINERY TERMINAL: SF-11	0	0	0	0	17,595	0	0	0	0	0	0	0	17,595
VALERO REFINERY TERMINAL (Reuse - Winter Island)	0	13,683	6,005	0	0	0	0	0	0	0	0	0	19,688
USACE, MAIN SHIP CHANNEL: SF-8	0	0	0	0	0	(2,777)	0	0	0	0	0	0	0 *
USACE, MAIN SHIP CHANNEL: Ocean Beach (SF-17) Reuse	0	0	0	0	0	(480,698)	0	0	0	0	0	0	0 *
USACE, PoO, -50 Deepening (Hamilton)	30,312	0	0	0	0	0	0	0	0	0	0	0	30,312 *
USACE, OAKLAND INNER & OUTER HARBOR: Hamilton	0	0	0	0	0	0	0	0	0	0	0	290,378	290,378
USACE, OAKLAND INNER TURNING BASIN (Winter Isl): Old Bay Mud	0	0	0	0	4,000	0	0	0	0	0	0	0	4,000
USACE, PINOLE SHOAL CHANNEL: SF-10	0	0	0	0	0	0	119,862	0	0	0	0	0	119,862
USACE, RICHMOND INNER HARBOR: Hamilton	0	0	0	0	0	0	0	0	0	0	0	138,277	138,277
USACE, SUISUN BAY CHANNEL	0	0	0	0	0	0	0	0	24,212	50,541	41,029	21,374	137,156
<b>TOTAL</b>	<b>33,011</b>	<b>16,382</b>	<b>8,704</b>	<b>2,699</b>	<b>24,294</b>	<b>70,205</b>	<b>202,423</b>	<b>201,426</b>	<b>200,260</b>	<b>238,987</b>	<b>385,375</b>	<b>621,839</b>	<b>2,005,605</b>

\* Weekly disp. logs not submitted/incomplete data/NO post survey

Red = SF-8  
Pink = SFDODS (Deep Ocean Site)

Orange = SF-9 (Carquiniz)  
Green = Upland/Reuse

Brown = SF-10 (San Pablo)  
Gray = SF-16 (Suisun Bay)

Blue = SF-11 (Alcatraz)



**Appendix 2 - 2010 Disposal Sites  
and Volumes Disposed, Cubic Yards {cy}**

Disposal Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2010 Total Volume*
<b>SF-8, Federal Main Ship Channel (MSC)</b>	0	0	0	0		(2,777)	0	0	0	0	3,550	0	3,550
<b>SF-9, Carquinez Straits</b>	0	0	0	0			0	30,475	60,516	15,300	85,029	93,269	284,589
<b>SF-10, San Pablo Bay</b>	0	0	0	0			119,862	22,002	24,862	12,983	14,999	0	194,708
<b>SF-11, Alcatraz</b>	0	0	0	0	17,595	35,296	24,153	134,274	65,504	99,503	145,440	1,562	523,327
<b>SF-16, Suisun Bay</b>	0	0	0	0	0	0	0	0	24,212	50,541	41,029	21,374	137,156
<b>TOTAL in-Bay (excluding MSC)</b>	0	0	0	0	17,595	35,296	144,015	186,751	175,094	178,327	290,047	116,205	1,143,330*
<b>Reuse, Upland, etc.</b>	2,699	16,382	8,704	2,699	6,699	2,640	0	0	851	426	14,549	505,634	561,283
<b>Reuse, Corps Main Ship Channel, Beach Nourishment - Ocean Beach (SF-17)</b>	0	0	0	0	0	(480,698)	0	0	0	0	0	0	0
<b>SF-DODS, Deep Ocean Disposal Site</b>	0	0	0	0	0	32,269	58,408	14,675	24,315	60,234	80,779	0	270,680
<b>TOTAL dredging w/out PoO Deepening</b>	2,699	16,382	8,704	2,699	24,294	70,205	202,423	201,426	200,260	238,987	385,375	621,839	1,975,293*
<b>USACE/PoO DEEPENING PROJECT - Hamilton Wetlands Restoration</b>	30,312	0	0	0	0	0	0	0	0	0	0	0	30,312
<b>GRAND TOTAL</b>	<b>33,011</b>	<b>16,382</b>	<b>8,704</b>	<b>2,699</b>	<b>24,294</b>	<b>70,205</b>	<b>202,423</b>	<b>201,426</b>	<b>200,260</b>	<b>238,987</b>	<b>385,375</b>	<b>621,839</b>	<b>2,005,605*</b>

\*Excluding MSC

- Red = SF-8**
- Pink = SFDODS (Deep Ocean Site)**
- Orange = SF-9 (Carquinez)**
- Green = Upland/Reuse**
- Brown = SF-10 (San Pablo)**
- Gray = SF-16 (Suisun Bay)**
- Blue = SF-11 (Alcatraz)**