

Dredged Material Management Office (DMMO)  
Dredging and Placement of Dredged Material  
in San Francisco Bay  
January-December 2017 Report



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## I. INTRODUCTION

### Dredged Material Management Office

Since 1996, as part of the Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS), the Dredged Material Management Office (DMMO) has been promoting economically and environmentally sound dredging and the placement of dredged sediment in the San Francisco Bay (Bay) region. 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); and the San Francisco Bay Conservation and Development Commission (BCDC). The California State Lands Commission (SLC), the California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) participate in the DMMO on an as available and needed basis.

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 dredged sediment management issues. Together, the DMMO agencies facilitate processing of dredging permit applications within each partner agency's existing laws, policies, and regulations. The DMMO meetings provide a mechanism for the permit applicants, interested parties and the public to participate in the application review process. The DMMO reviews dredging projects within San Francisco Bay Estuary to its eastern extent at Sherman Island, the Bay's major tributaries to the point where navigation is no longer feasible, upland areas surrounding the estuary and the San Francisco Deep Ocean Disposal Site (SF-DODS), also known as the LTMS Study Region.

The DMMO generally meets twice a month on Wednesdays and the meetings are open to the public. The USACE posts meeting schedules, agendas, and documents slated for review on the DMMO website [www.dmmosfbay.org](http://www.dmmosfbay.org).

#### DMMO Responsibilities

- **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.**
- **Receive, review, and coordinate dredging project permit applications, in the San Francisco Bay Area.**
- **Develop guidance documents as needed.**
- **Coordinate implementation of programmatic requirements such as species consultations, alternative disposal site analyses and record-keeping.**

The DMMO reviews and analyzes dredging project test results as well and project information such as compliance with environmental work windows and placement site volume targets set forth in the LTMS Management Plan. Dredging data is summarized in the DMMO annual reports each year, and along with guidance documents and other DMMO background information, can be found on the USACE LTMS website

[www.spn.usace.army.mil/Missions/DredgingWorkPermits/DredgedMaterialManagementOffice\(DMMO\).aspx](http://www.spn.usace.army.mil/Missions/DredgingWorkPermits/DredgedMaterialManagementOffice(DMMO).aspx)

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

The LTMS was formed in 1990 in response to concerns about potential direct, indirect and cumulative impacts from dredging and dredged sediment disposal on water quality, wildlife and beneficial uses of San Francisco Bay. In 1998 the LTMS agencies published a programmatic EIS/EIR that evaluated a range of alternatives for integrated management of dredging and dredged sediment placement.<sup>1</sup> The selected, environmentally preferred alternative from the programmatic EIS/EIR established the long term goals of at least 40% of dredged sediment being beneficially reused, no more than 20% being disposed in the Bay, and the remainder being disposed at the San Francisco Deep Ocean Disposal Site (SF-DODS). The LTMS Management Plan<sup>2</sup>, published in 2001, contains detailed measures for implementing the selected program.

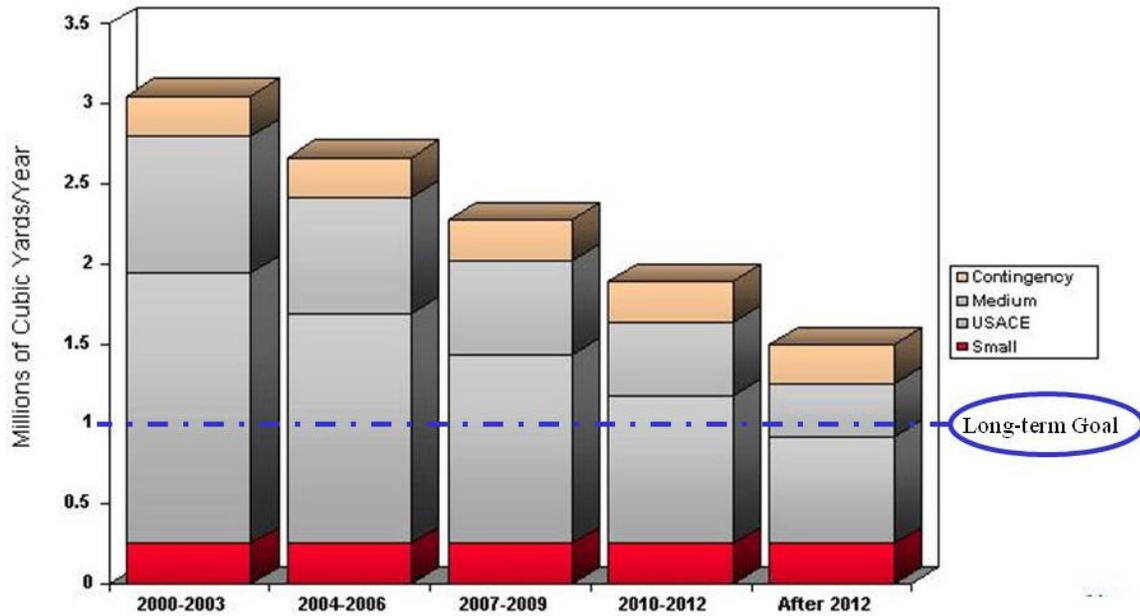
Of particular importance was the Management Plan's 12-year transition period, designed to gradually reduce the annual in-Bay disposal volume limit to a maximum of 1.25 million cubic yards (cy) of sediment by the end of 2012. The annual target volumes were averaged every three years to allow flexibility for inter-annual variability in sediment deposition and dredging project production. The purpose of the transition period was to provide time for dredging project sponsors to plan for the logistic and economic changes of meeting the new dredged sediment management program and for additional beneficial reuse sites to be developed. The 12-year transition period began with an immediate reduction of the allowed in-Bay disposal volume by over 50%, to 2.8 million cy for the first three years. A further reduction of 378,500 cy occurred every three years thereafter, until the long term in-Bay volume limit of 1.25 million cy was reached starting in 2013 (Figure 1).

In 2013, after completion of the transition period, the LTMS agencies conducted a review of the overall program and found that in-Bay disposal remained below the annual transition period limits each year, except 2011 (Figure 2). However, for each three-year period the annual volumes were averaged, and the average volumes remained below the transition period limits. Therefore, individual project allocations (as provided for in the Management Plan) were not triggered. The LTMS Twelve Year Review, as well as the DMMO annual reports, containing detailed year-by-year history of dredging volumes and placement locations are available on the LTMS website.

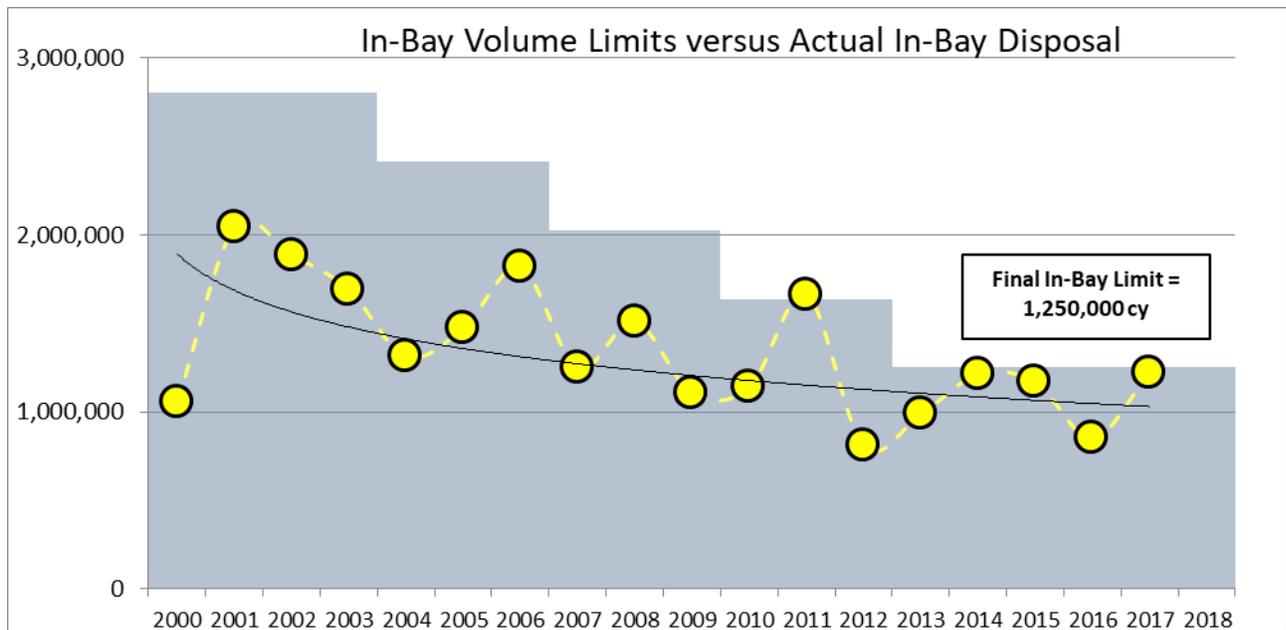
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<sup>1</sup> Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region EIS, 1998. [www.spn.usace.army.mil/Missions/Dredging-Work-Permits/LTMS/Volume-1/](http://www.spn.usace.army.mil/Missions/Dredging-Work-Permits/LTMS/Volume-1/)

<sup>2</sup> Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region, Management Plan, 2001. [www.spn.usace.army.mil/Missions/Dredging-Work-Permits/LTMS/](http://www.spn.usace.army.mil/Missions/Dredging-Work-Permits/LTMS/)



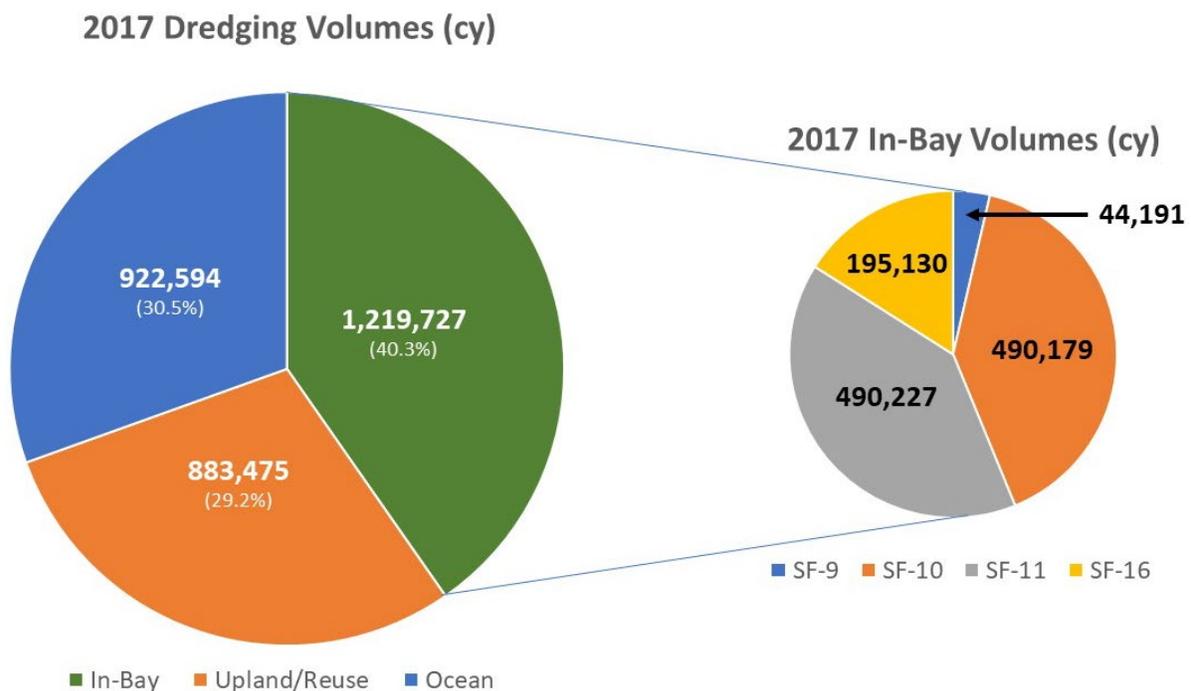
**Figure 1.** The LTMS 12YR Transition Period, showing the in-Bay disposal volume limit decreases that occurred every three years until the end of 2012. The Transition Period was complete as of 2013, and the final annual in-Bay disposal limit of 1.25 million cy remains in place.



**Figure 2.** Actual in-Bay disposal volumes (yellow dots), compared to the transition period limits (2000-2012) and the final post-transition period disposal limit (2013-2017) (blue shading).

## II. 2017 DREDGING AND PLACEMENT OVERVIEW

In 2017, 34 projects dredged a total of 3,025,796 cy of sediment from San Francisco Bay. As summarized in Figure 3 and Table 1, a total of 1,219,727 cy (40.3% of the total volume dredged) was disposed at four designated in-Bay dredged sediment disposal sites, while 883,475 cy (29.2%) was beneficially reused and 922,594 cy (30.5%) was disposed at SF-DODS. Of the sediment disposed at the four in-Bay disposal sites, 490,227 cy (40.2%) went to the Alcatraz Disposal Site (SF-11); 490,179 cy (40.2%) went to the San Pablo Bay Disposal Site (SF-10); 44,191 cy (3.6%) went to the Carquinez Strait Disposal Site (SF-9); and 195,130 cy (16%) went to the Suisun Bay Disposal Site (SF-16). Detailed volume information for 2017 is provided in Appendix 1 (by placement site) and Appendix 2 (by dredging project, including monthly disposal volumes).



**Figure 3.** 2017 total dredging and placement summary, showing detail for In-Bay Disposal Sites.

### In-Bay Disposal

Although the LTMS Plan’s 20% in-Bay disposal goal was exceeded in 2017, the actual in-Bay disposal volume of 1,219,727 cy did not exceed the 1.25 million cy annual limit. In-Bay disposal volumes in 2016 and 2018 will be averaged with the 2017 volumes to determine the three-year average in-Bay disposal volume (Table 1). If the three-year average exceeds 1.25 million cy, potential dredger-specific allocations would have to be considered, per the LTMS Management Plan. But given that the combined 2016 and 2017 in-Bay disposal volumes were below 1.25 million cy, the full 1.25 million cy (plus a 250,000 cy contingency volume) is available for 2018 without the risk of triggering allocations.

Dredging Volumes Under LTMS, 2000 through 2017 (cy)*									
Calendar Year	In-Bay Disposal Target**	In-Bay Disposal	In-Bay % of Total	Reuse/Upland	Reuse % of Total	Ocean Disposal	Ocean % of Total	Total Dredging	3-yr in-Bay averages
2000	2,800,000	880,000	22.3%	2,294,676	58.1%	775,000	19.6%	3,949,676	
2001	2,800,000	2,041,936	56.1%	1,028,256	28.3%	566,679	15.6%	3,636,871	1,939,673
2002	2,800,000	1,887,083	55.4%	650,051	19.1%	866,400	25.5%	3,403,534	
2003	2,800,000	1,890,000	51.8%	646,337	17.7%	1,113,814	30.5%	3,650,151	
2004	2,412,500	1,312,829	52.0%	869,452	34.5%	341,000	13.5%	2,523,281	1,534,316
2005	2,412,500	1,473,253	23.3%	4,718,716	74.5%	137,717	2.2%	6,329,686	
2006	2,412,500	1,816,866	42.0%	1,558,487	36.0%	954,456	22.0%	4,329,809	
2007	2,025,000	1,249,338	28.8%	1,527,549	35.3%	1,554,362	35.9%	4,331,249	1,289,765
2008	2,025,000	1,512,098	35.4%	2,587,094	60.5%	175,855	4.1%	4,275,047	
2009	2,025,000	1,107,859	28.6%	2,688,264	69.5%	72,289	1.9%	3,868,412	
2010	1,637,500	1,139,780	56.5%	591,595	29.3%	285,460	14.2%	2,016,835	1,209,659
2011	1,637,500	1,668,043	50.7%	971,368	29.5%	652,970	19.8%	3,292,381	
2012	1,637,500	821,153	31.5%	1,014,561	38.9%	772,760	29.6%	2,608,474	
2013	1,250,000	987,268	31.1%	553,066	17.4%	1,632,515	51.5%	3,172,849	1,124,045
2014	1,250,000	1,213,331	57.4%	770,618	36.5%	130,006	6.1%	2,113,955	
2015	1,250,000	1,171,535	37.3%	1,251,958	39.9%	717,555	22.8%	3,141,048	
2016	1,250,000	852,049	31.2%	1,117,833	41.0%	758,887	27.8%	2,728,769	
2017	1,250,000	1,219,727	40.3%	883,475	29.2%	922,594	30.5%	3,025,796	
2018	1,250,000								
	Mean	1,354,378		1,429,075		690,573		3,492,472	
	Total	23,024,421	38.8%	25,723,356	43.3%	12,430,319	20.9%	59,372,027	
* Final volumes based on post-dredge surveys. May differ from volumes published in individual DMMO Annual Reports.									
** Not including 250,000 cy Contingency Volume									

**Table 1.** Dredging and placement volumes under the LTMS program, 2000-2017.

### Beneficial Reuse and Upland Placement

In 2017, nearly 900,000 cy of dredged sediment (29.2% of the total dredged) was beneficially reused or taken to upland placement sites. Five beneficial reuse sites were used by dredging project sponsors (Table 2). 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. More detailed information for each of the beneficial reuse sites that received dredged sediment in 2017 is provided below:

Placement Location	Sediment Placed (cy)	% of Total Reuse/Upland
Cullinan Ranch Restoration Project	479,596	54.3%
Montezuma Wetlands Restoration Project	340,354	38.5%
City of Martinez, Upland Ponds	33,126	3.7%
SF-8 inshore portion (non-Federal)	27,699	3.1%
Napa Sea Ranch	2,700	0.3%
<b>Total</b>	<b>883,475</b>	<b>100%</b>

**Table 2.** Beneficial reuse and upland placement sites that received dredged sediment in 2017.

- Cullinan Ranch Restoration Project (CRRP)

In 2014, USACE, BCDC, and the Water Board revised their permits for the CRRP site in the San Pablo Bay National Wildlife Refuge, increasing the volume of dredged sediment authorized for placement from 450,000 cy over 50 acres, to 2.8 million cy over 290 acres of the 1,575-acre site. In 2017, this site received more dredged material for reuse than any other Bay area site (479,596 cy, or 54.3 % of the total reused). The USACE federal channel dredging project at Richmond Inner Harbor provided the vast majority of the material going to the site (437,797 cy). The remainder of the material came from the Mare Island Dry Docks, and Foster City Intake Channel. (See Appendix 2.)

- Montezuma Wetland Restoration Project (MWRP)

In 2017, the MWRP received 340,354 cy of dredged sediment material for reuse (38.5% of the total reused). The sediment came from 11 maintenance dredging projects: Most of the volume came from three non-federal dredging projects – 114,625 cy from the Port of San Francisco, 109,272 cy from the Chevron Long Wharf, and 53,411 cy from Valero. The remaining volume came from dredging projects at Coast Guard Island, Amports, Phillips 66 San Francisco Refinery, Sausalito Yacht Harbor, San Francisco Marina West Basin, WETA Vallejo Ferry terminal, Mare Island Dry Docks, and the WETA Richmond Ferry terminal.

- City of Martinez Upland Ponds

The City of Martinez dredged 33,126 cy from Martinez Marina, and placed it all in their on-site confined disposal ponds.

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

The SF-8 ocean disposal site is used only by USACE, for sand dredged from the Main Ship Channel (MSC) offshore of San Francisco Bay. The placement of sand from the MSC at SF-8 is not considered beneficial reuse because that sand is already in the San Francisco Bar and the littoral transport system associated with it. However, clean sand from other dredging projects that is placed within the easternmost portion of SF-8 (inside the 3-mile limit) is considered beneficial reuse, because it adds new sand to the Bar and its littoral transport system. In 2017, three projects placed a total of 27,699 cy of clean sand in the easternmost portion of SF-8 from

projects other than the dredging of the MSC. These included Phillips 66 San Francisco Refinery, the San Francisco Marina West Basin, and a portion of the sediment dredged by USACE from the Pinole Shoal federal channel.

- Napa Sea Ranch  
2,700 cy of sediment dredged from the Napa Valley Marina were placed at the adjacent confined disposal ponds at Napa Sea Ranch.

### Sediment Suitability for In-Bay Unconfined Aquatic Disposal

Approximately 94.6% of all sediment dredged in 2017 (2,861,619 cy of the 3,025,796 cy total) was suitable for unconfined aquatic disposal in the Bay (SUAD), while 5.4% (164,117 cy) was not suitable for unconfined disposal in the Bay (NUAD). Two-thirds of the NUAD material came from US Coast Guard (USCG) deepening of the berths at Station Alameda and from projects in the Port of Richmond (combined total of 109,244 cy). The remaining NUAD sediment (54,873 cy) came from five other dredging projects (Table 3). Of the total 5.4% of NUAD sediment, 36,090 cy (22%) was reused as foundation material at MWRP, and the remainder was disposed at SF-DODS. In all cases, the NUAD sediment was not directly toxic in bioassays but was determined to be NUAD based on sediment chemistry: e.g. they exceeded a Total Maximum Daily Load (TMDL) concentration limit and/or specific restoration site acceptance criteria.

Project	NUAD Volume (cy)	Reason NUAD	Placement Site
Mare Island Dry Docks Episode 14	2,910	PAH	MWRP Foundation
Plains All America Terminal	4,683	DDT	SFDODS
Port of Richmond Terminal 7/8	31,968	PCB	SF-DODS
- Marina Bay Yacht Harbor Episode 2*	19,372	PCB	SF-DODS
Port of San Francisco Berth 27	24,805	PAH	SFDODS
Sausalito Yacht Harbor	3,509	Mercury, PCB	MWRP Foundation
USCG Station Alameda	29,671 28,233	Mercury, PCB	MWRP Foundation SF-DODS
WETA San Francisco Ferry Terminal	18,966	PAH	SF-DODS
<b>Total</b>	<b>164,117</b>		

\* Dredged along with Port of Richmond project

**Table 3.** Projects dredged in 2017 that included sediment not suitable for unconfined in-Bay disposal (NUAD).

### Dredging Equipment Used in the Bay

Almost all of the dredging projects inside the Bay in 2017 used mechanical dredges (e.g., clamshells or excavator buckets). Two permitted projects (Martinez Marina, and Napa Valley Marina) dredged a total of 35,826 cy using hydraulic equipment (Appendix 3), and one in-Bay USACE project (Pinole Shoal federal channel) dredged 557,447 cy using a hydraulic hopper dredge, the USACE's *Essayons* (Appendix 4). The USACE hydraulic dredging represented 26% of the total USACE in-Bay dredging (2,116,089 cy) in 2017. In addition, the *Essayons* also dredged

the Main Ship Channel (outside the Bay) in 2017, but this is not calculated as part of the in-Bay disposal.

## Environmental Work Windows

Environmental work windows, developed via programmatic consultations on the LTMS Program, encourage projects to work when sensitive species are not present in the San Francisco Bay and its tributaries. These windows vary depending on geographic project location around the Bay, and for many projects the work windows begin either on June 1 or August 1 and generally last through November 30 of each year. On July 9, 2015, the NOAA National Marine Fisheries Service (NMFS) issued an amended LTMS Programmatic Biological Opinion for salmon, steelhead, and green sturgeon<sup>3</sup>. This update addresses green sturgeon and modifies some previously established environmental work windows (Coho salmon). For the first time, the amended biological opinion allows some projects to plan to work outside the established windows provided that the sediment dredged outside the window is placed at a beneficial reuse site benefitting fish habitat. It further provides the LTMS agencies with the ability to authorize limited dredging (up to a cumulative total of 50,000 cy) outside the window, without further consultation with NMFS, when unforeseeable circumstances delay project completion within the work window.

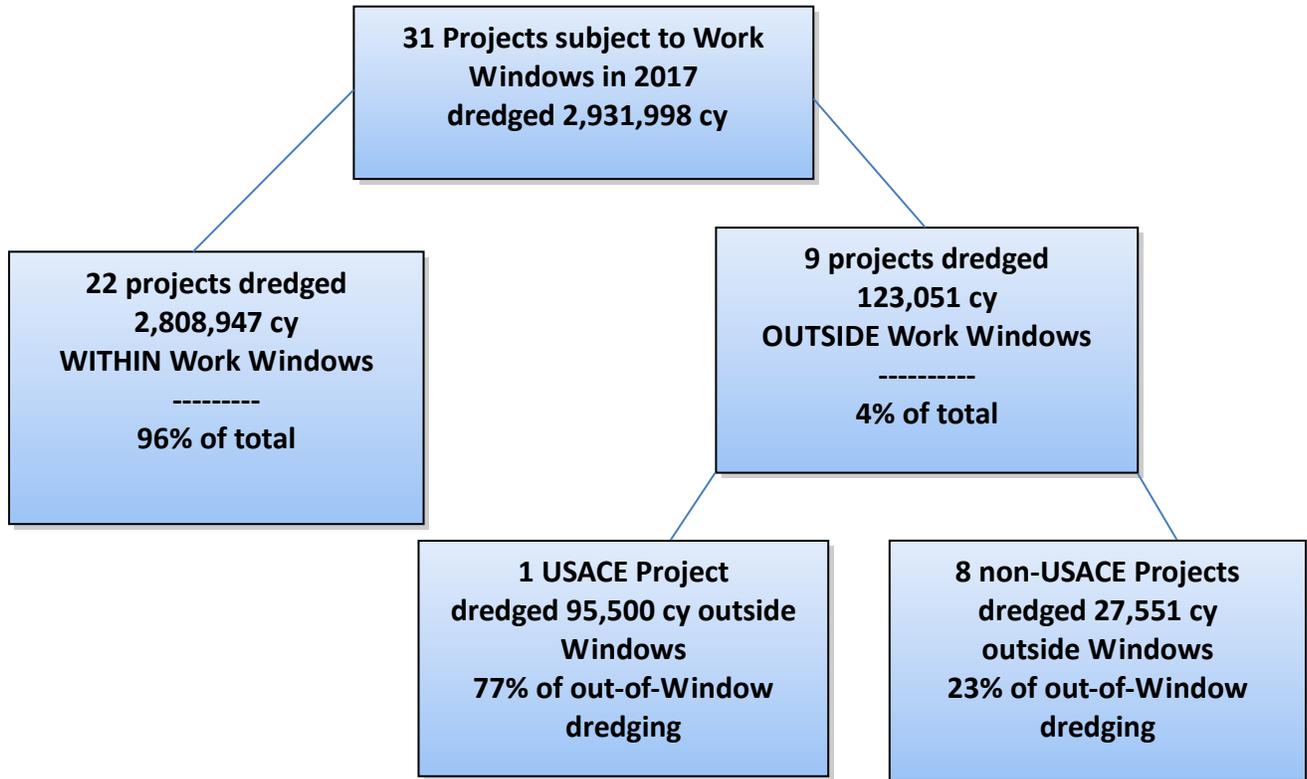
Environmental work windows applied to 32 of the 34 dredging projects conducted in 2017<sup>4</sup>. Most of these projects began work in or after the month of June, and 23 of them were completed entirely within their work windows (Figure 4). Of the 31 projects subject to the environmental work windows, seven non-USACE projects (Coyote Point Marina, Foster City intake channel, Martinez Marina, Paradise Cay Yacht Harbor, Port of San Francisco Berth 80/Islais Creek, Sausalito Yacht Harbor, and Vallejo Yacht Club) had unforeseen delays and requested and received extensions from DMMO to perform minor amounts of dredging that could not be completed by the close of the salmonid and herring work windows. These non-USACE projects combined dredged 24,042 cy after the window closed on December 1, 2017 (Appendix 2). In addition, one project (San Francisco Marina West Basin) dredged 3,509 cy in May of 2017 before the work window opened. Together these eight projects dredged 27,551 cy outside the work window, well within the 50,000 cy cumulative total that is allowed under the LTMS programmatic consultation with NMFS.

The USACE Oakland Inner and Outer Harbor channels project planned ahead for likely dredging after the work windows closed in late 2017, and ultimately dredged 95,500 cy between December 1 and December 31 (and continued dredging into early 2018). This sediment was disposed at SF-DODS. Per the terms of the NMFS LTMS Programmatic Biological Opinion, an equivalent volume of sediment dredged from this project after November 30, 2017 must be beneficially reused at tidal wetland restoration site(s) that benefit(s) fish habitat within a year timeframe.

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<sup>3</sup> [http://www.spn.usace.army.mil/Portals/68/docs/Dredging/LMTS/LTMS%20NMFS%20BiOp%207\\_9\\_2015.pdf](http://www.spn.usace.army.mil/Portals/68/docs/Dredging/LMTS/LTMS%20NMFS%20BiOp%207_9_2015.pdf)

<sup>4</sup> The Mare Island Dry Docks has separate consultations with the state and federal resource agencies and is not managed under the programmatic LTMS work windows. The dredging of the Main Ship Channel also does not follow the LTMS work window and is not included in the annual volume totals.



**Figure 4.** 2017 projects and dredge volumes relative to environmental work windows

### Essential Fish Habitat (EFH) Compliance

In June of 2011, the USACE and EPA signed an agreement with NMFS entitled, “*Agreement on Programmatic EFH Conservation Measures for Maintenance Dredging Conducted under the LTMS Program (Tracking Number 2009/06769)*.” Under this EFH agreement, the LTMS agencies report annually on projects that trigger provisions related to elevated levels of contaminants in the residual (post-dredge) sediment surface, and that used minimization measures to reduce potential adverse effects to eelgrass and other submerged aquatic vegetation.

One project dredged in 2017, the Marina Bay Yacht Harbor entrance channel (see Appendix 3), had elevated levels of PCBs in the sediment potentially exposed after dredging (the residual, represented by “z-layer” samples). Per the EFH agreement, the DMMO required an evaluation of the bioaccumulation potential of the residual layer sediments to determine whether additional contaminant-related management action was warranted. Conservative modeling of the bioaccumulation potential for the elevated PCB concentrations present at the site to cause adverse food web effects indicated that environmental harm would not likely occur, and the project was approved to proceed without further management action.

The EFH agreement also includes minimization measures to protect eelgrass. Four non-USACE dredging projects in 2017 were within 250 meters of eelgrass, and therefore were required to use silt curtains to minimize impacts of dredging-related suspended sediment plumes on adjacent eelgrass (Appendix 3). In addition, portions of two USACE projects, Richmond Inner Harbor and Oakland Inner and Outer Harbor, were also within 250 meters of eelgrass beds (Appendix 4). The

USACE dredging projects did not deploy silt curtains but used an alternative option in the EFH consultation; USACE instead performed light monitoring and completed pre-dredge and post-dredge surveys of eelgrass areal extent in the vicinity of the dredging projects to determine if there were deleterious effects. The combination of light monitoring and areal survey data showed no observable adverse effects to eelgrass from the two USACE projects.

### **III. RELATED ISSUES**

#### **DMMO Projects and Sediment Quality Database**

DMMO has developed 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 publicly available online ([www.dmmosfbay.org](http://www.dmmosfbay.org)). The database contains sediment testing data from years 2000 to 2018, and the database has been designed to allow dredging project sponsors, labs, and consultants to upload their project data directly into the system on an ongoing basis. Historic Sampling and Analysis Plans (SAP) and Sampling and Analysis Results (SAR) reports are available to download for individual projects, and historical sediment testing data (including chemical and bioassay testing results) can be queried both for individual projects and regionally.

In 2017, DMMO began the process of handing over hosting duties for the database to the San Francisco Estuary Institute (SFEI). Once hosting and maintenance of the database at SFEI is complete, DMMO and SFEI will work to begin more actively evaluating the dredging project data with an eye toward improving future dredging project testing requirements. It is expected that some initial evaluations, including for the extent of dioxins and furans in Bay sediments, will be conducted beginning in 2018 (subject to available Regional Monitoring Program (RMP) funding and approval).

#### **SediMatch**

The San Francisco Bay Joint Venture (SFBJV), with the DMMO and LTMS agency support, developed SediMatch, a sediment placement site database and web tool to improve and increase the matching of dredging projects with appropriate beneficial reuse sites. In addition to SFBJV and BCDC, the Bay Area Flood Protection Agencies Association, the Bay Planning Coalition and others wanted to bring the dredging/sediment supply and the wetland restoration communities together for the shared goals of creating healthy wetland habitats and maximizing beneficial reuse of sediment in the Bay Area. SediMatch launched in November 2016 and efforts to update and improve it continued in 2017. The DMMO database may soon be linked to the SediMatch web tool. The funds to support this effort were made available through a USEPA Water Quality Improvement Grant. The SediMatch web tool is also hosted by San Francisco Estuary Institute (SFEI) and can be found at <http://sedimatch.sfei.org>. With SediMatch now online the DMMO agencies encourage dredgers and restoration site operators to begin populating the site with information and using it actively.

#### **IV. LOOKING AHEAD**

As mentioned, the LTMS Transition Period ended after 2012, and the final 1.25 million cy annual in-Bay disposal volume limit has been in place since that time. However, in response to concerns about the limited availability/affordability of reuse sites for many projects, the LTMS Management Committee in 2015 authorized DMMO to use the 250,000 cy per year “contingency volume” if needed, without requesting project-specific approvals from the Management Committee. This flexibility reduces the potential for triggering dredger-specific “allocations” as a result of an occasional anomalous dredging year (under the Management Plan, the contingency volume does not count against the three-year average volume limit of 1.25 million cy/year). Actual in-Bay disposal in 2016 was well below the 1.25 million cy in-Bay limit, and the 2017 in-Bay disposal volume was also slightly below the annual limit. Therefore the full 1.25 million cy annual volume will be available for potential in-Bay disposal in 2018, without risk of exceeding the three-year average limit.

## V. CONTACTS AND LINKS

### DMMO MEMBER AGENCIES' PRIMARY STAFF CONTACTS:

USACE	James Mazza	(415) 503-6775	james.c.mazza@usace.army.mil
BCDC	Brenda Goeden	(415) 352-3623	brenda.goeden@bcdca.gov
RWQCB	Beth Christian	(510) 622-2335	Elizabeth.Christian@waterboards.ca.gov
EPA	Jennifer Siu	(415) 972-3983	siu.jennifer@epa.gov
SLC	Dobri Tutov	(916) 574-0722	dobri.tutov@slc.ca.gov

### RESOURCE AGENCY CONTACTS:

CDFW	Arn Aarreberg (Bay Region)	(707) 576-2889	arn.aarreberg@wildlife.ca.gov
	Craig Weightman (Tributaries)	(707) 944-5500	craig.weightman@wildlife.ca.gov
	Jim Starr (Delta region)	(707) 944-5500	jim.starr@wildlife.ca.gov
USFWS	Ryan Olah (Bay region)	(916) 414-6625	Ryan_Olah@fws.gov
	Kim Squires (Bay-Delta region)	(916) 930-5634	Kim_Squires@fws.gov
NMFS	Sara Azat	(707) 575-6067	Sara.Azat@noaa.gov

### USEFUL LINKS

**DMMO WEBSITE** (guidance documents, etc.):

[www.spn.usace.army.mil/Missions/DredgingWorkPermits/DredgedMaterialManagementOffice\(DMMO\).aspx](http://www.spn.usace.army.mil/Missions/DredgingWorkPermits/DredgedMaterialManagementOffice(DMMO).aspx)

**DMMO DATABASE WEBSITE:** [www.dmмосfbay.org](http://www.dmмосfbay.org)

**LTMS WEBSITE:** [www.spn.usace.army.mil/Missions/DredgingWorkPermits/LTMS.aspx](http://www.spn.usace.army.mil/Missions/DredgingWorkPermits/LTMS.aspx)

**SFEI "DREDGED MATERIAL TESTING THRESHOLDS" WEBSITE:**

<https://www.sfei.org/content/dmмо-ambient-sediment-conditions>

**LTMS 12-YEAR REVIEW:**

[www.spn.usace.army.mil/Missions/DredgingWorkPermits/LTMS/LTMSProgram12YearReviewProcess.aspx](http://www.spn.usace.army.mil/Missions/DredgingWorkPermits/LTMS/LTMSProgram12YearReviewProcess.aspx)

**PROGRAMMATIC EFH CONSULTATION AGREEMENT:**

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

**PROGRAMMATIC ESA CONSULTATION:**

[https://pcts.nmfs.noaa.gov/pcts-web/dispatcher/trackable/WCR-2014-1599?overrideUserGroup=PUBLIC&referer=%2fpcts-web%2fpublicAdvancedQuery.pcts%3fsearchAction%3dSESSION\\_SEARCH](https://pcts.nmfs.noaa.gov/pcts-web/dispatcher/trackable/WCR-2014-1599?overrideUserGroup=PUBLIC&referer=%2fpcts-web%2fpublicAdvancedQuery.pcts%3fsearchAction%3dSESSION_SEARCH)

## **APPENDIX 1**

### **2017 Dredging Volumes by Placement Site**

**2017**  
**Disposal Sites and Volumes Disposed, Cubic Yards (cy)**

2017 Disposal or Placement Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2017 Total Volume
SF-8 (Main Ship Channel-Federal)	0	0	0	0	0	(3,000)	0	0	0	0	0	0	0
SF-9, Carquinez Straits	0	0	0	0	0	5,541	0	0	6,991	19,253	9,597	2,809	44,191
SF-10, San Pablo Bay	0	0	0	0	0	346,878	39,803	0	0	0	103,498	0	490,179
SF-11, Alcatraz	0	0	0	0	0	7,203	17,651	35,081	296,806	22,346	106,498	4,642	490,227
SF-16, Suisun Bay	0	0	0	0	0	0	0	0	0	195,130	0	0	195,130
<b>TOTAL in-Bay (excluding MSC)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>359,622</b>	<b>57,454</b>	<b>35,081</b>	<b>303,797</b>	<b>236,729</b>	<b>219,593</b>	<b>7,451</b>	<b>1,219,727</b>
<b>TOTAL Ocean Disposal (SF-DODS)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15,173</b>	<b>87,485</b>	<b>225,764</b>	<b>171,527</b>	<b>182,954</b>	<b>144,191</b>	<b>95,500</b>	<b>922,594</b>
Reuse: Montezuma	0	20,040	0	0	0	58,792	69,069	28,985	8,469	0	126,929	28,070	340,354
Reuse: Cullinan	0	0	0	10,856	0	0	0	5,369	56,070	230,941	174,560	1,800	479,596
Reuse: SF-8 non-Federal	0	0	0	0	3,509	10,402	0	5,859	4,560	0	3,369	0	27,699
Reuse: Napa Sea Ranch	0	0	0	0	0	0	0	982	1,718	0	0	0	2,700
Reuse: City of Martinez, Upland Ponds	0	0	0	0	0	0	0	0	0	8,282	16,562	8,282	33,126
<b>TOTAL Reuse</b>	<b>0</b>	<b>20,040</b>	<b>0</b>	<b>10,856</b>	<b>3,509</b>	<b>69,194</b>	<b>69,069</b>	<b>41,195</b>	<b>70,817</b>	<b>239,223</b>	<b>321,420</b>	<b>38,152</b>	<b>883,475</b>
<b>2017 GRAND TOTAL</b>	<b>0</b>	<b>20,040</b>	<b>0</b>	<b>10,856</b>	<b>3,509</b>	<b>443,989</b>	<b>214,008</b>	<b>302,040</b>	<b>546,141</b>	<b>658,906</b>	<b>685,204</b>	<b>141,103</b>	<b>3,025,796</b>

## **APPENDIX 2**

### **2017 Dredging Volumes by Project**

Project Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2017 TOTAL VOLUME
AMPORTS; SF-9	0	0	0	0	0	0	0	0	0	0	2,576		2,576
AMPORTS; Reuse-MWRP	0	0	0	0	0	0	0	0	0	0	10,302		10,302
BENICIA MARINA; SF-9	0	0	0	0	0	0	0	0	6,991	5,943	0	0	12,934
CHEVRON RICHMOND LONG WHARF; SF-10	0	0	0	0	0	12,579	28,103	0	0	0	0	0	40,682
CHEVRON RICHMOND LONG WHARF; Montezuma/Reuse	0	0	0	0	0	58,792	50,480	0	0	0	0	0	109,272
CITY OF NAPA, RIVER PARK MARINA; SF-9	0	0	0	0	0	0	0	0	0	13,310	0	0	13,310
COAST GUARD ISLAND ALAMEDA; SF-DODS	0	0	0	0	0	0	16,542	11,691	0	0	0	0	28,233
COAST GUARD ISLAND ALAMEDA; Montezuma/Reuse	0	0	0	0	0	0	18,589	11,082	0	0	0	0	29,671
COAST GUARD STATION GOLDEN GATE; SF-11	0	0	0	0	0	0	0	0	3,930	0	0	0	3,930
COYOTE POINT MARINA; SF-11	0	0	0	0	0	0	1,353	22,462	13,802	11,998	5,277	4,421	59,313
EMERY COVE MARINA, SF-11	0	0	0	0	0	7,203	16,298	12,619	0	0	0	0	36,120
FOSTER CITY; City of; Cullinan/Reuse	0	0	0	0	0	0	0	0	0	0	1,800	1,800	3,600
MARE ISLAND DRYDOCK; Cullinan/Reuse	0	0	0	10,856	0	0	0	5,369	8,332	4,629	8,331	0	37,517
MARE ISLAND DRYDOCK; Montezuma/Reuse	0	0	0	0	0	0	0	0	0	0	0	2,910	2,910
MARINA BAY YACHT HARBOR (Dredger added this volume to the POR	-	-	-	-	-	-	-	-	-	-	-	-	0
MARTINEZ MARINA; City of Martinez's Upland ponds/Reuse	0	0	0	0	0	0	0	0	0	8,282	16,562	8,282	33,126
NAPA VALLEY MARINA; Reuse-Napa Sea Ranch	0	0	0	0	0	0	0	982	1,718	0	0	0	2,700
PARADISE CAY YACHT HARBOR	0	0	0	0	0	0	0	0	0	0	883	221	1,104
PHILLIPS 66 (Rodeo); MWRP	0	0	0	0	0	0	0	0	0	8,469	0	0	8,469
PHILLIPS 66 (Rodeo); SF-8	0	0	0	0	0	0	0	0	4,560	0	0	0	4,560
PLAINS ALL AMERICAN Terminal; SF-DODS	0	0	0	0	0	0	0	0	0	0	4,638	0	4,638
PORT OF OAKLAND, Berth Maintenance; SF-DODS	0	0	0	0	0	0	0	25,374	0	58,928	11,174	0	95,476
PORT OF RICHMOND, Terminals 7-8 (Pt. Potrero); SF-10	0	0	0	0	0	0	11,700	0	0	0	0	0	11,700
PORT OF RICHMOND, Terminals 7-8 (Pt. Potrero); SF-DODS	0	0	0	0	0	0	67,150	7,800	0	0	0	0	74,950
PORT OF SAN FRANCISCO, Berth 27; SF-DODS	0	0	0	0	0	0	0	0	0	16,226	8,579	0	24,805
PORT OF SAN FRANCISCO, Berth 35 E&W; SF-11	0	0	0	0	0	0	0	0	29,567	10,348	0	0	39,915
PORT OF SAN FRANCISCO, Berth 80 & Islasis Creek; Reuse-MWRP	0	0	0	0	0	0	0	0	0	0	109,025	5,600	114,625
RICHMOND FERRY Terminal (WETA); MWRP	0	0	0	0	0	0	0	0	0	0	1,924	0	1,924
SAN FRANCISCO MARINA, WEST BASIN; SF-8/Reuse	0	0	0	0	3,509	0	0	5,859	0	0	0	0	9,368
SAN FRANCISCO MARINA, WEST BASIN; Montezuma/Reuse	0	0	0	0	0	0	0	3,183	0	0	0	0	3,183
SAN FRANCISCO FERRY TERMINAL EXPANSION (WETA), SF-DODS	0	0	0	0	0	15,173	3,793	0	0	0	0	0	18,966
SAUSALITO YACHT HARBOR; Reuse-MWRP	0	0	0	0	0	0	0	0	0	0	2,600	909	3,509
VALERO; Montezuma/Reuse	0	20,040	0	0	0	0	0	14,720	0	0	0	18,651	53,411
VALLEJO FERRY TERMINAL (WETA); Montezuma/Reuse	0	0	0	0	0	0	0	0	0	0	3,078	0	3,078
VALLEJO YACHT CLUB; SF-9	0	0	0	0	0	0	0	0	0	0	7,021	2,809	9,830
USACE, MAIN SHIP CHANNEL; Ocean Beach Disposal Site	0	0	0	0	0	(312,224)	0	0	0	0	0	0	(312,224)
USACE, MAIN SHIP CHANNEL; SF-8	0	0	0	0	0	(3,000)	0	0	0	0	0	0	(3,000)
USACE, OAKLAND INNER AND OUTER HARBOR; SF-DODS	0	0	0	0	0	0	0	68,800	163,000	107,800	119,800	95,500	554,900
USACE, PINOLE SHOAL CHANNEL; SF-11	0	0	0	0	0	0	0	0	0	0	100,338	0	100,338
USACE, PINOLE SHOAL CHANNEL; SF-10	0	0	0	0	0	334,299	0	0	0	0	103,498	0	437,797
USACE, PINOLE SHOAL CHANNEL; SF-9	0	0	0	0	0	5,541	0	0	0	0	0	0	5,541
USACE, PINOLE SHOAL CHANNEL; SF-8	0	0	0	0	0	10,402	0	0	0	0	3,369	0	13,771
USACE, REDWOOD CITY HARBOR; SF-11	0	0	0	0	0	0	0	0	249,507	0	0	0	249,507
USACE, REDWOOD CITY HARBOR; SF-DODS	0	0	0	0	0	0	0	112,099	8,527	0	0	0	120,626
USACE, RICHMOND INNER HARBOR; Cullinan/Reuse	0	0	0	0	0	0	0	0	47,738	226,312	164,429	0	438,479
USACE, SUISUN BAY CHANNEL	0	0	0	0	0	0	0	0	0	195,130	0	0	195,130
<b>GRAND TOTAL</b>	<b>0</b>	<b>20,040</b>	<b>0</b>	<b>10,856</b>	<b>3,509</b>	<b>443,989</b>	<b>214,008</b>	<b>302,040</b>	<b>546,141</b>	<b>658,906</b>	<b>685,204</b>	<b>141,103</b>	<b>3,025,796</b>

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 3**

### **2017 Non-USACE Projects EFH Compliance Summary**

**Appendix 3. 2017 Non-USACE Maintenance Dredging Projects  
LTMS Programmatic EFH Agreement Compliance Summary**

Project Name	Placement Site	USACE File Number	Dredge Date	Permitted Area (Acres)	Dredge Area (Acres)	Dredge Volume (cy)	Dredge Type	EFH Compliance Notes
<b>Projects with Eelgrass Present</b>								
Coast Guard Station Golden Gate	SF-11	2014-00271	September	0.62 permitted, 1.53 authorized in DOP	1.53	3,930	Mechanical	Silt curtain deployed to protect eelgrass beds. Pre-dredge eelgrass survey completed.
Marina Bay Yacht Harbor Entrance Channel	SF-DODS	2010-00117	July to August	8.4	8.1	37,609	Mechanical	Silt curtains deployed to protect eelgrass beds. Pre- and post-dredge eelgrass surveys conducted. Z-layer concentrations of PCBs elevated above BT level. Trophic trace modeling showed no bioaccumulation risk from PCBs.
Sausalito Yacht Harbor	MWRP	2009-00207	November to December	22	11.9	3,509	Mechanical	Silt curtain deployed to protect eelgrass beds.
WETA Richmond Ferry Terminal Expansion, Episode 1	MWRP	2012-00194	July to August	0.12	0.12	1,924	Mechanical	Silt curtains deployed to protect eelgrass beds. Pre- and post-dredge eelgrass surveys conducted.
<b>Projects without Eelgrass Present</b>								
Amports	SF-9 & MWRP	2014-00033	November	1.44	8.75	12,878	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Benicia Marina	SF-9	2014-00061	August to October	3.56	16.96	12,934	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Chevron Long Wharf	SF-10 & MWRP	2009-00052	June to July	44.1	26.3	149,954	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
City of Napa, River Park Marina	SF-9	2016-00150	October	1.86	13.32	13,310	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Coast Guard Island Alameda	SF-DODS & MWRP	2012-00356	July to August	5.61	4.73	57,904	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Coyote Point Marina Maintenance Dredging, Episode 1a	SF-11	2002-26774	August to September	25.5	1.33	59,313	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Emery Cove Marina	SF-11	2015-00093	June to August	20.35	16.37	36,120	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Foster City	CRRP	2015-00405	November to December	1.33	1.33	3,600	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Mare Island Dry Docks	CRRP & MWRP	2008-00311	April & August to November	18.31	5.56	40,427	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Martinez Marina	Martinez Disposal Ponds	2012-00070	October to December	7.5	7.5	33,126	Hydraulic	No eelgrass within 250 meters. No EFH issues associated with episode.
Napa Valley Marina	Onsite upland facility	2012-00308	August to October	8.8	0.37	2,700	Hydraulic	No eelgrass within 250 meters. No EFH issues associated with episode.
Paradise Cay Yacht Harbor, Episode 2	SF-11, SF-10	2015-00034	June to November	9.2	5	1,104	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Phillips 66	MWRP & SF-8	2014-00431	September	50.5	22.39	13,029	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Plains All American Terminal (Eagle Rock)	SF-DODS	2016-00218	November	2.52	2.52	4,638	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of Oakland Berths	SF-11, SF-10, SF-DODS, MWRP	2014-00090	August to November	45.6	17.23	147,300	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of Richmond Berths 7 and 8, Episode 1	SF-10, SF-DODS	2016-00302	July to August	4.4	3.2	86,650	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of San Francisco, Berth 35 East and West	SF-11, SF-10 & SF-DODS	2013-00333	September to November	19.7	34.9	237,829	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
San Francisco Marina West Basin, Episode 11	SF8, SRRQ, MWRP	2008-00074	August and May	2	2.1	15,924	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Valero	MWRP	2012-00248	February, August, and December	5.48	3.34	53,411	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
Vallejo Yacht Club, Episode 3	SF-9	2013-00139	October to December	6	5.3	9,830	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
WETA San Francisco Ferry Terminal Expansion Dredging Project, Episode 1	SF-DODS	1997-22752	June	2.42	2.42	18,966	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.
WETA Vallejo Ferry Terminal	MWRP	2015-0082	November	0.44	2.97	3,078	Mechanical	No eelgrass within 250 meters. No EFH issues associated with episode.

SF-9 = Carquinez Disposal Site  
 SF-10 = San Pablo Bay Disposal Site  
 SF-11 = Alcatraz Disposal Site  
 SF-DODS = San Francisco Deep Ocean Disposal Site

CRRP = Cullinan Ranch Restoration Project  
 SRRQ = San Rafael Rock Quarry  
 BT = Bioaccumulation Testing Trigger  
 TBP = Theoretical Bioaccumulation Potential  
 TRV = Toxicity Reference Value

## **APPENDIX 4**

### **2017 USACE Projects EFH Compliance Summary**

**Appendix 4. 2017 USACE Federal Maintenance Dredging Projects  
LTMS Programmatic EFH Agreement Compliance Summary**

Project Name	Placement Site	Dredge Type	Dredge Date	Dredge Volume (Cubic Yards)	Total Project Area (Acres)	EFH Compliance Issues
<b>Projects with Eelgrass Present</b>						
Richmond Inner Harbor	Cullinan Ranch Restoration Project	Mechanical	September to November	438,479	121.51	Eelgrass present within 250 meters light monitoring conducted
Oakland Inner and Outer Harbor	San Francisco Deep Ocean Disposal Site (SF-DODS)	Mechanical	August to December	554,900	383	Eelgrass present within 250 meters light monitoring conducted
<b>Projects without Eelgrass Present</b>						
Main Ship Channel	Ocean Beach Demonstration Site	Hopper	June	312,224	334.53	No EFH compliance issues
	SF Bar Channel (SF-8)	Hopper	June	3,000		
Pinole Shoal	Alcatraz Island Disposal Site (SF-11)	Hopper	November	100,338	184.28	No EFH compliance issues
	San Pablo Bay Disposal Site (SF-10)	Hopper	June and November	437,797		
	Carquinez Strait Disposal Site (SF-9)	Hopper	June	5,541		
	SF Bar Channel (SF-8)	Hopper	June and November	13,771		
Redwood City	Alcatraz Island Disposal Site (SF-11)	Mechanical	June and November	249,507	93.13	No EFH compliance issues
	San Francisco Deep Ocean Disposal Site (SF-DODS)	Mechanical	August to September	120,626		
Suisun Bay Channel	Suisun Bay Disposal Site (SF-16)	Mechanical	October	195,130	41.88	No EFH compliance issues