Dredged Material Management Office (DMMO)
Dredging and Placement of Dredged Material
in San Francisco Bay
January-December 2019 Report

Photo Credit: Jessica Vargas, USACE 2018

Photo Credit: Brandon Beach, USACE 2018

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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.

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 as 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.

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.[1] 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. The LTMS Management Plan[2], 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 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 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 web site.

[1] 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/
[2] 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/

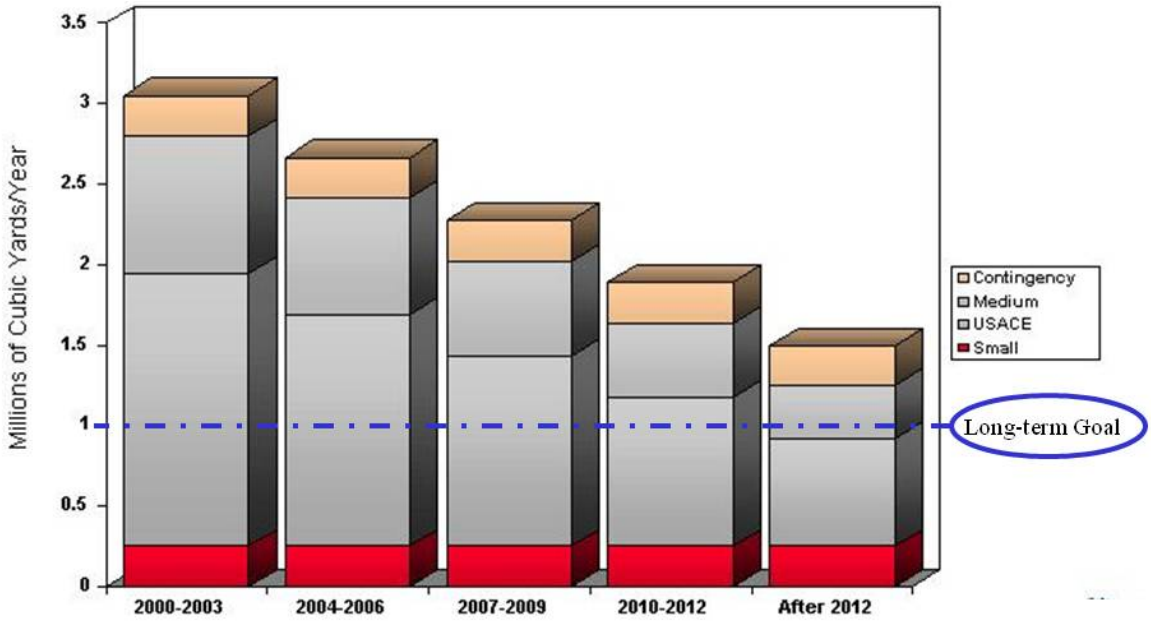

Figure 1. The LTMS Transition Period, showing the in-Bay disposal volume limit decreases that occurred every three years until the end of 2012. The Transition Period is now complete, and the final annual in-Bay limit of 1.25 million cy is in place.

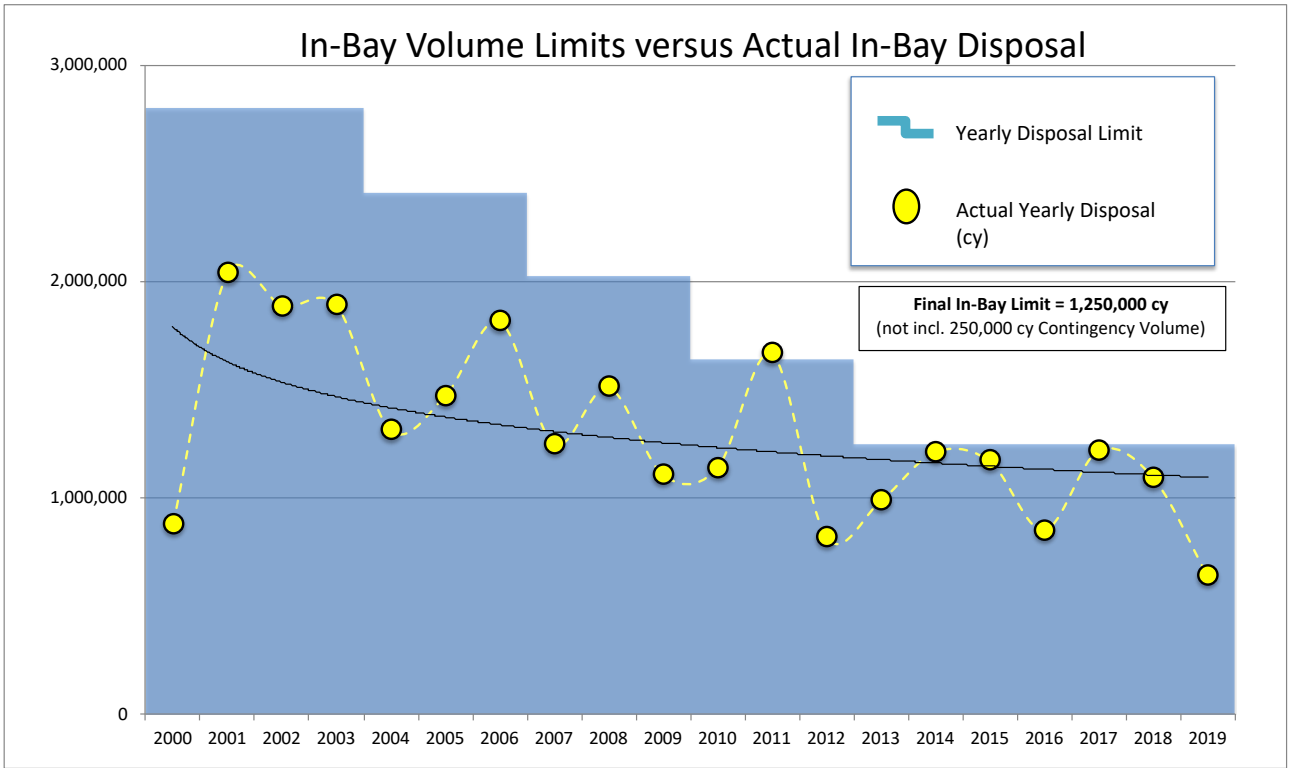

Figure 2. Actual in-Bay disposal volumes (yellow dots), compared to the transition period limits (2000-2012) and the final post-transition period disposal limit (2013-2019) (blue shading).

II. 2019 DREDGING AND PLACEMENT OVERVIEW

In 2019, 31 projects dredged a total of 2,600,007 cy of sediment from San Francisco Bay. As summarized in Figure 3 and Table 1, a total of 643,835 cy (25% of the total volume dredged) was placed at four designated in-Bay dredged sediment disposal sites, while 1,709,984 cy (66%) was beneficially reused and 246,188 cy (9%) was disposed at SF-DODS. Of the sediment disposed at the four in-Bay disposal sites, 354,370 cy (55%) went to the Alcatraz Disposal Site (SF-11); 216,105 cy (34%) went to the San Pablo Bay Disposal Site (SF-10); 73,360 cy (11%) went to the Carquinez Strait Disposal Site (SF-9); and 0 cy went to the Suisun Bay Disposal Site (SF-16). Detailed volume information for 2019 is provided in Appendix 1 (by placement site) and Appendix 2 (by dredging project, including monthly disposal volumes).

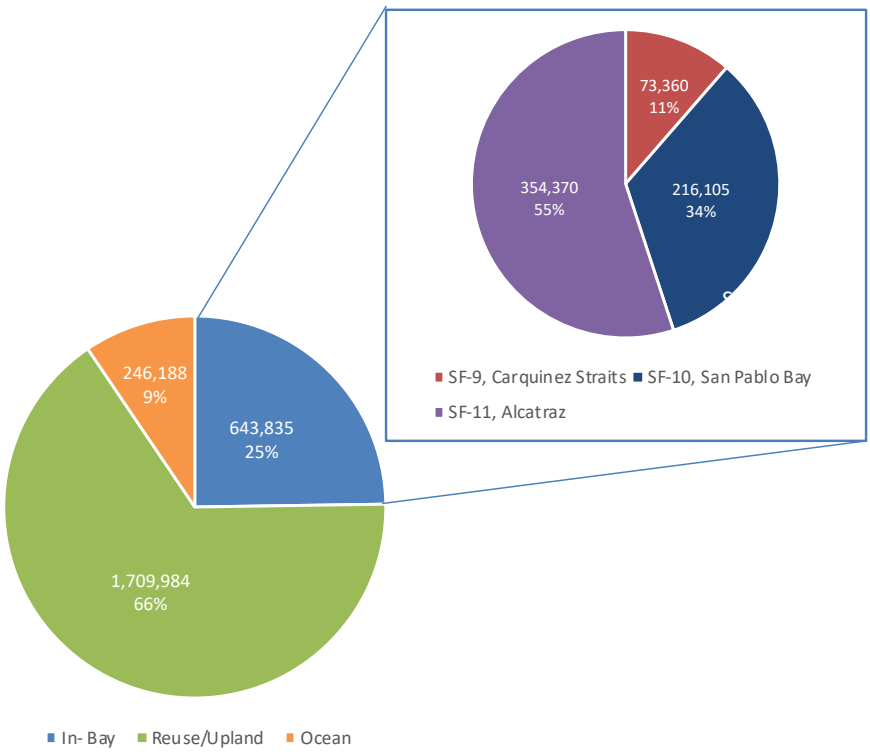

Figure 3. 2019 total dredging and placement summary, showing detail for In-Bay Disposal Sites.

In-Bay Disposal

Although the LTMS Plan's 20% in-Bay disposal goal was exceeded again in 2019, the actual in-Bay disposal volume of 643,835 cy was over 450,000 cy less than in 2018 and did not exceed the 1.25 million cy annual limit. The 3-year average in-Bay disposal volume (2017-2019) was 986,647 cy (Table 1) which did not exceed the 1.25 million cy proposed in the LTMS Management Plan, therefore no dredger-specific allocations will need to be considered at this time.

Dredging Volumes Under LTMS, 2000 through 2019 (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-year 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	
2002	2,800,000	1,887,083	55.4%	650,051	19.1%	866,400	25.5%	3,403,534	**1,939,673**
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	
2005	2,412,500	1,473,253	23.3%	4,718,716	74.5%	137,717	2.2%	6,329,686	**1,534,316**
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	
2008	2,025,000	1,512,098	35.4%	2,587,094	60.5%	175,855	4.1%	4,275,047	**1,289,765**
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	
2011	1,637,500	1,668,043	50.7%	971,368	29.5%	652,970	19.8%	3,292,381	**1,209,659**
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	
2014	1,250,000	1,213,331	57.4%	770,618	36.5%	130,006	6.1%	2,113,955	**1,124,045**
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	**1,056,052**
2018	1,250,000	1,096,379	43.8%	763,391	30.5%	643,308	25.7%	2,503,078	
2019	1,250,000	643,835	24.76%	1,709,984	65.77%	246,188	9.47%	2,600,007	
Mean		**1,299,218**		**1,409,837**		**665,991**		**3,415,837**	
Total		**25,984,362**	**38.49%**	**28,196,731**	**41.77%**	**13,319,815**	**19.73%**	**67,500,908**	

*** 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, 2000-2019.

Beneficial Reuse and Upland Placement

In 2019, 1,709,984 cy (66% of the total dredged) was beneficially reused or taken to upland placement sites. Four beneficial reuse sites were used by dredging project proponents (Table 2). Each site has varying equipment, logistical, and sediment characteristic requirements. More detailed information for each of the beneficial reuse sites that received dredged sediment in 2019 are provided below:

Placement Location	Sediment Placed (cy)	% of Total Reuse/Upland
Montezuma Wetlands Restoration Project	1,263,585	73%
Cullinan Ranch Restoration Project	319,449	19%
Potrero Hills Landfill & Pierce Island	109,322	6%
SF-8 inshore portion (non-Federal)	17,628	1%
Total	**1,709,984**	

Table 2. Beneficial reuse or upland placement sites that received dredged sediment in 2019

- Montezuma Wetland Restoration Project (MWRP)

  In 2019, the MWRP received 1,263,585 cy of dredged material for reuse (73% of the total reused). The sediment came from 11 maintenance dredging projects: Most of the volume came from one federal dredging project – 708,499 cy from the Oakland Federal Channel. The remaining volume came from dredging projects at Port of Oakland, and Port of San Francisco, Suisun Bay Channel, Redwood City Harbor, Suisun Bay Channel, Chevron Richmond Long Wharf, USCG Yerba Buena Island, Port of San Francisco, AMPORTS, Blu Harbor Marina, Phillips 66 (Rodeo), and IMTT.

- Cullinan Ranch Restoration Project

  In 2014, USACE, BCDC, and the Water Board revised their permits for the Cullinan Ranch Restoration Project 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 2019, this site received 319,449 cy (19% of the total reused volume). Projects sending material to Cullinan include Mare Island Dry Dock, and USACE Richmond Inner Harbor.

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

  The SF-8 ocean disposal site is mainly used 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 2019, the San Francisco Marina West Basin maintenance dredge project placed a total of 17,628 cy of clean sand in the easternmost portion of the SF-8 disposal site.

Sediment Suitability for In-Bay Unconfined Aquatic Disposal

Approximately 99.5% of sediment dredged in 2019 (2,586,543 cy of the 2,600,007 cy total) was suitable for unconfined aquatic disposal in the Bay (SUAD), while 1% (13,464 cy) was not suitable for unconfined disposal in the Bay (NUAD). The NUAD material came from three projects, the Levin Richmond, CSU Maritime Academy, and Sausalito Yacht Harbor maintenance dredging. The NUAD material was placed at Potrero Hills Landfill, Dixon Landfill, and MWRP as Foundation sediment, respectively.

Project	NUAD Volume (cy)	Reason NUAD	Placement Site
Levin Richmond	1,365	PCBs	Potrero Hills Landfill
CSU Maritime Academy	1,893.5	PCBs	Dixon Landfill, Vacaville
Sausalito Yacht Harbor	10,206	PCBs	MWRP Foundation
Total	**13,464**		

Table 3. Projects dredged in 2019 that included sediment not suitable for unconfined in-Bay disposal (NUAD).

Dredging Equipment used in the Bay

Almost all the dredging projects inside the Bay in 2019 used mechanical dredges (e.g., clamshells or excavator buckets). One non-USACE project (Suisun City Marina) dredged 107,901 cy using a hydraulic dredge. Two USACE projects (Main Ship Channel and Pinole Shoal Channel) dredged 1,204 cy and 540 cy, respectively using a hydraulic hopper (Appendix 4). The USACE hydraulic dredging represented a very low fraction of total USACE dredging (1,780 cy of the 1,620,425 cy total) in 2019.

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 project location and for many projects begin either on June 1 or August 1 and generally last through November 30 of each year. On July 9, 2015, NMFS issued an amended LTMS Programmatic Biological Opinion for salmon, steelhead, and green sturgeon[3]. This update addresses green sturgeon and modifies some 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 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.

[3] http://www.spn.usace.army.mil/Portals/68/docs/Dredging/LMTS/LTMS%20NMFS%20BiOp%207_9_2015.pdf

Environmental work window restrictions were met by 21 of the 31 dredging projects conducted in 2019[4]. Most of these projects began work in or after the month of June, and 22 of them were completed entirely within their work windows (Figure 4). Of the 30 projects subject to the environmental work windows, six non-USACE projects (Benicia Marina, Blu Harbor Marina, Glen Cove Marina, Phillips 66, Port of Oakland, and WETA South SF Ferry Terminal) requested and received an extension from DMMO to perform minor amounts of dredging that could not be completed by the close of the salmonid and herring work windows. Three of these non-USACE projects placed a combined 96,454 cy at sites which beneficially reuse the dredged material for tidal wetland restoration that benefits fish habitat per the terms of the LTMS programmatic Biological Opinion (Appendix 2). In addition, one project (WETA South SF Ferry Terminal) dredged 25,184 cy in January, February and March and placed the dredged material 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, 2018 must be beneficially reused within a year at tidal wetland restoration site(s) that benefits fish habitat. However, since it is unlikely that dredging at the South San Francisco Ferry Terminal would need to be completed within the following year, it has been stipulated that the material from any subsequent dredge event at the Ferry Terminal shall be placed at a beneficial reuse site until the equivalent volume is met.

The USACE Oakland Inner and Outer Harbor channels project planned ahead for likely dredging after the work windows closed in 2018 and ultimately dredged 210,350 cy between January and April 2019. The dredged material from the beginning of the year was placed at MWRP. Additionally, the USACE Oakland Inner and Outer Harbor channels project began another dredge episode in August 2019 and dredged past the close of the work window on November 30, 2018. The project removed 32,656 cy between December 1 and December 31, 2019 (and continued dredging into early 2020). Similarly, Redwood City Harbor was partially dredged outside the work window with 52,424 cy dredged in December. Sediment from these two projects dredged in December was placed at Montezuma, per the terms of the NMFS LTMS Programmatic Biological Opinion.

[4] Mare Island Dry Dock has a 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.

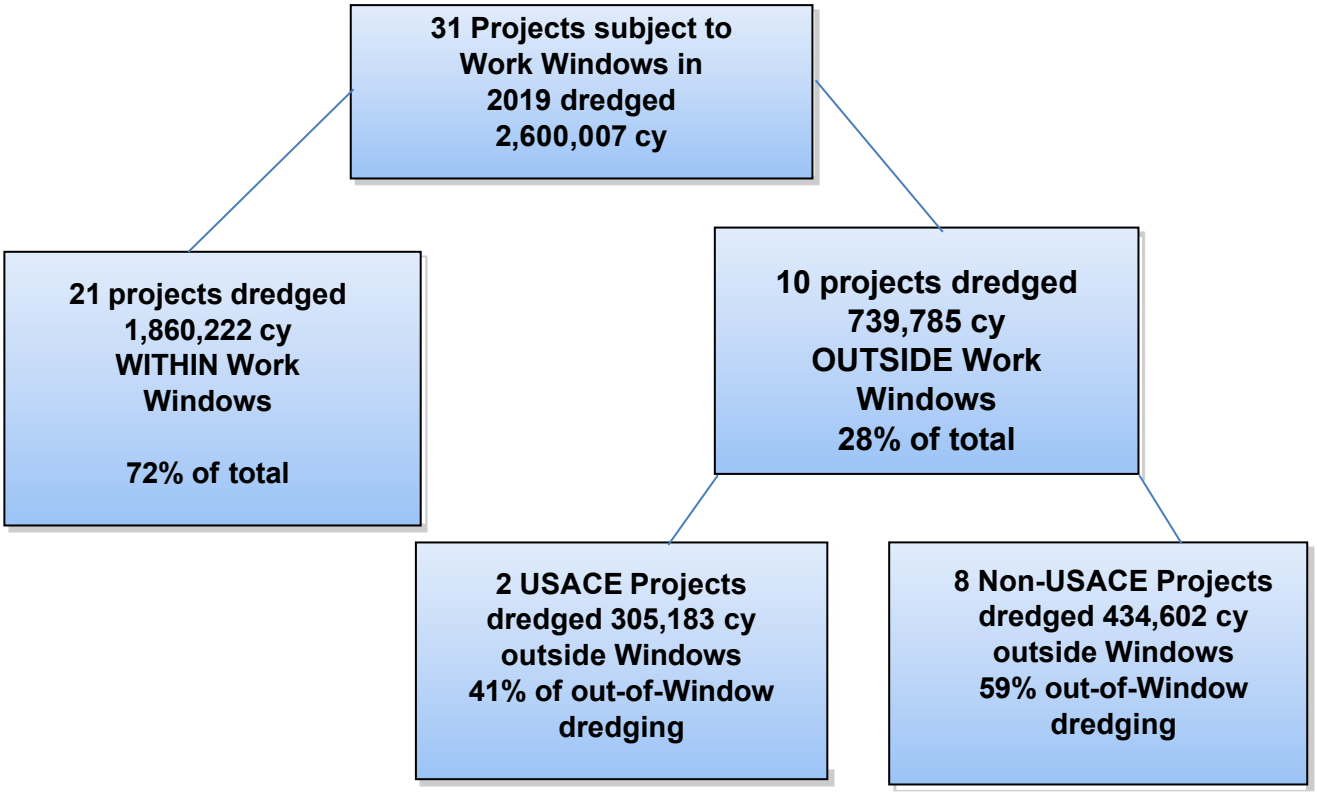

Figure 4. 2019 projects and dredge volumes relative to environmental work windows.

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, IMTT, dredged in 2019 and had elevated levels of DDD dieldrin, PAHs and PCBs in the sediment potentially exposed after dredging (the residual sediment, represented by "z-layer" samples). However, the concentrations were in line with the ambient concentrations of the immediate surroundings so no additional administrative actions were taken.

The EFH agreement also includes minimization measures to protect eelgrass. Three non-USACE dredging projects in 2019 conducted pre-dredge eelgrass surveys. All three of the projects were within 250 meters of eelgrass, and therefore were required to use silt curtains to minimize impacts of dredging-related suspended sediment plumes on eelgrass (Appendix 3).

Portions of three 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 option in the EFH consultation and 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 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 available online (www.dmmosfbay.org). The database contains sediment testing data from years 2000 to 2019, 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 2018, DMMO began the process of handing over hosting duties for the database to the San Francisco Estuary Institute (SFEI). Once the database was transferred to SFEI's servers, DMMO and SFEI began work to clear the back-log of laboratory data needing to be incorporated into the database and to work on the remaining list of changes and upgrades to the database website. Several modifications have been proposed and planned, including developing an improved method for assessing fees for the Regional Monitoring Program (RMP) and enhancing how data can be queried and viewed for multiple processes. Several SFEI scientists and staff have already utilized the data from the website to produce reports such as Don Yee and Adam Wong's PCB synthesis report, "Evaluation of PCB Concentrations, Masses, and Movement from Dredged Areas in San Francisco Bay."

SediMatch

The San Francisco Bay Joint Venture (SFBJV), with 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. SediMatch launched in November 2016 and efforts to update and improve it continued in 2018. 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 use it.

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/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). The 3-year average in-Bay disposal volume (2017-2018) was 1,056,052 cy (Table 1) which did not exceed the 1.25 million cy proposed in the LTMS Management Plan. In-Bay disposal does continue to account for 25% of the annual disposal volume. While the disposal limits have been consistently met for several years more work needs to be done to increase opportunities for a larger percentage of the annual dredge volume to be placed at sites outside San Francisco Bay.

V. CONTACTS AND LINKS

DMMO MEMBER AGENCIES' PRIMARY STAFF CONTACTS:

USACE	Jessica Vargas	(415) 503-2936	jessica.m.vargas@usace.army.mil
BCDC	Brenda Goeden	(415) 352-3623	brenda.goeden@bcdc.ca.gov
RWQCB	Sarabeth George	(510) 622-5684	Sarabeth.George@waterboards.ca.gov
RWQCB	Selina Louie	(510) 622-2383	Selina.Louie@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
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

DMMO DATABASE WEBSITE: www.dmmosfbay.org

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

SFEI "DREDGED MATERIAL TESTING THRESHOLDS" WEBSITE:
https://www.sfei.org/content/dmmo-ambient-sediment-conditions

LTMS 12-YEAR REVIEW:
www.spn.usace.army.mil/Missions/DredgingWorkPermits/LTMS/LTMSProgram12YearReviewProcess.aspx

PROGRAMMATIC EFH CONSULTATION AGREEMENT:
https://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

USFWS, NMFS and CDFW B.O.s available at:
https://www.spn.usace.army.mil/Missions/Dredging-Work-Permits/LTMS/

APPENDIX 1

2019 Dredging Volumes by Placement Site

February 2021

Disposal Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2019 Total Volume
SF-8 (Federal only)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SF-9, Carquinez Straits	0	0	0	0	0	19,437	0	0	7,233	18,772	26,840	1,078	**73,360**
SF-10, San Pablo Bay	0	0	0	0	0	10,079	4,915	194,408	0	0	0	6,703	**216,105**
SF-11, Alcatraz	0	0	0	0	0	0	8,897	137,750	131,852	19,191	56,680	0	**354,370**
SF-16, Suisun Bay	0	0	0	0	0	0	0	0	0	0	0	0	**0**
TOTAL in-Bay	**0**	**0**	**0**	**0**	**0**	**29,516**	**13,812**	**332,158**	**139,085**	**37,963**	**83,520**	**7,781**	**643,835**
Reuse/Upland: Cullinan Ranch Restoration Project (CRRP)	0	0	0	**11,224**	0	0	**98,458**	**113,990**	**95,777**	0	0	0	**319,449**
Reuse/Upland: Montezuma Wetlands Restoration Project (MWRP)	**156,650**	**53,700**	**5,134**	**11,000**	0	**58,715**	0	**52,911**	**52,041**	**385,033**	**323,001**	**165,400**	**1,263,585**
Reuse/Upland: Other*	0	0	0	0	0	**700**	**665**	**15,032**	**40,996**	**42,363**	**9,566**	0	**109,322**
Reuse/Upland: SF-8 NON-FEDERAL	0	0	0	0	0	0	0	**11,716**	0	0	**5,912**	0	**17,628**
TOTAL REUSE/UPLAND (non-fed)	**(156,650)**	**(53,700)**	**(5,134)**	**(22,224)**	**(0)**	**(59,415)**	**(99,123)**	**(193,649)**	**(188,814)**	**(427,396)**	**(338,479)**	**(165,400)**	**(1,709,984)**
Reuse, SF-17 Ocean Beach (Federal)	0	0	0	0	0	0	(281,569)	0	0	(146,582)	0	0	(466,583)
SF-DODS, Deep Ocean Disposal Site	**11,041**	**7,466**	**6,677**	**0**	**0**	**0**	**0**	**0**	**152,771**	**28,897**	**29,583**	**9,753**	**246,188**
GRAND TOTAL	**167,691**	**61,166**	**11,811**	**22,224**	**0**	**88,931**	**112,935**	**525,807**	**480,670**	**494,256**	**451,582**	**182,934**	**2,600,007**

* Potrero Hills Landfill, Jun-Jul; Pierce Island, Aug-Nov

APPENDIX 2

2019 Dredging Volumes by Project

February 2021

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2019 TOTAL VOLUME
AMPORTS, Benicia; SF-9	0	0	0	0	0	0	0	0	0	4,756	0	0	4,756
AMPORTS, Benicia; Reuse - Montezuma Wetlands (MWRP)	0	0	0	0	0	0	0	0	0	19,253	0	0	19,253
BELVEDERE LAND COMPANY; SF-11	0	0	0	0	0	0	7,589	1,035	0	0	0	0	8,624
BENICIA MARINA; SF-9	0	0	0	0	0	0	0	0	0	0	5,234	476	5,710
BLU HARBOR MARINA; Reuse - Montezuma Wetlands (MWRP)	0	0	5,134	11,000	0	0	0	0	0	0	0	0	16,134
CALIFORNIA MARITIME ACADEMY BOAT BASIN; SF-9	0	0	0	0	0	0	0	0	0	0	7,645	0	7,645
CHEVRON RICHMOND LONG WHARF; SF-10	0	0	0	0	0	10,079	0	0	0	0	0	0	10,079
CHEVRON RICHMOND LONG WHARF; Reuse - Montezuma Wetlands (MWRP)	0	0	0	0	0	55,569	0	0	0	0	0	0	55,569
CITY OF SUISUN CITY MARINA; Reuse - Pierce Island	0	0	0	0	0	0	0	15,032	40,996	42,363	9,566	0	107,957
COAST GUARD, YERBA BUENA ISL, Cutter Aspen Mooring & Approach; SF-DODS	0	0	0	0	0	0	0	0	0	23,933	18,380	0	42,313
COAST GUARD, YERBA BUENA ISL, Cutter Aspen Mooring & Approach; Reuse-MWRP	0	0	0	0	0	0	0	0	0	36,718	0	0	36,718
GLEN COVE MARINA, SF-9	0	0	0	0	0	0	0	0	0	0	2,408	602	3,010
INTERNATIONAL-MATEX TANK (IMTT); Reuse - Montezuma Wetlands (MWRP)	0	0	0	0	0	3,146	0	0	0	0	0	0	3,146
LEVIN, RICHMOND TERMINAL (Berth A, trench); Upland - Potrero Hills Landfill	0	0	0	0	0	700	665	0	0	0	0	0	1,365
MARE ISLAND DRYDOCK; Reuse - Cullinan Ranch	0	0	0	11,224	0	0	0	0	18,635	0	0	0	29,859
MARINA VISTA IMPROVEMENT CLUB DREDGE NEIGHBORS; SF-10	0	0	0	0	0	0	0	0	0	0	0	6,703	6,703
PHILLIPS 66 (Rodeo); SF-8 - Reuse	0	0	0	0	0	0	0	0	0	0	5,912	0	5,912
PHILLIPS 66 (Rodeo); Reuse - Montezuma Wetlands (MWRP)	0	0	0	0	0	0	0	0	0	0	0	12,119	12,119
PIER 39 MARINA; PORT OF SAN FRANCISCO; SF-DODS	0	0	0	0	0	0	0	0	0	4,964	11,203	0	16,167
PITTSBURG MARINA, SF-9	0	0	0	0	0	0	0	0	0	14,016	10,353	0	24,369
PORT OF OAKLAND, Berth Maintenance; Reuse - Montezuma Wetlands (MWRP)	0	0	0	0	0	0	0	0	0	7,132	84,804	68,201	160,137
PORT OF SAN FRANCISCO, Berth 27; SF-DODS	0	0	0	0	0	0	0	0	20,596	0	0	0	20,596
PORT OF SAN FRANCISCO, BERTH 35; SF-DODS	0	0	0	0	0	0	0	0	9,287	0	0	0	9,287
PORT OF SAN FRANCISCO, BERTH 35; Reuse - Montezuma Wetlands (MWRP)	0	0	0	0	0	0	0	0	14,947	14,699	0	0	29,646
SAN FRANCISCO MARINA, WEST BASIN; Reuse - SF-8	0	0	0	0	0	0	0	11,716	0	0	0	0	11,716
SAN FRANCISCO YACHT CLUB; SF-11	0	0	0	0	0	0	1,308	2,180	0	0	0	0	3,488
SAUSALITO YACHT HARBOR; SF-11	0	0	0	0	0	0	0	0	0	0	10,206	0	10,206
VALERO REFINING COMPANY; SF-9	0	0	0	0	0	19,437	0	0	7,233	0	0	0	26,670
VALERO REFINING COMPANY; SF-DODS	0	0	0	0	0	0	0	0	9,374	0	0	0	9,374
VALLEJO YACHT CLUB; SF-9	0	0	0	0	0	0	0	0	0	0	1,200	0	1,200
WESTPOINT HARBOR; SF-11	0	0	0	0	0	0	0	0	0	19,191	12,337	0	31,528
WETA, SOUTH SAN FRANCISCO FERRY TERMINAL; SF-DODS	11,041	7,466	6,677	0	0	0	0	0	0	0	0	0	25,184
USACE, MAIN SHIP CHANNEL; SF-17, Ocean Beach Dispoal Site	0	0	0	0	0	0	(281,569)	0	0	(146,582)	0	0	(428,151)
USACE, OAKLAND INNER & OUTER HARBOR; SF-DODS	0	0	0	0	0	0	0	0	99,448	0	0	0	99,448
USACE, OAKLAND INNER & OUTER HARBOR; Reuse - Montezuma Wetlands (MWRP)	156,650	53,700	0	0	0	0	0	25,602	37,094	241,906	160,891	32,656	708,499
USACE, PINOLE SHOAL CHANNEL; SF-10	0	0	0	0	0	0	4,915	194,408	0	0	0	0	199,323
USACE, REDWOOD CITY HARBOR; SF-11	0	0	0	0	0	0	0	134,535	131,852	0	34,137	0	300,524
USACE, REDWOOD CITY HARBOR; SF-DODS	0	0	0	0	0	0	0	0	0	0	0	9,753	9,753
USACE, REDWOOD CITY HARBOR; Reuse - Montezuma Wetlands (MWRP)	0	0	0	0	0	0	0	27,309	0	0	0	52,424	79,733
USACE, RICHMOND INNER HARBOR; Reuse - Cullinan Ranch	0	0	0	0	0	0	98,458	113,990	77,142	0	0	0	289,590
USACE, RICHMOND INNER HARBOR; SF-DODS	0	0	0	0	0	0	0	0	14,066	0	0	0	14,066
USACE, SUISUN BAY CHANNEL; (Dutra) Reuse - Montezuma Wetlands (MWRP)	0	0	0	0	0	0	0	0	0	48,655	37,715	0	86,370
USACE, SUISUN BAY CHANNEL; (R.E.Staite) Reuse - Montezuma Wetlands (MWRP)	0	0	0	0	0	0	0	0	0	16,670	39,591	0	56,261
GRAND TOTAL	**167,691**	**61,166**	**11,811**	**22,224**	**0**	**88,931**	**112,935**	**525,807**	**480,670**	**494,256**	**451,582**	**182,934**	**2,600,007**

*** NO post dredged volume (only BIN)**
**** NO post dredged volume for the Oct-Nov episode (only BIN)**
\+ Dredging continued into 2019
 # No daily disposal logs submitted

Red = SF-8
Brown = SF-10 (San Pablo)
Gray = SF-16 (Suisun Bay)
Pink = SFDODS (Deep Ocean Site)
Orange = SF-9 (Carquinez)
Blue = SF-11 (Alcatraz)
Turquoise = SF-17 (Ocean Beach)
Green = Upland/Reuse

APPENDIX 3

2019 Non-USACE Projects EFH Compliance Summary

2019 Non-USACE Maintenance Dredging Projects LTMS Programmatic EFH Compliance

Project Name	Placement Site	USACE File Number	Dredge Date	Permitted Area (Acres)	Dredge Area (Acres)	Dredge Volume (Cubic Yards)	EFH Compliance Issues
Projects with Eelgrass Present							
Belevedere Land Corperation	SF-11	2004-28452	July to August	0.6	0.6		Eelgrass within 250 meters, silt curtain deployed during dredging activities.
Glen Cove Marina	SF-9	2009-00120	November to December	7.5	1.9	3,010	Eelgrass within 250 meters, silt curtain deployed during dredging activities.
Sausalito Yacht Harbor	SF-11	2009-00207	November	22	9.7	7,600	Eelgrass within 250 meters, silt curtain deployed during dredging activities.
Projects without Eelgrass Present							
Amports, Episode 5	SF-9 and MWRP	2014-00033	October	8.75	3.63	24,009	No eelgrass within 250 meters. No EFH issues associated with episode.
Benicia Marina, Episode 7	SF-9	2014-00061	November	16.96	2	5,710	No eelgrass within 250 meters. No EFH issues associated with episode.
Chevron Long Wharf, Episodes 12	MWRP and SF-10	2009-00052	June	44.1	27.6	65,648	No eelgrass within 250 meters. No EFH issues associated with episode.
Levin-Richmond	On-site Rehandling facility than Landfill	2008-00399		2.62	0.4		Sediment was not suitable for aquatic disposal so the sediment was dried and removed to a landfill. No eelgrass within 250 meters. No EFH issues associated with episode.
Mare Island Dry Docks, Episode 18	Cullinan Ranch	2008-00311	April	18.31	8.65	11,234	No eelgrass within 250 meters. No EFH issues associated with episode.
Mare Island Dry Docks, Episode 20	Cullinan Ranch	2008-00311	September	18.31	8.9	18,635	No eelgrass within 250 meters. No EFH issues associated with episode.
Phillips 66, Episode	SF-8 and Montezuma	2014-00431	November to December	50.5	4.96	18,300	No eelgrass within 250 meters. No EFH issues associated with episode.
Pittsburg Marina	SF-9	2001-26215	October to November	38.2	10.7	24,712	No eelgrass within 250 meters. No EFH issues associated with episode.
Suiusn City Marina*	Pierce Island	2008-00313	August to November	20.9	20.9	107,901	No eelgrass within 250 meters. No EFH issues associated with episode.
Valero, Episode	SF-9 and SF DODS	2012-00248	June and October	5.48	3.44	34,429	No eelgrass within 250 meters. No EFH issues associated with episode.
Vallejo Marina	SF-9	2012-00057	August to October	29	10.46	50,423	No eelgrass within 250 meters. No EFH issues associated with episode.
Vallejo Yacht Club	SF-9	2013-00139	November	6.0	0.25	1,200 bin volume	No eelgrass within 250 meters. No EFH issues associated with episode.
International -Matex Tank (IMTT)	MWRP	2014-00305	June	0.8	0.6	3,146	Post-dredge testing conducted which indicated that DDT dieldrin, PAHs, PCBs concentrations were above pre-dredge conditions in some areas within the dredge footprint. However, the contrations were in line with the ambient concentrations of the immediate surroundings so no additional administrative actions were taken.
Westpoint Marina	SF-11	1996-22454	November to December	22.6	13.66	31,528	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of SF - Pier 27	SF-DODS	2013-00333	September	361	9.67	20,598	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of SF - Pier 35	SF-DODS	2013-00333	September to October	361	8.19	38,933	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of SF - Pier 39 Marina	SF-DODS	2013-00333	October to November	361	3.02	16,167	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of Oakland Berth Maintenance	MWRP	2014-00090	October to December	66.5	31.06	160,138	No eelgrass within 250 meters. No EFH issues associated with episode.
SF Marina West Basin	SF-8	2008-00074	August	28	2.4	11,716	No eelgrass within 250 meters. No EFH issues associated with episode.
California Maritime Academy	SF-9	2009-00244	November	1.8	1.8	7,645	Dredge depth shallower than design depth in boat house in order to avoid elevated levels of PCBs. No eelgrass within 250 meters.
Marina Vista Canal	SF-10	2010-00160	December	2.6	1.7	6,703	No eelgrass within 250 meters. No EFH issues associated with episode.
Blu Harbor	MWRP	2018-00411	March	2.3	2.3	16,134	No eelgrass within 250 meters. No EFH issues associated with episode.
USCG Cutter Aspen/ Small Boat Basin	SF-DODS/ MWRP	2018-00259/ 2010-00371	October to November	21.1	21.1	79,031	No eelgrass within 250 meters. No EFH issues associated with episode.

February 2021

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

2019 USACE Projects EFH Compliance Summary

Appendix 4. 2019 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
Projects with Eelgrass Present						
Oakland Inner Harbor	Montezuma Wetland Restoration Project (MWRP)	Clamshell	August to September	342,857	525	Eelgrass present within 250 meters, light monitoring conducted
Oakland Outer Harbor	San Francisco Deep Ocean Disposal Site (SF-DODS) and Montezuma Wetland Restoration Project (MWRP)	Clamshell	August to September	254,740	251	Eelgrass present within 250 meters, light monitoring conducted
Richmond Inner Channel	San Francisco Deep Ocean Disposal Site (SF-DODS) and Cullinan Ranch Restoration Project	Clamshell	July to September	303,656	82	Eelgrass present within 250 meters, light monitoring conducted
Projects without Eelgrass Present						
Main Ship Channel	Ocean Beach Demostration Site (SF-17)	Hopper	July and October	428,151	1,204	No EFH compliance issues
Pinole Shoal Channel	San Pablo Bay Disposal Site (SF-10)	Hopper	July to August	199,323	540	No EFH compliance issues
Redwood City Harbor	San Francisco Deep Ocean Disposal Site (SF-DODS), Alcatraz Island Disposal Site (SF-11) and Montezuma Wetland Restoration Project (MWRP)	Clamshell	August to January*	447,554	103	No EFH compliance issues
Suisun Bay Channel	Montezuma Wetland Restoration Project (MWRP)	Clamshell	August to November	142,631	461	No EFH compliance issues

* Includes some 2020 volumes