LONG TERM MANAGEMENT STRATEGY

Dredged Material Management Office (DMMO)
Dredging and Placement of Dredged Material in San Francisco Bay
January-December 2013 Report

San Francisco Marina West Basin Maintenance Dredging 2013

July 2014

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I. INTRODUCTION

Dredged Material Management Office

Since 1996 the Dredged Material Management Office (DMMO) has been promoting economically and environmentally sound dredging and the placement of dredged material in the San Francisco Bay region. Founded through the Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS) program, the DMMO is a joint program comprised of the following member agencies: U.S. Army Corps of Engineers, San Francisco District (USACE); the U.S. Environmental Protection Agency, Region IX (EPA); the San Francisco Bay Regional Water Quality Control Board (Water Board); the San Francisco Bay Conservation and Development Commission (BCDC) and the California State Lands Commission (SLC). The California Department of Fish and Wildlife (CDFW) (formerly California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) participate in the DMMO and the Project Coordination Meetings (see Section III) as commenting resources agencies.

The goal of this interagency group is to increase efficiency and consistency in the permitting process and to foster a comprehensive and consolidated approach to handling dredged material management issues. Together, the DMMO partners facilitate processing of dredging permit applications within existing laws, regulations and policies and provide the mechanism to allow the involvement and participation of permit applicants and interested parties during the application process. The DMMO reviews projects within the geographic area that includes all of San Francisco Bay Estuary up to Sherman Island, its major tributaries to the point where navigation is no longer feasible, upland areas surrounding the estuary and the San Francisco Deep Ocean disposal site (SFDODS) designated by the EPA.

DMMO Responsibilities

- **Receive and coordinate permit application review for dredging projects proposed in the San Francisco Bay area.**
- **Develop guidance documents as needed.**
- **Review and approve sediment quality sampling and analysis plans.**
- **Analyze the results of sediment quality tests.**
- **Make suitability determinations for placement at in-Bay, ocean and beneficial reuse sites.**
- **Coordinate programmatic requirements such as species consultations, alternative disposal site analyses and record-keeping.**

DMMO generally meets twice a month and the meetings are open to the public. The USACE posts the meeting schedules and agendas on the USACE DMMO website (see Contacts) and sends electronic copies to interested parties and pertinent resources agencies. The dredging project data compiled and analyzed by the DMMO, including environmental work windows adherence and placement volume targets set forth in the LTMS Management Plan are provided in the DMMO annual reports which can also be found, along with guidance documents and other DMMO background information, on the USACE DMMO website.

Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS)

The LTMS was formed in 1990 by the BCDC, USACE, EPA, the Water Board and SLC, in response to concerns regarding potential direct and cumulative impacts from dredging and dredged material disposal to water quality, wildlife and uses of the San Francisco Bay. The resulting integrated planning process for dredged material management addressed dredging-related issues and developed a comprehensive dredged material management plan. The LTMS objectives resulted in the formal establishment of the DMMO. Specifically, the LTMS Management Plan (2001) informs the DMMO's ongoing coordination of dredging and dredged material placement.

Of particular importance is the Management Plan's 12-year transition period designed to reduce the in-Bay disposal volume to a maximum of 1.25 million cubic yards (cy) per year (Figure 1) by the end of 2012. This transition period was intended to provide time for dredging project sponsors to plan ahead for the logistic and economic changes of the new methods of dredged material management and for additional beneficial reuse sites to be developed. The 12-year period began with an immediate reduction of the allowed in-Bay disposal volume by over 50% to 2.8 million cy for the first year. Subsequently a reduction of in-Bay disposal of 378,500 cy would occur every three years leading to the 2013, 1.25 million cy limit, through four volume limit "step-downs." Throughout this transition SFDODS has remained available to accommodate disposal from larger projects when beneficial reuse sites were not available or feasible. Various upland and beneficial reuse sites have also opened as alternatives to in-Bay disposal of dredged material (see Section II). As part of this final step down the LTMS now has a target of placing 20% of all dredged material at designated in-Bay dredged material disposal sites.

Additional information on history and accomplishments of LTMS as well as the Management Plan and the 12-year Transition Period can be found on the LTMS website (see Contacts).

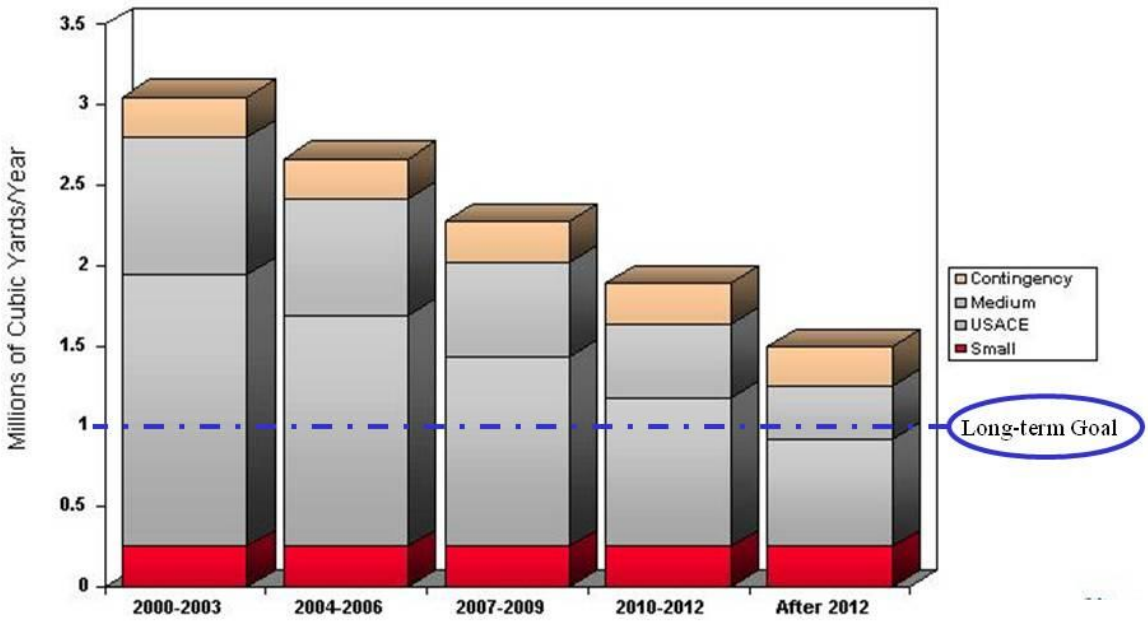

Figure 1. The LTMS Transition Period, showing the annual in-Bay disposal volume limit decrease every three years by 387,500 cy.

LTMS 12-Year Review

In 2012, the DMMO and LTMS partners completed the LTMS 12-year review process. The results of the LTMS 12-year review including the Final Report dated August 2013 are posted on the LTMS website (see Contacts).

In 2013, LTMS operated in accordance with the final in-Bay disposal limit of 1.25 million cy of sediment that it reached at the end 2012 under the transition period step-down process. As shown in Figure 2. below, in-Bay disposal has been below the annual transition period limit each year except 2011. To accommodate for the fluctuations in dredging and disposal, the annual volumes were averaged, and the average volume over three years became the bar by which the program is measured. These three-year averages were below the transition period limits during every three-year period, therefore the individual project allocations were never triggered.

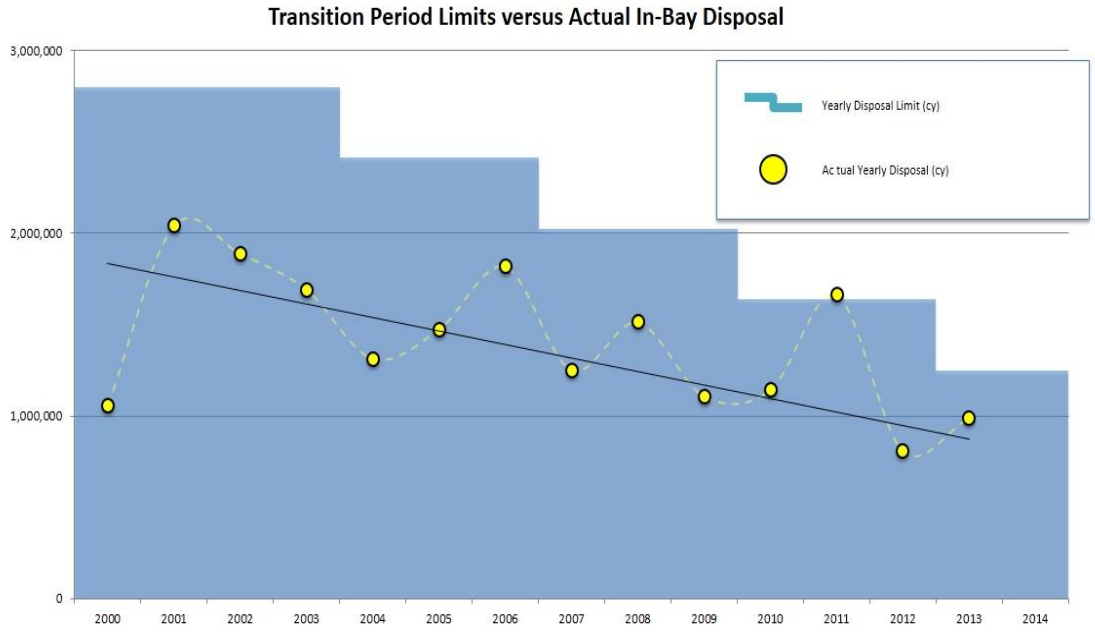

Figure 2. Actual in-Bay disposal volumes for 2000-2013, compared to the transition period limits.

II. 2013 DREDGING AND PLACEMENT OVERVIEW (Appendices 1, 2)

During the 2013 dredging season, dredging project sponsors in the San Francisco Bay region placed 987,268 cy of sediment in-Bay, well below the volume limit target of 1.25 million cy. In 2013, there were 20 dredging and disposal projects (not including the Main Ship Channel), that dredged a total of 3.2 million cy. Approximately 31% of this material was disposed in-Bay at the four designated in-Bay dredged material disposal sites, 52% was disposed at SFDODS (1,632,515 cy) and 17% of the dredged material went towards beneficial reuse or upland placement. Of the material disposed at in-Bay dredged material disposal sites, 35% went to the Alcatraz Island Disposal Site (SF-11), 42% was went to the San Pablo Bay Disposal Site (SF-10), 13% went to the Suisun Bay Disposal Site (SF-16), and 10% went to the Carquinez Strait Disposal Site (SF-9). The volumes of material and disposal locations are shown in Figure 3 and in Appendix 2.

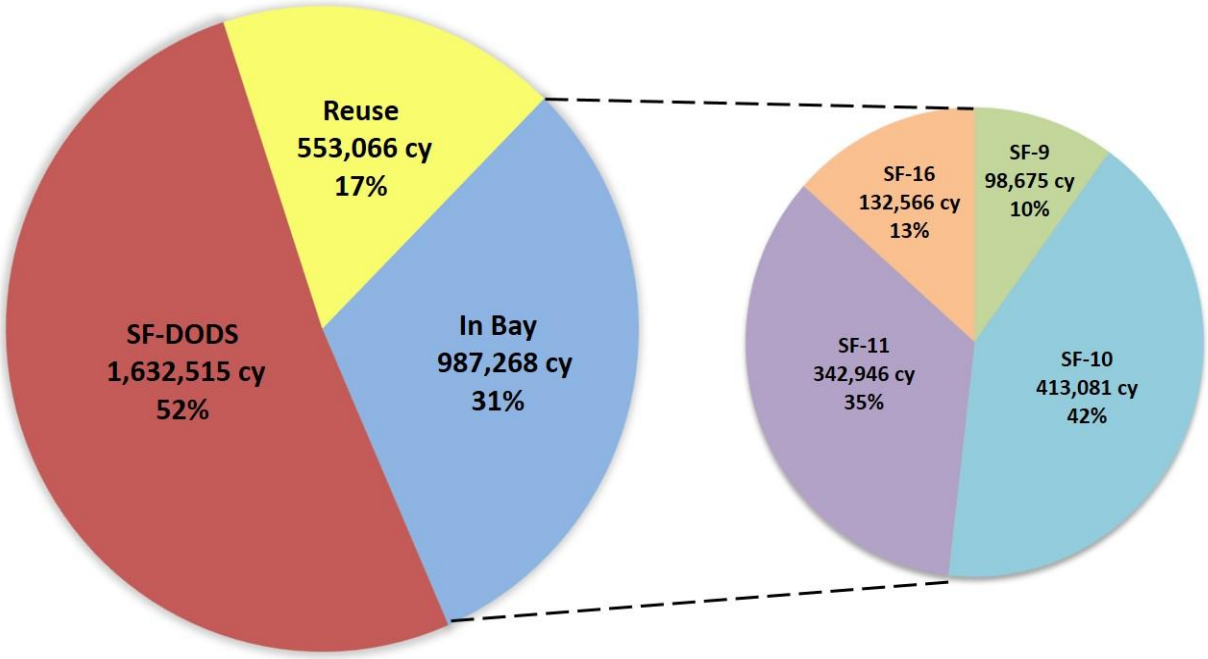

Figure 3. 2013 Dredge Material Disposal Volumes and Locations.

Beneficial Reuse and Upland Placement Sites/Restoration

In 2013, approximately 553,066 cy, or 17% of the total 3.2 million cy of sediment dredged was beneficially reused or taken to upland placement sites. As shown in Table 1, the majority (93%) of the dredged material was taken to Montezuma Wetlands Restoration Project (MWRP). In all, five San Francisco Bay beneficial reuse sites were available to dredging project sponsors:

- Montezuma Wetland Restoration Project

  Approximately 513,737 cy of dredged material was placed at the MWRP in 2013, of which 358,597 cy, came from the Port of Oakland's Inner and Outer Harbor Maintenance Dredging Project, and 121,590 cy from the Chevron Richmond Long Wharf Maintenance Dredging Project. The remaining volume came from dredging projects at the Amports Benicia Port Terminal, and the Port of San Francisco, Pier 32-36, America's Cup dredging.

- Winter Island Levee

  In 2013, 31,333 cy of dredged material from Valero Refinery Terminal maintenance dredging, was placed at the upland dredged material disposal site on Winter Island to the west of the confluence of the Sacramento and San Joaquin Rivers.

- SF-8 Bar Channel Site, Eastern Portion (sand only)

  In 2013, no dredging projects placed dredge material within the eastern portion of SF-8.

- SF-17 Ocean Beach Pilot Project Placement Site (sand only)

  No dredged material was placed at the Ocean Beach Pilot Project Placement Site due to contracting issues.

- Upland Placement or Landfill Disposal

  In 2013, four dredging projects disposed a total of 7,996 cy of dredge material at various upland sites including the San Rafael Rock Quarry, the Berth 10 rehandling facility at the Port of Oakland, and other upland placement sites.

These sites range from large engineered sites to small upland placement sites. It is important to note that these sites have varying equipment, logistical, and sediment characteristic requirements (Appendix 3).

Placement Location	Sediment Placed (cy)	% of Total Reuse/Upland
Montezuma Wetland Restoration Project	513,737	93%
Winter Island	31,333	5.6%
San Rafael Rock Quarry	1,971	0.4%
Misc Upland	6,025	1.0%
Total	553,066	100%

Table 1. 2013 Dredge Sediment Taken to Beneficial Reuse Sites

Suitable for Unconfined Aquatic Disposal (SUAD) vs. Not Suitable for Unconfined Aquatic Disposal (NUAD)

In 2013, less than 1% of all dredged material (28,245 cy of 3,172,849 cy) was considered NUAD for in-Bay, as shown in Table 2. This NUAD material originated from four projects (Clipper Yacht Harbor, Levin Richmond Terminal, Port of S.F. Piers 32-36 America's Cup, and Port of S.F., Piers 35 East and West), which were reviewed and approved by the DMMO. Of the NUAD material shown in Table 2, 1,382 cy (5%) was taken to Berth 10 at the Port of Oakland, 3,600 cy (13%) was taken to an upland landfill, 13,600 cy was approved as non-cover material at MWRP (48%), and, 9,603 cy (34%) was placed at SF-DODS.

Project	NUAD for In-Bay (cy)	Placement Site
Clipper Yacht Harbor	1,382	Port of Oakland Berth 10
Levin Richmond Terminal	3,600	Upland placement site
Port of S.F. Piers 32-36, America's Cup	13,660	Montezuma Wetlands Restoration Project
Port of S.F., Piers 35 East and West	9,603	SF-DODS
Total	28,245	

Table 2. 2013 Dredge Volume NUAD for In-Bay Placement Sites

Dredging Equipment Type

The majority of the dredging work performed in 2013 was maintenance dredging. The Port of San Francisco, Pier 32-36, America's Cup dredging was the only new-work dredging carried out in 2013. The majority of the projects were performed with clamshell dredges, including the largest of the USACE projects in the Oakland Harbor, Pinole Shoal Channel, and Richmond Inner Harbor channels. A hydraulic hopper dredge was used on the USACE project at Suisun Bay Channel/New York Slough/Bulls Head Reach. Mitigation for impacts to threatened or endangered species was required for the project using a hydraulic dredge.

Environmental Work Windows

The LTMS Management Plan of 2001 (Appendix F) set forth environmental work windows for dredging activity in San Francisco Bay. The work windows are the result of terms and conditions of the LTMS Programmatic Biological Opinions issued by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). The DMMO encourages scheduling projects to be completed within the environmental work windows (generally, June 1-November 30 or August 1-November 30 depending on project location).

Twenty projects (not including the Main Ship Channel (MSC)) took place in 2013. Most projects began in or after August during the latter half of the dredge season. Nineteen (19) of the 2013 dredging projects were subject to environmental work windows, and 16 were completed entirely within their work windows.

Three projects dredged outside the work windows in 2013. The Port of San Francisco Pier 32-36 America's Cup was allowed, through consultation with NMFS, to start dredging two weeks before the work window in order to address scheduling issues. Only one non-USACE project, Clipper Yacht Harbor (a non-navigational, remediation dredging project), requested and received a work windows extension. The remaining project that dredged outside the work windows was the USACE dredging project in Oakland Inner and Outer Harbor. Figure 4 shows the volume and percentage breakdown of the dredging work performed outside the environmental work windows for 2013.

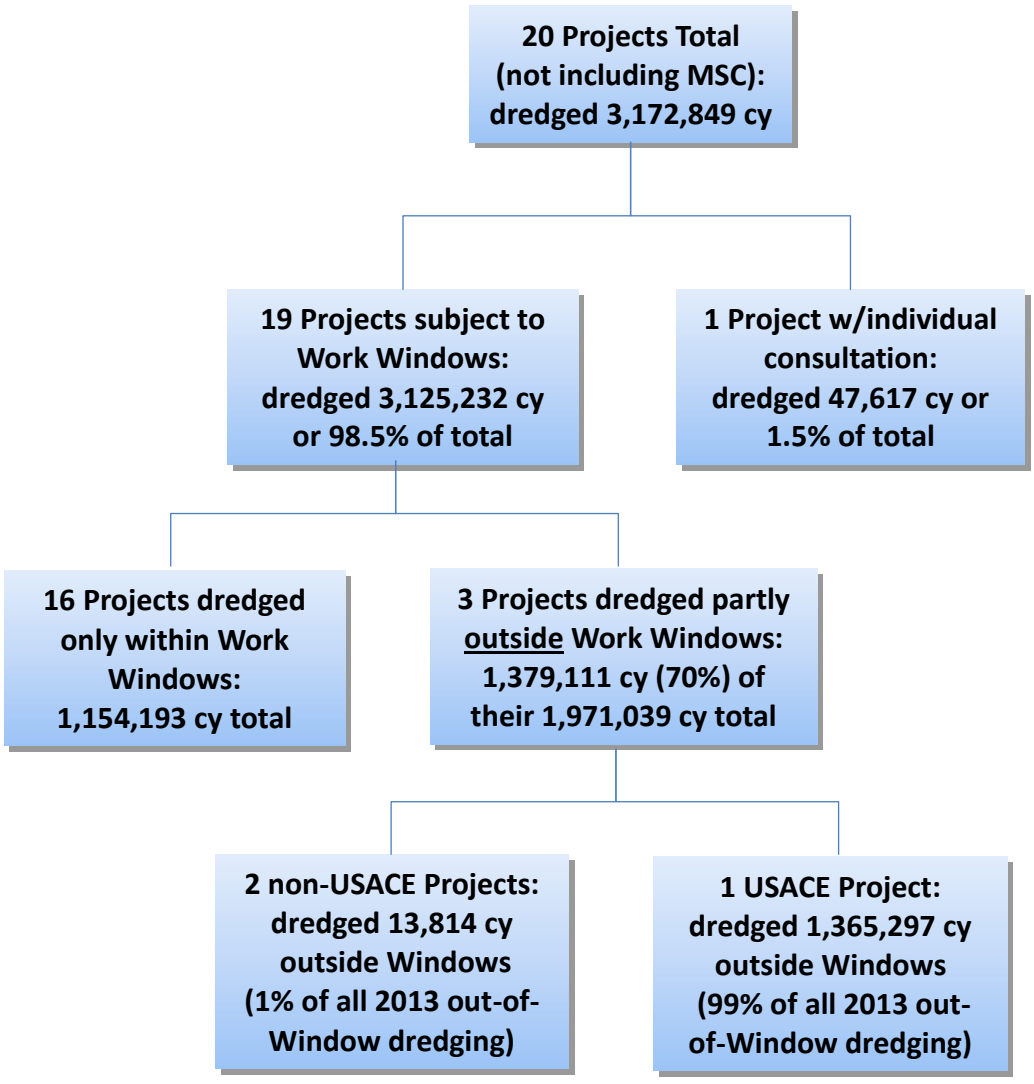

Figure 4. 2013 Dredge Volume Relative to Work Windows

LTMS Programmatic Biological Opinion

In 2013, due to the nature of their operations, multiple dredge events, hydraulic dredging, and placement, Valero Refining Company operated under an individual consultation for their first two dredge events, but were issued a new permit and finished their annual dredge cycle under the LTMS Programmatic Biological Opinion. The remaining projects adhered to the programmatic biological opinions (BO) from NMFS and USFWS with concurrence from CDFW, which remained in effect for 2013. The LTMS agencies continued to work with NMFS to update their programmatic BO for salmon, steelhead, and green sturgeon.

As mentioned in the previous section, in order to minimize disturbance to endangered and special status species, all dredged material disposal activities shall be confined to the work window, generally between June 1 and November 30 of any year. This work window is established by Tables F-1 and F-2 of Appendix F, "In-Bay Disposal and Dredging", and Figures 3.2 and 3.3 of the LTMS Management Plan (2001), as amended by USFWS on May 28, 2004. No work inconsistent with the time and location limits contained in these figures may be conducted without a consultation between and approval from the USACE and the USFWS and/or NMFS; as well as obtaining BCDC approval.

Essential Fish Habitat (EFH) Compliance (Appendix 4 and Appendix 5)

In June of 2011, the USACE and EPA issued the final agreement with NMFS entitled, *"Agreement on Programmatic EFH Conservation Measures for Maintenance Dredging Conducted Under the LTMS Program (Tracking Number 2009/06769)"*. The LTMS agencies have programmatically implemented this EFH agreement, including its provisions related to residual contaminants, bioaccumulation testing, as well as minimizing potential adverse effects to eelgrass and other submerged aquatic vegetation. In 2013, the majority of maintenance dredging projects did not have significant impact on EFH and no projects included bioaccumulation issues due to contaminated sediment. Three project footprints were located within 250 meters of eelgrass beds. Silt curtains were deployed to minimize turbidity for the one non-USACE project. The USACE contracted with Merkel and Associates, Inc. to complete post-dredging eelgrass impact analyses for the two USACE projects with eelgrass within 250 meters. The USACE dredging projects did not deploy silt curtains, but pre-dredging and post-dredge eelgrass surveys showed that there were no observable adverse effects to eelgrass from the USACE projects carried out in 2013. Appendix 4 presents the EFH agreement compliance for all dredge projects not funded and maintained by USACE. Appendix 5 presents the EFH agreement compliance for all USACE funded and maintained dredge projects (the commercial navigation channels).

Hydraulic Dredging and Entrainment

Through a monitoring effort aboard the USACE hopper dredge *Essayons*, entrainment of longfin smelt and Delta smelt was identified in 2011. USACE, USFWS and CDFW continue to work together to develop monitoring and mitigation plans to address entrainment by hydraulic dredges in the Bay and tidal portions of tributaries. An entrainment risk assessment is underway by USACE Engineer Research and Development Center in Vicksburg, Mississippi.

III. RELATED ISSUES

DMMO Sediment Quality Database

LTMS funds were used to develop a web-based data management system to store, retrieve, query and update sediment quality data and information in support of the DMMO. The DMMO's San Francisco Bay dredging and disposal database is now available online (www.dmmosfbay.org). and in the process of being beta-tested. The database contains sediment testing data from years 1990 to 2010 and is accessible for browsing and query of permit history, suitability summaries, historical sediment chemistry testing data, historical bioassay testing data and other specific documents. As such, the database has been designed to allow dredging project sponsors, labs, and consultants to upload their project data into the system as well as the ability to review the projects' sediment quality history. The database will allow DMMO to review projects' sediment quality over longer periods. Starting in May 2014dredging documents can be uploaded to the website. Laboratory test results submittal is currently being beta-tested.

SediMatch

In order to improve sediment placement planning and scheduling, DMMO and LTMS partner, San Francisco Bay Joint Venture, are developing a sediment placement site database to improve and increase the matching of dredging projects with appropriate beneficial reuse sites. A pilot meeting was held at BCDC in 2013 to bring interested parties together to coordinate sediment supply and demand, discuss placement options and logistics as well as potential cost-sharing opportunities. The DMMO continues to pursue this project in order to match dredging projects with appropriate beneficial reuse sites.

IV. LOOKING AHEAD

For the 2014 dredge season, DMMO continues to implement the last LTMS step-down to the 1.25 million cy annual volume limit target, maintaining the in-Bay disposal volumes limits and encouraging the development and use of beneficial reuse sites. Dredging project sponsors, labs and consultants will submit dredging documents and test results directly into the on-line database, rendering them immediately accessible to DMMO, the public and increasing efficiency. Additionally, the USACE continues to update the DMMO webpage with new information to provide better access to and increase awareness of the DMMO.

DMMO MEMBER AGENCY STAFF CONTACTS:

USACE	Robert Lawrence	(415) 503-6808	Robert.J.Lawrence@usace.army.mil
BCDC	Brenda Goeden	(415) 352-3623	brendag@bcdc.ca.gov
RWQCB	Beth Christian	(510) 622-2335	EChristian@waterboards.ca.gov
EPA	Melissa Scianni	(415) 972-3821	Scianni.Melissa@epamail.epa.gov
SLC	Donn Oetzel	(916) 574-1998	OetzelD@scl.ca.gov

RESOURCE AGENCY CONTACTS:

CDFW	Vicky Frey (Bay Region)	(707) 445-7830	vfrey@dfw.ca.gov
	Craig Weightman (Tributaries)	(707) 944-5500	cweightman@dfw.ca.gov
	Jim Starr (Delta region)	(707) 944-5500	jstarr@dfw.ca.gov
USFWS	Ryan Olah (Bay region)	(916) 414-6625	Ryan_Olah@fws.gov
	Kim Squires (Delta region)	(916) 930-5634	Kim_ Squires@fws.gov
NMFS	Gary Stern	(707) 575-6060	Gary.Stern@noaa.gov
	Sara Azat	(707) 575-6067	Sara.Azat@noaa.gov

DMMO WEBSITE:

www.spn.usace.army.mil/Missions/DredgingWorkPermits/DredgedMaterialManagementOffice(DMMO).aspx

DMMO DATABASE WEBSITE (BETA):

www.dmmosfbay.org

LTMS WEBSITE:

www.spn.usace.army.mil/Missions/DredgingWorkPermits/LTMS.aspx

LTMS 12-YEAR REVIEW:

www.spn.usace.army.mil/Missions/DredgingWorkPermits/LTMS/LTMSProgram12YearReviewProcess.aspx

PROGRAMMATIC EFH CONSULTATION - MERCURY UPDATE:

www.spn.usace.army.mil/Portals/68/docs/Dredging/LMTS/EFH_Modification_Mercury_Bioaccumulation_Testing.pdf

www.spn.usace.army.mil/Portals/68/docs/Dredging/LMTS/LTMS%20EFH%20full%20signed%20agreement%20FINAL%206-9-2011.pdf

Appendix 1 - 2013 Dredging Volumes by Project (Cubic Yards)

Project	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 'in-situ' VOL (cu yd)
BENICIA MARINA; SF-9	0	0	0	0	0	0	0	0	0	2,976	3,706	0	6,682
BENICIA PORT TERMINAL COMPANY, AMPORT; SF-9	0	0	0	0	0	0	0	0	0	0	4,244	0	4,244
BENICIA PORT TERMINAL COMPANY, AMPORT; Montezuma/Reuse	0	0	0	0	0	0	0	0	0	0	19,890	0	19,890
CHEVRON RICHMOND LONG WHARF; Montezuma/Reuse	0	0	0	0	0	0	0	0	0	41,988	79,602	0	121,590
CHEVRON RICHMOND LONG WHARF; SF-11	0	0	0	0	0	0	0	0	0	8,377	18,313	0	26,690
CLIPPER YACHT HARBOR; PoO Berth 10	0	0	0	0	0	0	0	0	0	0	1,228	154	1,382
(CONOCO) PHILLIPS 66; SF-9	0	0	0	0	0	0	0	0	0	0	6,106	0	6,106
LEVIN, RICHMOND TERMINAL; Upland	0	0	0	0	0	3,143	0	0	0	0	0	0	3,143
MONTEZUMA HARBOR; Upland	0	0	0	0	0	0	0	0	1,500	0	0	0	1,500
MOORING ROAD HOMEOWNERS; SF-10	0	0	0	0	0	0	0	0	0	0	4,403	0	4,403
NAPA YACHT CLUB; SF- 9	0	0	0	0	0	0	0	12,289	16,548	1,069	0	0	29,906
PORT OF OAKLAND, BERTH Maintenance; SF-DODS	0	0	0	0	0	0	0	0	0	121,490	0	0	121,490
PORT OF SAN FRANCISCO, PIER 32-36, America's Cup; Montezuma/Reuse	0	0	0	0	13,660	0	0	0	0	0	0	0	13,660
PORT OF SAN FRANCISCO, PIER 35 E&W; SF-DODS	0	0	0	0	0	0	0	0	0	0	37,825	0	37,825
RICHARDSON BAY MARINA; SF-11	0	0	0	0	0	0	0	0	772	9,851	1,852	0	12,475
SAN FRANCISCO MARINA, West Basin; SF-11	0	0	0	0	0	7,121	730	0	0	0	0	0	7,851
SAN FRANCISCO MARINA, West Basin; Upland - Rock Quarry	0	0	0	0	0	1,737	234	0	0	0	0	0	1,971
U.S. COAST GUARD, VALLEJO; SF-9	0	0	0	0	0	0	0	0	7,850	0	0	0	7,850
VALERO REFINERY TERMINAL; SF-9	0	0	0	0	0	0	0	16,284	0	0	0	0	16,284
VALERO REFINERY TERMINAL; Upland - Winter Island	0	17,610	0	0	13,723	0	0	0	0	0	0	0	31,333
USACE, MAIN SHIP CHANNEL; SF-8	0	0	0	0	0	(480,641)	(7,823)	0	0	0	0	0	(488,464)
USACE, OAKLAND INNER & OUTER HARBOR; SF-11	0	0	0	0	0	0	0	0	0	46,200	78,000	0	124,200
USACE, OAKLAND INNER & OUTER HARBOR; Montezuma/Reuse	0	0	0	0	0	0	0	0	0	0	131,800	226,797	358,597
USACE, OAKLAND INNER & OUTER HARBOR; SF-DODS	221,000	214,400	302,500	161,600	239,000	264,000	0	0	0	44,900	25,800	0	1,473,200
USACE, PINOLE SHOAL CHANNEL; SF-9	0	0	0	0	0	0	0	27,603	0	0	0	0	27,603
USACE, PINOLE SHOAL CHANNEL; SF-10	0	0	0	0	0	0	0	0	78,208	0	0	0	78,208
USACE, RICHMOND INNER & OUTER HARBOR; SF-10	0	0	0	0	0	0	0	94,420	141,630	94,420	0	0	330,470
USACE, RICHMOND INNER & OUTER HARBOR; SF-11	0	0	0	0	0	0	0	49,065	73,600	49,065	0	0	171,730
USACE, SUISUN BAY CHANNEL (including New York Slough); SF-16	0	0	0	0	0	0	0	132,566	0	0	0	0	132,566
TOTAL	**221,000**	**232,010**	**302,500**	**161,600**	**266,383**	**276,001**	**964**	**332,227**	**320,108**	**420,336**	**412,769**	**226,951**	**3,172,849** *

*Excludes MSC

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 - 2013 Disposal Sites and Volumes Disposed (Cubic Yards)

Disposal Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2013 Total Volume*
SF-8, Federal	0	0	0	0	0	(480,641)	(7,823)	0	0	0	0	0	(488,464)
SF-9, Carquinez Straits	0	0	0	0	0	0	0	56,176	24,398	4,045	14,056	0	98,675
SF-10, San Pablo Bay	0	0	0	0	0	0	0	94,420	219,838	94,420	4,403	0	413,081
SF-11, Alcatraz	0	0	0	0	0	7,121	730	49,065	74,372	113,493	98,165	0	342,946
SF-16, Suisun Bay	0	0	0	0	0	0	0	132,566	0	0	0	0	132,566
TOTAL in-Bay (excluding MSC)	**0**	**0**	**0**	**0**	**0**	7,121	730	332,227	318,608	211,958	116,624	**0**	987,268 *
Reuse, Upland, etc.	0	17,610	0	0	27,383	4,880	234	0	1,500	41,988	232,520	226,951	553,066
SF-DODS, Deep Ocean Disposal Site	221,000	214,400	302,500	161,600	239,000	264,000	0	0	0	166,390	63,625	0	1,632,515
GRAND TOTAL	221,000	232,010	302,500	161,600	266,383	276,001	964	332,227	320,108	420,336	412,769	226,951	3,172,849 *

*Excluding MSC

Appendix 3
Description of Beneficial Reuse and Upland Placement Sites

In 2013, roughly 553,066 cy, or 17 % of the total 3.2 million cy of sediment dredged was beneficially reused or taken to upland placement sites. The majority (93%) of the dredged material was taken to Montezuma Wetlands Restoration Project of which nearly 70% came from the Port of Oakland's Inner and Outer Harbor Maintenance Dredging Project. The following are the beneficial reuse/upland placement sites available to dredgers in 2012:

Montezuma Wetland Restoration Project (MWRP).

Approximately 513,737 million cy of dredged material was placed at the MWRP in 2013, of which nearly 70%, 358,597 cy, came from the Port of Oakland's Inner and Outer Harbor Maintenance Dredging Project. Approximately 121,590 cy came from the Chevron Richmond Long Wharf Maintenance Dredging Project. The remaining volume came from dredging projects at the Amports Benicia Port Terminal, and the Port of San Francisco, Pier 32-36, America's Cup Maintenance Dredging Projects. 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. MWRP now has an off-loading facility in place and can accept dredged sediment for both cover and foundation material. MWRP has a total capacity of 14,000,000 cy of dredged material.

Winter Island Levee

In 2013, 31,333 cy of dredged material from the Valero Refinery Terminal Maintenance Dredging Project, was 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).

SF-8 Bar Channel Site, Eastern Portion

In 2013, no dredging projects placed 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. In 2012 the USACE's Main Ship Channel dredging project did not use SF-8 for disposal, as all of the Main Ship Channel material was taken to SF-17.

SF-17 Ocean Beach Pilot Project Placement Site

In July 2013, the USACE was not able to place material at its Main Ship Channel maintenance dredging project at the Ocean Beach Pilot Project Placement Site due contracting issues. 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.

Upland Placement or Landfill Disposal

In 2013, four dredging projects disposed a total of 7,996 cy of dredge material at various upland sites including the San Rafael Rock Quarry, the Berth 10 rehandling facility at the Port of Oakland, and other upland placement sites. The San Francisco Marina West Basin project took 1,971 cy of sand to the San Rafael Rock Quarry. Clipper Yacht Harbor placed 1,382 cy of material at Berth 10, which was later taken to a landfill. Levin, Richmond Terminal placed 3,143 cy of material at an upland landfill. Montezuma Harbor placed 1,500 cy at upland site.

Potential Future Beneficial Reuse and Upland Placement Sites:

Cullinan Ranch

No dredged material was placed at Cullinan Ranch in 2013 mainly due lack of offloading equipment. Cullinan Ranch is State-owned and managed by the USFWS and the CDFW. 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 and 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 the plans include placement of an off-loader to render it a more accessible beneficial reuse site in the future.

Appendix 4 - NON-CORPS MAINTENANCE DREDGING PROJECTS LTMS EFH AGREEMENT COMPLIANCE REPORT 2013

PROJECT NAME	CORPS FILE NUMBER	DISPOSAL LOCATION	EPISODE ACREAGE	PERMITTED ACREAGE	DREDGE DATE (2013)	VOLUME DREDGED (CY)	EFH COMPLIANCE ISSUES
American's Cup 34 Episode 1; 30/32-36 Basin	2011-00057S	Montezuma	3.95	9.9	May	13,660	No eelgrass within 250 meters. No EFH issues associated with episode
ADR Mare Island Shipyard, Episode 3*	2008-00311	Project Site	0.17	18.31	Sept.	1,961	No eelgrass within 250 meters. No EFH issues associated with episode
AMPORTS Episode 5	28097N	SF-9, Montezuma, Winter Island	3.1	8	Nov.	22,580	No eelgrass within 250 meters. No EFH issues associated with episode
Benicia Marina Episode 13	26656S	SF-9	3.7	18.43	Oct. - Nov.	6,682	No eelgrass within 250 meters. No EFH issues associated with episode
Chevron Long Wharf, Episode 3	2013-00052	SF-11, Montezuma	35.88	44.1	Oct. - Nov.	148,280	No eelgrass within 250 meters. No EFH issues associated with episode
Clipper Yacht Harbor Remediation Episode 1**	2013-00237N	Port of Oakland Berth 10 Landfill	0.03	0.03	Nov.-Dec.	1,382	No eelgrass within 250 meters. No EFH issues associated with episode
Levin-Richmond Terminal, Episode 3	2008-00399S	Levin Richmond Terminal Berth B, landfill	0.36	2.62	June	3,143	No eelgrass within 250 meters. No EFH issues associated with episode
Montezuma Harbor Episode 1	2013-00141S	on-site upland	0.25	0.25	Sept.	1,500	No eelgrass within 250 meters. No EFH issues associated with episode
Mooring Road Homeowners, Episode 1	2012-00162N	SF-10	1.3	1.3	Sept. - Nov.	4,403	No eelgrass within 250 meters. No EFH issues associated with episode
Napa Main Street Boat Dock, Episode 1	2010-00013N	Winter Island	0.37	0.37	Aug.		No eelgrass within 250 meters. No EFH issues associated with episode
Napa Yacht Club, Episode 1	2009-00430N	SF-9	7.09	13.5	Aug. - Oct.	29,906	No eelgrass within 250 meters. No EFH issues associated with episode
Phillips 66, Rodeo Episode 9	28482S	SF-9	3	16.7	Nov.	6,106	No eelgrass within 250 meters. No EFH issues associated with episode
Port of Oakland, Episode 36	27629S	SF-DODS	23.5	36.59	Sept. - Nov.	121,490	No eelgrass within 250 meters. No EFH issues associated with episode
Port of SF, Berth 35, Episode 23	27549S	SF-DODS	5.7	8	Oct. - Nov.	37,825	No eelgrass within 250 meters. No EFH issues associated with episode
Richardson Bay Marina, Episode 1	2012-00134N	SF-11	2.2	3.8	Sept. - Oct.	12,475	Eelgrass within 45 meters. Surveys conducted by permittee. No eelgrass in dredge footprint, but silt curtains deployed to protect nearby eelgrass beds from turbidity
SF Marina, West Basin, Episode 5, Phase 1	2008-00074S	SF-11, San Rafael Rock Quarry	0.6	1.82	June- July	7,851	No eelgrass within 250 meters. No EFH issues associated with episode
SF Marina, West Basin, Ep. 5, Ph. 2	2008-00074S	San Rafael Rock Quarry	1.22	1.82	Nov.	1,971	No eelgrass within 250 meters. No EFH issues associated with episode
USCG Station Vallejo, Episode 1	2008-00049N	SF-9	1.65	1.65	Sept.	7,850	No eelgrass within 250 meters. No EFH issues associated with episode
Valero Refining Company, Episode 13	26982N	SF-9, Winter Island	3.13	5.48	Aug.	47,617	No eelgrass within 250 meters. No EFH issues associated with episode

* knock down

** this project included one-time deepening to remove contaminate sediment

Appendix 5 - 2013 LTMS USACE Maintenance Dredging Projects
Programmatic EFH Agreement Compliance

Project Name	Placement Site	Dredge Used	Dredge Month(s) 2012	Total Area of Project	Area Dredged (Acres)	Volume: Cubic Yards	EFH Compliance Issues
Oakland Inner Harbor (Reaches 1,2,3,4,5,6), and Outer Harbor (Reaches 7,8,9,10)	SF-11, SF-10, SF-DODS, MWRP	Clamshell	Oct. 2013 - Jan. 2014	776.18	82.50	1,955,997	Eelgrass within 250 meters of dredging. Eelgrass surveys and impact analysis completed. No adverse effects to eelgrass were determined. (Note: Dredge volume includes material dredged outside work window Jan. - Jun. 2013)
Pinole Shoal Channel	SF-10	Clamshell	Aug.-Sep. 2013	879.07	18.94	105,811	No eelgrass within 250 meters. No EFH issues associated with episode
Richmond Inner Harbor (Reaches 4,5, and 9), and Outer Harbor	SF-11	Clamshell	Jul. - Oct. 2013	698.24	154.05	502,200	Eelgrass within 250 meters of dredging. Surveys and impact analyis of eelgrass done after dredging showed eelgrass bed had actually grown in areal extent.
S.F. Main Ship Channel	SF-8	Hopper	Jun.- 2013	1203.59	160.34	488,464	No eelgrass within 250 meters of dredging.
Suisun Bay Channel (including New York Slough and Bulls Head Reach	SF-16	Hopper	Jul. - Aug. 2013	805.85	61.69	132,566	No eelgrass within 250 meters of dredging.