

Dredged Material Management Office (DMMO) Dredging and Placement of Dredged Material in San Francisco Bay January-December 2021 Report



Photo Credit: Jessica Vargas, USACE 2018



Photo Credit: Brandon Beach, USACE 2018

Table of Contents

I. INTRODUCTION.....	3
Dredged Material Management Office.....	3
Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS).....	4
II. 2021 DREDGING AND PLACEMENT OVERVIEW.....	6
In-Bay Disposal.....	6
Beneficial Reuse and Upland Placement.....	7
Sediment Suitability for In-Bay Unconfined Aquatic Disposal.....	9
Dredging Equipment Used in the Bay.....	9
Environmental Work Windows.....	9
Essential Fish Habitat (EFH) Compliance.....	11
III. RELATED ISSUES.....	12
DMMO Projects and Sediment Quality Database.....	12
SediMatch.....	12
IV. LOOKING AHEAD.....	13
V. CONTACTS AND LINKS.....	14
APPENDIX 1.....	15
APPENDIX 2.....	17
APPENDIX 3.....	19
APPENDIX 4.....	21

Figures

1. The LTMS Transition Period.....	5
2. Actual in-Bay disposal volumes.....	5
3. 2021 total dredging and placement summary.....	6
4. 2021 projects and dredge volumes relative to environmental work windows.....	11

Tables

1. Dredging and placement volumes under the LTMS Program, 2000-2021.....	7
2. Beneficial reuse or upland placement sites.....	8
3. Projects dredged in 2021 with NUAD sediments.....	9

**Dredged Material Management Office
Dredging and Placement of Dredged Material in San Francisco Bay
January-December 2021 Report**

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 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.dmмосfbay.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 sediment quality 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). The DMMO requests that project test results be reported using a standard template that can be found on the DMMO website. The standard template has increased the efficiency of uploading and using testing data in the DMMO database.

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/EIS 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 Plan², 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/

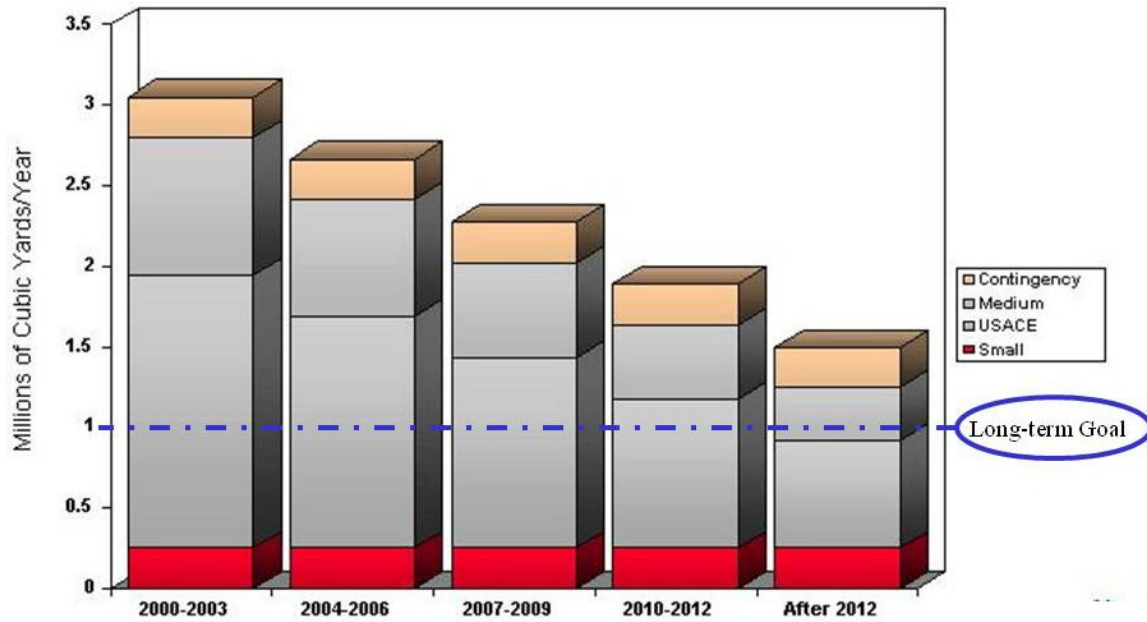


Figure 1. The LTMS Transition Period, showing the in-Bay disposal volume limit decreases that occurred every three years until the end of 2012. The Transition Period is now complete, and the final annual in-Bay limit of 1.25 million cy is in place.

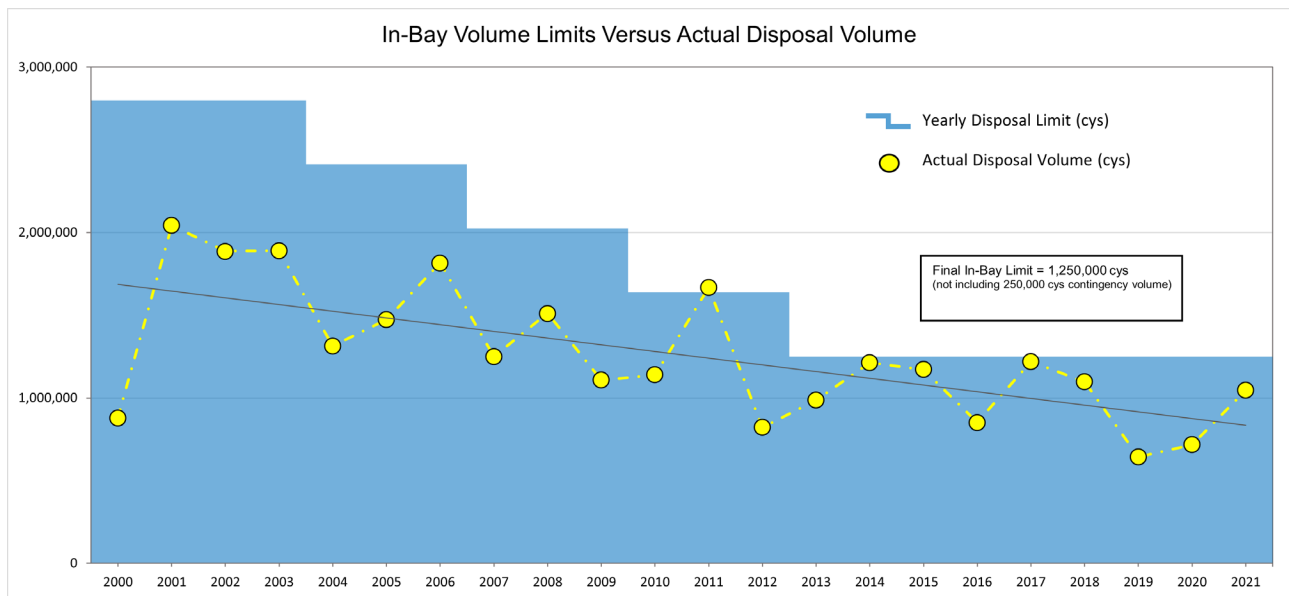


Figure 2. Actual in-Bay disposal volumes (yellow dots), compared to the transition period limits (2000-2012) and the final post-transition period disposal limit (2013-2021) (blue shading).

II. 2021 DREDGING AND PLACEMENT OVERVIEW

In 2021, 27 projects dredged a total of 2,237,531 cy of sediment from San Francisco Bay (note: the SF Main Ship Channel is not included in this volume total). As summarized in Figure 3 and Table 1, a total of 1,046,278 cy (47% of the total volume dredged) was placed at four designated in-Bay dredged sediment disposal sites, while 420,289 cy (19%) was beneficially reused or placed upland and 770,964 cy (34%) was disposed at SF-DODS. Of the sediment disposed at the four in-Bay disposal sites, 543,385 cy (52%) went to the Alcatraz Disposal Site (SF-11); 259,340 cy (25%) went to the San Pablo Bay Disposal Site (SF-10); 72,908 cy (7%) went to the Carquinez Strait Disposal Site (SF-9); and 170,645 cy (16%) went to the Suisun Bay Disposal Site (SF-16). Detailed volume information for 2021 is provided in Appendix 1 (by placement site) and Appendix 2 (by dredging project, including monthly disposal volumes).

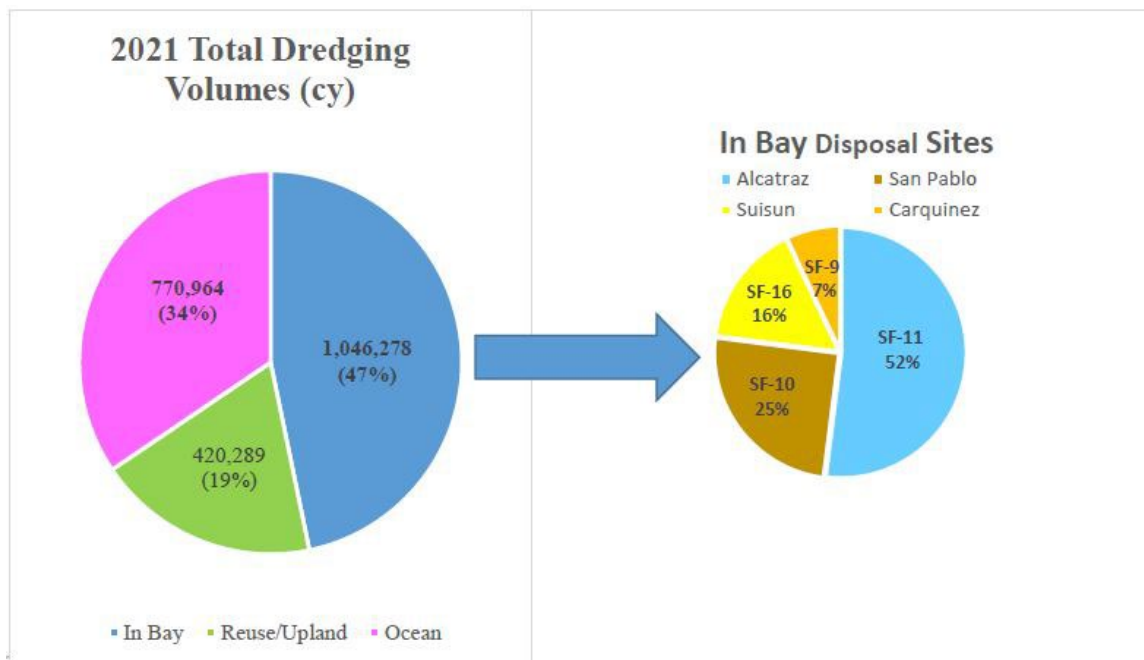


Figure 3. 2021 total dredging and placement summary, showing detail for In-Bay Disposal Sites.

In-Bay Disposal

As in previous years, the LTMS Plan 20% in-Bay disposal goal was exceeded in 2021. Despite the actual in-Bay disposal volume increasing slightly over 300,000 cy from the previous year, this volume (1,046,278 cy) did not exceed the 1.25 million cy annual limit. The 3-year average in-Bay disposal volume (2019-2021) was 802,216 cy (Table 1) which is approximately 200,000 cy less than 2021 volumes, therefore no dredger-specific allocations will need to be considered at this time according to the LTMS Management Plan.

Dredging Volumes Under LTMS, 2000 through 2021 (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	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	1,056,052
2017	1,250,000	1,219,727	40.3%	883,475	29.2%	922,594	30.5%	3,025,796	
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	52.60%	1,709,984	37.90%	246,188	9.47%	2,600,007	802,216
2020	1,250,000	716,535	27.83%	848,208	32.94%	1,010,317	39.23%	2,575,060	
2021	1,250,000	1,046,278	46.8%	420,289	18.8%	770,964	34.4%	2,237,531	
	Mean	1,261,235		1,339,329		686,413		3,286,977	
	Total	27,747,175	40.0%	28,196,731	43.4%	13,319,815	20.5%	64,900,901	

* 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, 2000-2021

Beneficial Reuse and Upland Placement

In 2021, 420,289 cy (~19% 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 2021 are provided below:

Placement Location	Sediment Placed (cy)	% of Total Reuse/Upland
Montezuma Wetlands Restoration Project	173,572	41%
Cullinan Ranch Restoration Project	231,598	55%
Napa Sea Ranch	1,619	1%
SF-8 inshore portion (non-Federal)	13,500	3%
Total	420,289	

Table 2. Beneficial reuse or upland placement sites that received dredged sediment in 2021

- Montezuma Wetland Restoration Project (MWRP)

In 2021, the MWRP received 173,572 cy of dredged material for reuse (41% of the total reused volume). The sediment came from 11 maintenance dredging projects, although most of the volume came from one federal dredging project – approximately 33,000 cy from the USACE Richmond Inner Harbor. The remaining volume came from dredging projects at Chevron Richmond Long Wharf, Phillips 66 (Rodeo), Port of Richmond Terminal 2, PG&E Dutchman Slough, Valero, and Port of Redwood City Wharves.

- 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 2021, this site received 231,598 cy (55% of the total reused volume). Projects sending material to Cullinan included US Coast Guard Station Vallejo, Mare Island Dry Dock, WETA Vallejo Terminal, and USACE Redwood City 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 2021, this site received a total of 13,500 cy of clean sand in the easternmost portion of the SF-8 disposal site from the San Francisco Marina West Basin maintenance dredge project and the USACE Pinole Shoal Channel.

- Napa Sea Ranch

The Napa Sea Ranch is an upland placement site consisting of two settling basins located just north of the Napa Valley Marina across Carneros Creek. Only Napa Valley Marina placed sediment (1,619 cy) at this site in 2021.

Sediment Suitability for In-Bay Unconfined Aquatic Disposal

Approximately 99% of sediment dredged in 2021 (2,214,267 cy of the 2,237,531 cy total) was suitable for unconfined aquatic disposal in the Bay (SUAD), while 1% (23,264 cy) was not suitable for unconfined disposal in the Bay (NUAD). The NUAD material came from two projects, Levin Richmond and Oyster Cove Marina, both maintenance dredging projects. All the NUAD material was placed at SF-DODS. Based on the sediment characterization results, the sediment was not directly toxic in bioassays but was determined to be NUAD based on sediment chemistry: e.g., it exceeded a Total Maximum Daily Load (TMDL) concentration limit.

Project	NUAD Volume (cy)	Reason NUAD	Placement Site
Levin Richmond	4,820	PCBs	SF-DODS
Oyster Cove Marina	18,444	PCBs	SF-DODS
Total	23,264		

Table 3. Projects dredged in 2021 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 2021 used mechanical dredges (e.g., clamshells or excavator buckets). One non-USACE project (Napa Valley Marina) dredged 1,619 cy using a cutter head suction dredge. Two USACE projects (Main Ship Channel and Pinole Shoal Channel) dredged 571,085 cy and 170,645 cy, respectively using a hydraulic hopper (Appendix 4).

Environmental Work Windows

Environmental work windows, developed via programmatic consultations for 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 sturgeon³. 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

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

window, without further consultation with NMFS, when unforeseeable circumstances delay project completion.

Environmental work window restrictions were met by 21 of the 27 dredging projects conducted in 2021⁴. Most of these projects began work in or after the month of June, and 20 of them were completed entirely within their work windows. The Port of Oakland paused dredging in November 2021 and resumed dredging in January 2022. Although the approval to resume dredging outside the work window was made in 2021, the January 2022 volume is not included in this report but will be included in the 2022 DMMO Annual Report. Of the 27 projects subject to the environmental work windows, five non-USACE projects (Chevron, Loch Lomond Marina, Phillips 66, Port of Richmond Terminal 2, and Westpoint Harbor Marina) requested and received an extension from DMMO to perform dredging that could not be completed within the salmonid and Pacific herring work windows. Three of these non-USACE projects placed a combined 74,592 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, three projects (Westpoint, Chevron and Loch Lomond) dredged 11,114 cy in May or December and placed the dredged material at the in-Bay disposal site. Per the terms of the NMFS LTMS Programmatic Biological Opinion, these two projects experienced unplanned and unavoidable circumstances which prevented the completion their project within the work window and the LTMS agencies approved the disposal of the minimal amount of material at an in-Bay disposal site. Several projects cited unforeseen delays caused by a shortage of available dredging equipment needed to complete dredging work in their requests to continue dredging past the close of the work windows.

The USACE Oakland Inner and Outer Harbor channels project dredged after the environmental work window closed in 2021, and ultimately dredged 123,580 cy between December 2021 and January 2022. Per the terms of the NMFS LTMS Programmatic Biological Opinion, an equivalent volume of sediment dredged from this project after November 30, 2021 must be beneficially reused within a year at tidal wetland restoration site(s) that benefits fish habitat.

⁴ Valero Refinery and the Mare Island Dry Docks have separate consultations with the state and federal resource agencies and are 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.

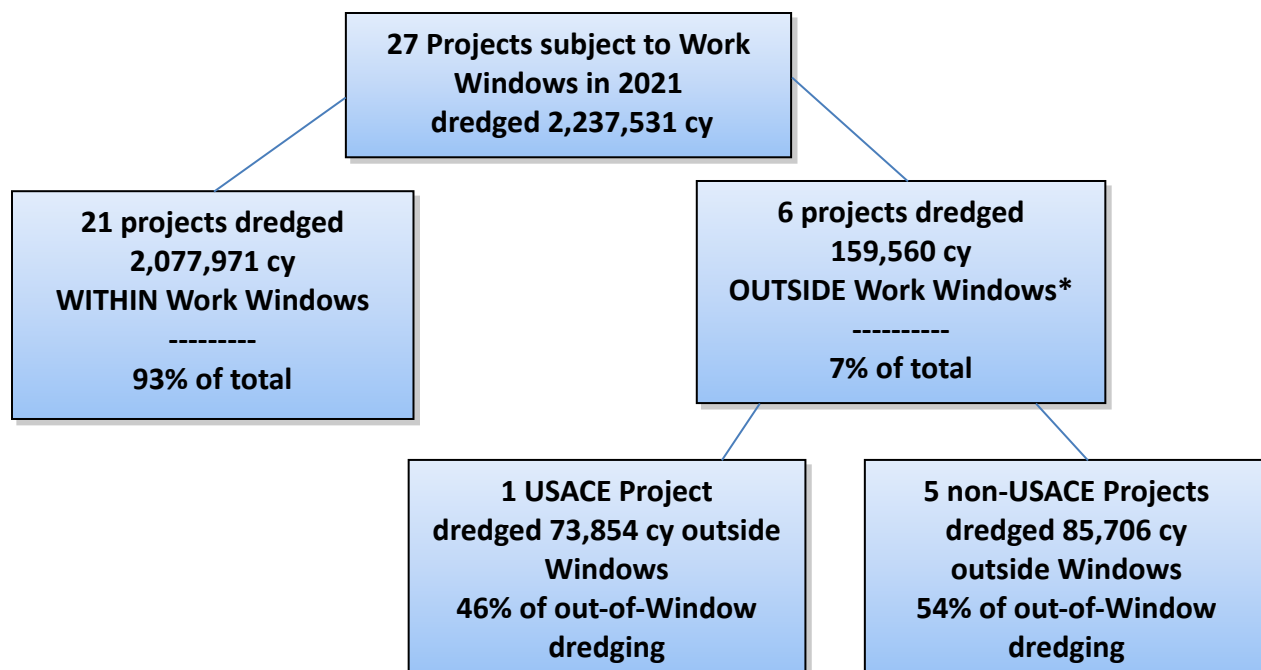


Figure 4. 2021 projects and dredge volumes relative to environmental work windows.

* The Port of Oakland paused dredging on November 30, 2021 and resumed dredging in January 2022. Although the approval to work outside the work window was approved as part of the 2021 dredge episode, that volume will be reported in the 2022 Annual Report.

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.

The EFH agreement also includes minimization measures to protect eelgrass. Eelgrass was within 45 meters of the Richardson Bay Marina dredge site; silt curtains were deployed during dredging and pre- and post-dredge eelgrass surveys were completed. Light monitoring was conducted at the USACE Richmond Inner Channel, and Oakland Inner and Outer Harbor projects since eelgrass was present within 250 meters of the project boundary (see appendix 4). The Port of Oakland had eelgrass within 250 meters of a few of the Berths scheduled to be dredged in 2021. After discussions with the agencies, the Port used an environmental bucket and relied on the USACE light monitoring studies from the adjacent Federal Channel in order to mitigate impacts to eelgrass (see appendix 3).

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 2021, 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 backlog 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 (2019-2021) was 802,216 cy (Table 1); therefore, no dredger-specific allocations will need to be considered at this time according to the LTMS Management Plan. In-Bay disposal does continue to account for about 40% 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 beneficial reuse sites, and in particular, to increase opportunities to beneficially reuse dredged sediment for wetland restoration and resiliency projects around the Bay.

V. CONTACTS AND LINKS

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RWQCB	Lindsay Whalin	(510) 622-2383	lindsay.whalin@waterboards.ca.gov
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SLC	Chris Huitt	(916) 574-2080	christopher.huitt@slc.ca.gov

RESOURCE AGENCY CONTACTS:

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	Craig Weightman (Tributaries)	(707) 944-5500	craig.weightman@wildlife.ca.gov
	Melissa Farinha (Delta Region)		
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

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

2021 Dredging Volumes by Placement Site

2021

Dredging Volumes by Placement Site in Cubic Yards (cy)

Disposal Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2021 Total Volume
SF-8 (Federal only)	0	0	0	0	0	(5,566)	0	0	0	0	0	0	(5,566)
SF-9, Carquinez Straits	0	0	0	0	0	22,897	0	3,245	2,131	8,865	35,770	0	72,908
SF-10, San Pablo Bay	0	0	0	0	0	198,369	7,200	3,600	4,800	9,174	25,822	10,375	259,340
SF-11, Alcatraz	0	0	0	0	739	32,160	244,415	184,331	41,898	36,240	3,602	0	543,385
SF-16, Suisun Bay	0	0	0	0	0	24,722	0	0	63,944	44,269	37,710	0	170,645
TOTAL in-Bay	0	0	0	0	739	278,148	251,615	191,176	112,773	98,548	102,904	10,375	1,046,278
SF-DODS, Deep Ocean Disposal Site	0	0	0	0	0	24,690	120,013	83,086	128,304	195,400	145,617	73,854	770,964
Reuse/Upland; Cullinan Ranch Restoration Project (CRRP)	0	0	11,214	0	0	0	14,007	50,027	146,037	0	10,313	0	231,598
Reuse/Upland; Montezuma Wetlands Restoration Project	13,363	8,391	29,321	0	0	0	0	0	0	0	47,905	74,592	173,572
Reuse/Upland; Napa Sea Ranch	0	0	0	0	0	0	0	0	0	0	0	0	1,619
Reuse/Upland; SF-8 NON-FEDERAL	0	0	0	0	0	0	0	0	0	9,000	4,500	0	13,500
TOTAL REUSE/UPLAND (non-fed)	13,363	8,391	40,535	0	0	0	14,007	50,027	146,037	10,619	62,718	74,592	420,289
TOTAL (excluding the Corps' Main Ship Channel)	13,363	8,391	40,535	0	739	302,838	385,635	324,289	387,114	304,567	311,239	158,821	2,237,531
Reuse, Beach Nourishment Project (Federal, MSC)	0	0	0	0	0	0	0	192,408	173,651	0	0	0	366,059
Reuse, SF-17 Ocean Beach (Federal, Main Ship Channel)	0	0	0	0	0	0	0	142,736	62,290	0	0	0	205,026
Dredging Total	13,363	8,391	40,535	0	739	302,838	385,635	659,433	623,055	304,567	311,239	158,821	2,808,616

APPENDIX 2

2021 Dredging Volumes by Project

Project	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2021 TOTAL VOLUME	
BENICIA MARINA, City of; SF-9	0	0	0	0	0	0	0	0	0	7,465	1,866	0	9,331	P
CHEVRON RICHMOND LONG WHARF; SF-10	0	0	0	0	0	0	0	0	0	0	6,949	1,275	8,224	
CHEVRON RICHMOND LONG WHARF; Montezuma/Reuse	0	0	0	0	0	0	0	0	0	0	0	62,927	62,927	71,151 P
COAST GUARD STATION, VALLEJO; Cullinan (CRRP)/Reuse	0	0	0	0	0	0	0	0	0	0	10,313	0	10,313	P
CONTRA COSTA WATER DISTRICT, Mallard Intake Channel; SF-9	0	0	0	0	0	0	0	0	0	1,400	33,904	0	35,304	P
KINDER MORGAN RICHMOND TERMINAL; SF-DODS	0	0	0	0	0	0	0	0	0	12,609	0	0	12,609	
KINDER MORGAN RICHMOND TERMINAL; SF-10	0	0	0	0	0	0	0	0	0	3,152	0	0	3,152	15,761 P
LEVIN RICHMOND TERMINAL; SF-DODS	0	0	0	0	0	3,149	0	0	0	0	1,671	0	4,820	P
LOCH LOMOND MARINA; SF-10	0	0	0	0	0	0	0	0	0	2,022	18,873	9,100	29,995	P
MARE ISLAND DRYDOCK; Cullinan (CRRP)/Reuse	0	0	11,214	0	0	0	14,007	0	0	0	0	0	25,221	P
NAPA VALLEY MARINA; Napa Sea Range/Reuse	0	0	0	0	0	0	0	0	0	1,619	0	0	1,619	P
OYSTER COVE MARINA; SF-11	0	0	0	0	0	0	0	0	24,592	24,688	3,602	0	52,882	
OYSTER COVE MARINA; SF-DODS	0	0	0	0	0	0	0	0	2,882	10,086	5,476	0	18,444	71,326 P
PARADISE CAY YACHT HARBOR; SF-10	0	0	0	0	0	7,600	7,200	3,600	4,800	4,000	0	0	27,200	*
PHILLIPS 66, Rodeo, San Francisco Refinery; Montezuma/Reuse	0	0	0	0	0	0	0	0	0	0	0	6,371	6,371	P
PG&E, Dutchman's Slough, Ignacio/Mare Island; Montezuma/Reuse	13,363	8,391	0	0	0	0	0	0	0	0	0	0	21,754	P
PORT OF OAKLAND, Berth Maintenance; SF-11	0	0	0	0	0	0	0	0	13,424	0	0	0	13,424	
PORT OF OAKLAND, Berth Maintenance; SF-DODS	0	0	0	0	0	0	0	0	2,332	37,306	46,632	0	86,270	99,694 P
PORT OF RICHMOND, TERMINAL 2; Montezuma/Reuse	0	0	0	0	0	0	0	0	0	0	0	5,294	5,294	P
PORT OF REDWOOD CITY WHARVES; SF-11	0	0	0	0	0	0	0	0	0	11,552	0	0	11,552	
PORT OF REDWOOD CITY WHARVES; SF-DODS	0	0	0	0	0	0	0	0	0	0	16,377	0	16,377	41,966 P
PORT OF REDWOOD CITY WHARVES; Montezuma/Reuse	0	0	0	0	0	0	0	0	0	0	14,037	0	14,037	
RICHARDSON BAY MARINA; SF-11	0	0	0	0	0	0	0	900	1,500	0	0	0	2,400	*
SAN FRANCISCO MARINA, WEST BASIN; SF-8/Reuse	0	0	0	0	0	0	0	0	0	9,000	4,500	0	13,500	*
VALLEJO YACHT CLUB; SF-9	0	0	0	0	0	0	0	3,245	2,131	0	0	0	5,376	P
VALERO; Montezuma/Reuse	0	0	29,321	0	0	0	0	0	0	0	0	0	29,321	
VALERO; SF-9	0	0	0	0	0	22,897	0	0	0	0	0	0	22,897	52,218 P
WETA, VALLEJO FERRY TERMINAL; Cullinan (CRRP)/Reuse	0	0	0	0	0	0	0	0	7,487	0	0	0	7,487	P
WESTPOINT HARBOR MARINA; SF-11	0	0	0	0	739	0	0	0	0	0	0	0	739	P
USACE, MAIN SHIP CHANNEL; Beach Nourishment Project	0	0	0	0	0	0	0	(192,408)	(173,651)	0	0	0	(366,059)	
USACE, MAIN SHIP CHANNEL; Ocean Beach Demonstration Site (SF-17)	0	0	0	0	0	0	0	(142,736)	(62,290)	0	0	0	(205,026)	(571,085)
USACE, OAKLAND INNER AND OUTER HARBOR; SF-DODS	0	0	0	0	0	21,541	120,013	83,086	123,090	135,399	18,464	73,854	575,447	P
USACE, PINOLE SHOAL CHANNEL; SF-8	0	0	0	0	0	(5,566)	0	0	0	0	0	0	(5,566)	
USACE, PINOLE SHOAL CHANNEL; SF-10	0	0	0	0	0	190,769	0	0	0	0	0	0	190,769	196,335 P
USACE, REDWOOD CITY HARBOR; SF-11	0	0	0	0	0	32,160	244,415	183,431	2,382	0	0	0	462,388	
USACE, REDWOOD CITY HARBOR; Cullinan (CRRP)/Reuse	0	0	0	0	0	0	0	50,027	138,550	0	0	0	188,577	650,965 P
USACE, RICHMOND INNER HARBOR; SF-DODS	0	0	0	0	0	0	0	0	0	0	56,997	0	56,997	
USACE, RICHMOND INNER HARBOR; Montezuma/Reuse	0	0	0	0	0	0	0	0	0	0	33,868	0	33,868	90,865 P
USACE, SUISUN BAY CHANNEL; SF-16	0	0	0	0	0	0	0	0	63,944	44,269	37,710	0	145,923	
USACE, SUISUN BAY CHANNEL, Bulls Head Reach; SF-16	0	0	0	0	0	24,722	0	0	0	0	0	0	24,722	170,645 P
GRAND TOTAL	13,363	8,391	40,535	0	739	302,838	385,635	324,289	387,114	304,567	311,239	158,821	2,237,531	‡

P = post-dredged survey volume

* = no post-dredged survey or incomplete data

‡ = excluding Main Ship Channel (MSC)

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

2021 Non-USACE Projects EFH Compliance Summary

2021 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							
Richardson Bay Marina	SF-11	2012-00134	August to September	3.4	1.96	2,400	Eelgrass within 45 meters, silt curtain deployed during dredging activities. Pre-dredge survey completed. Post-dredge survey to be completed in 2021.
Port of Oakland ep 14	SF-DODS	2014-00090	Oct 2021-Feb 2022	5.94	5.94	79,800	Eelgrass within 250 meters. Environmental bucket used during dredging.
Port of Oakland ep 15	SF-11; SF-DODS	2014-00090	Oct 2021-Feb 2022	14.99	14.99	179,200	Eelgrass within 250 meters. Environmental bucket used during dredging.
Projects without Eelgrass Present							
Benicia Marina	SF-09	2014-00615	October to November	16.96	16.96	9,331	No eelgrass within 250 meters. No EFH issues associated with episode.
Chevron Long Wharf	SF-10 and MWRP	2009-00052	November to December	44.1	5.56	71,151	No eelgrass within 250 meters. No EFH issues associated with episode.
Kinder Morgan	SF-10, SF-DODS	1972-28551	September to November	3.2	2.3	15,761	No eelgrass within 250 meters. No EFH issues associated with episode.
Levin Richmond	SF-DODS	2008-00399	June and November	2.62	0.4	4,820	No eelgrass within 250 meters. No EFH issues associated with episode.
Loch Lomond Marina	SF-10	2013-00422	October to December	10	22.8	35,600*	No eelgrass within 250 meters. No EFH issues associated with episode.
Mallard Slough Intake Channel	SF-09	2010-00209	October to November	2.75	2.75	35,304	No eelgrass within 250 meters. No EFH issues associated with episode.
MIDD LOP Epi 1	CRRP	2008-00311	February to March	1.92	1.92	11,214	No eelgrass within 250 meters. No EFH issues associated with episode.
MIDD LOP Epi 2	CRRP	2008-00311	July	0.815	0.815	14,007	No eelgrass within 250 meters. No EFH issues associated with episode.
Napa Valley Marina	Napa Sea Ranch	2012-00308	Sep-Oct	1.96	3.4	3,930	No eelgrass within 250 meters. No EFH issues associated with episode.
Oyster Cove Marina	SF-11, MWRP	2019-00437	Sep-Nov	14.5	14.5	74,250	No eelgrass within 250 meters. No EFH issues associated with episode.
Paradise Cay Yacht Harbor	SF-10, SF-11	2015-00034	Jun-Oct	10.06	10.06	27,200	No eelgrass within 250 meters. No EFH issues associated with episode.
Phillips 66	SF-8, SF-9	2014-00431	December	50.5	0.9	6,371	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of Oakland ep 14	SF-DODS	2014-00090	Oct 2021-Feb 2022	5.94	5.94	79,800	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of Oakland ep 15	SF-11; SF-DODS	2014-00090	Oct 2021-Feb 2022	14.99	14.99	179,200	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of Redwood City	SF-11, MWRP, SF-DODS	2015-00058	Oct-Nov	6.6	6.6	39,354	No eelgrass within 250 meters. No EFH issues associated with episode.
Port of Richmond Terminal 2	MWRP	2016-00302	December	9.7	4.07	6,000	No eelgrass within 250 meters. No EFH issues associated with episode.
San Francisco Marina West Basin	SF-8, uplands	2008-00074	Oct-Nov	28	2.2	13,500	No eelgrass within 250 meters. No EFH issues associated with episode.
USCG Vallejo (U.S. Coast Guard)	CRRP, SF-9	2008-00049	November	1.38	1.38	11,661	No eelgrass within 250 meters. No EFH issues associated with episode.
Valero Ep. 2022	in-Bay, SF-DODS, beneficial reuse	2012-00248	March & June	5.48	3.84	52,218	No eelgrass within 250 meters. No EFH issues associated with episode.
Vallejo Ferry Terminal	CRRP	2015-00082	September	2.97	0.95	7,487	No eelgrass within 250 meters. No EFH issues associated with episode.
Vallejo Yacht Club	SF-09	2013-00139	August to September	1.1	1.1	5,376	No eelgrass within 250 meters. No EFH issues associated with episode.
Westpoint Marina	SF-11	1996-22454	May	0.42	22.6	735	No eelgrass within 250 meters. No EFH issues associated with episode.

APPENDIX 4

2021 USACE Projects EFH Compliance Summary

Appendix 4. 2021 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 & Outer Harbor	San Francisco Deep Ocean Disposal Site (SF-DODS)	Clamshell	June to December	624,683	466	Eelgrass present within 250 meters, light monitoring conducted.
Richmond Inner Channel	San Francisco Deep Ocean Disposal Site (SF-DODS) and Montezuma Wetland Restoration Project	Clamshell	November	193,811	120	Eelgrass present within 250 meters, light monitoring conducted
Projects without Eelgrass Present						
Main Ship Channel	Ocean Beach Demonstration Site (SF-17)	Hopper	August to September	415,524	355	No EFH compliance issues
Pinole Shoal Channel	San Pablo Bay Disposal Site (SF-10) & SF-8	Hopper	June	196,335	122	No EFH compliance issues
Redwood City Harbor	Alcatraz Island Disposal Site (SF-11) and Cullinan Ranch Restoration Project (CRRP)	Clamshell	June to September	650,965	404	No EFH compliance issues
Suisun Bay Channel	Cullinan Ranch Restoration Project; SF-16	Clamshell	September to November	145,923	85	No EFH compliance issues
Bull's Head Reach (Suisun Bay Channel)	SF-16	Hopper	June	24,722	15	No EFH compliance issues