

USACE Regional Dredge Material Management

U.S. ARMY CORPS OF ENGINEERS
SAN FRANCISCO DISTRICT

CMANC FALL MEETING
OCTOBER 13, 2022

Dr. Tessa Beach
Chief, Environmental Branch
San Francisco District



US Army Corps
of Engineers®





AGENDA



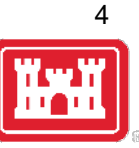
- San Francisco District Navigation Program Overview
- San Francisco District Navigation Program Vision
- How do we get there?
- Questions and Discussion



SAN FRANCISCO DISTRICT NAVIGATION PROGRAM OVERVIEW



SAN FRANCISCO DISTRICT NAVIGATION PROJECTS





O&M DREDGING PROJECTS



San Francisco Bay Federal Maintenance Dredging Projects 2020-2024

Project	Volume Cubic Yards (per episode)	Dredge Type	Placement Site(s)
Main Ship Channel	450,000	Hopper	Ocean Beach Demo Site /SF-8 / Ocean Beach Onshore
Oakland Harbor	950,000	Clamshell	SF-DODS/ Beneficial Use / SF-11
Richmond Outer Harbor	350,000	Hopper	SF-11/SF-10
Richmond Inner Harbor	350,000	Clamshell	SF-DODS/ Beneficial Use
Pinole Shoal Channel	300,000	Hopper	SF-11/SF-10
Suisun Bay Channel/New York Slough	200,000	Clamshell	SF-16/SF-9
Redwood City Harbor	600,000	Clamshell	SF-11/SF-DODS/ Beneficial Use
Petaluma Channel (Across the Flats)	250,000	Clamshell	SF-10
Petaluma Channel (River)	350,000	Cutterhead	Schollenberger Park
Napa River (Upper)	55,000	Clamshell	Imola/Napa Pipe
Napa River (Lower)	13,000	Clamshell/Cutterhead	Imola/Napa Pipe
San Bruno Shoal	16,000	Hopper/Clamshell	SF-11
San Rafael Creek	87,000	Clamshell/Cutterhead	SF-10 / SF-11

Outer Coast Federal Maintenance Dredging Projects 2020 -2024

Project	Volume Cubic Yards (per episode)	Dredge Type	Placement Site(s)
Humboldt Harbor	2,000,000	Hopper	Humboldt Open Ocean Disposal Site (HOODS)
Crescent City Harbor	125,000	Hydraulic Cutterhead and pipeline / Hopper	Whaler Island/ HOODS
Moss Landing Harbor	100,000	Clamshell or Hydraulic Cutterhead and pipeline	SF-12/SF-14
Noyo Harbor	25,000	Hydraulic Cutterhead and pipeline	North Jetty Upland Disposal Site
Santa Cruz Harbor	Sponsor Dredged Annually		
Bodega Bay Harbor	N/A		

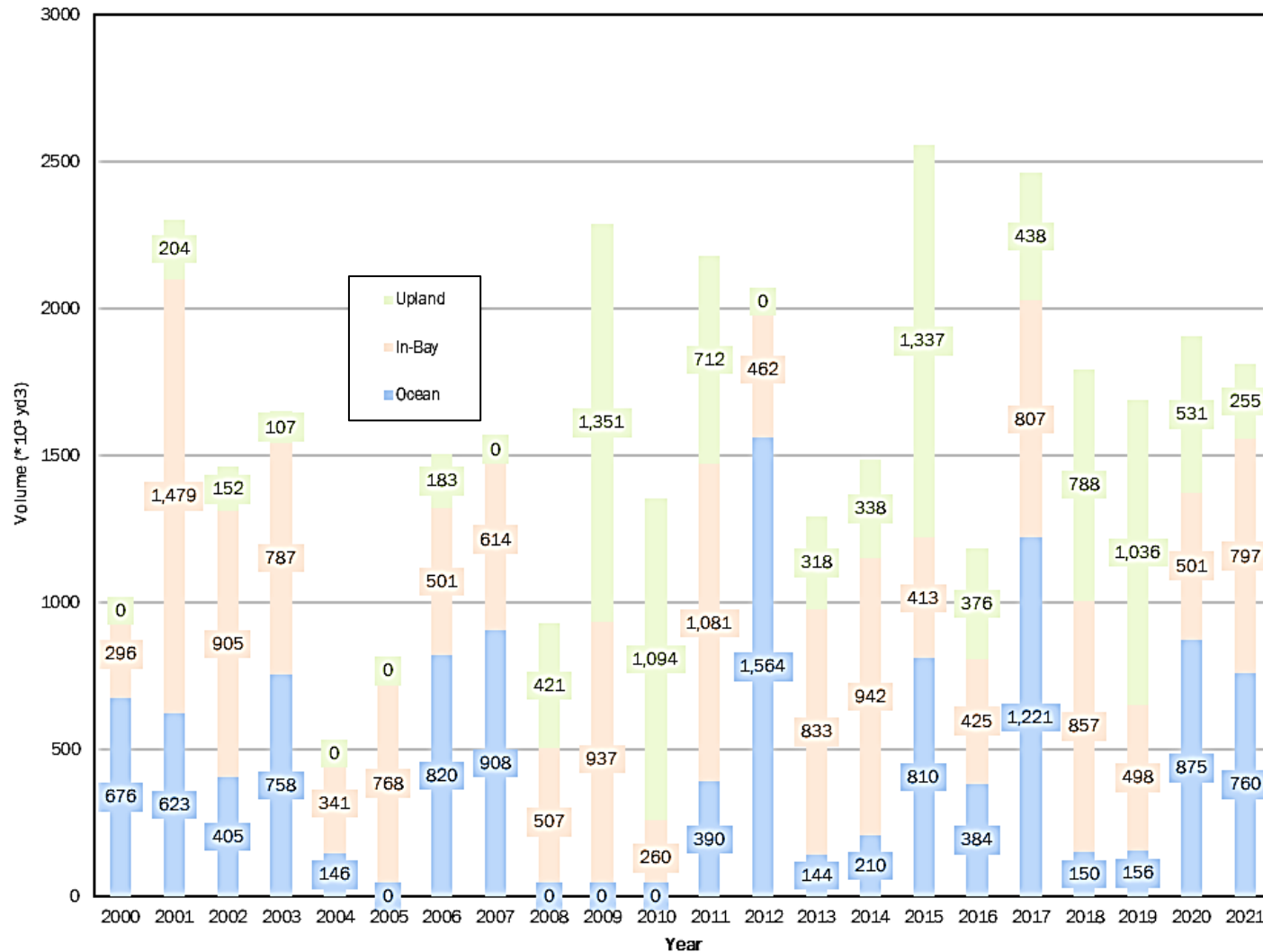
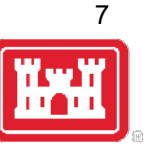


THE FEDERAL STANDARD

- The least costly dredged material disposal or placement alternative, consistent with sound engineering practices that meets all federal environmental requirements, including those established under the Clean Water Act (CWA) and the Marine Protection, Research, and Sanctuaries Act.



USACE SF-BAY VOLUMES BY PLACEMENT LOCATION 2000-2021



- 36 million cubic yards (MCY) material from SF Bay Channels between 2000-2021
 - 15 MCY (42%) in-Bay
 - 11 MCY (31%) ocean
 - 10 MCY (27%) upland



SAN FRANCISCO DISTRICT NAVIGATION PROGRAM VISION



SAN FRANCISCO DISTRICT STRATEGIC GOALS

9



Maximize Engineering with Nature Solutions

U.S. Army Corps of Engineers San Francisco District: **A *partner* in regional climate adaptation.**

Since 1866, the San Francisco District has served the waterways and national security needs of the region. We will build on our legacy by developing bold solutions that improve community, economic, and environmental resilience in the face of climate change. Our mission is to deliver safe and innovative *navigation, flood risk, ecosystem restoration* and *government facilities* solutions efficiently, sustainably, and equitably. We are investing in our team, partnerships, and project portfolio to meet the needs of the communities we serve.

Read the full 2022-2042 Strategic Plan and share your ideas for how we can partner on climate adaptation.
We are all ears.



Contact San Francisco District:
• 415-503-6804
• cespn-pa2@usace.army.mil
• www.spn.usace.army.mil

Efficiently Deliver a Multi-Benefit Navigation Program that Preserves the Environment

Maintaining and protecting our federal ship channels enables an efficient and environmentally sustainable sea-transport system for critical commerce. We will deliver that, while protecting species, ecosystems, and maximizing beneficial use of dredged sediments.

Our Strategic Goals

- Build Trust, Build Talent, and Build Capability
- Efficiently Deliver a Multi-Benefit Navigation Program that Preserves the Environment
- Deliver Large-Scale, Multi-Jurisdictional, and Multi-Benefit Sea Level Rise Adaptation Projects
- Maximize Engineering with Nature Solutions
- Build Community and Infrastructure Resilience to Western Extremes
- Deliver Value and Benefits Equitably
- Support Our Enduring National Security Requirements

CHANGING PARADIGMS

CURRENT PARADIGM

Limited Beneficial Use

- Narrow definition (e.g. upland)
 - Few sites
 - High-Cost
- Lack of incremental cost sharing



FUTURE VISION

Expanded, Redefined Beneficial Use

- Broader definition (e.g. nearshore in-bay / resiliency)
 - More sites
 - Lower-cost
- Dredge sediment as a valuable commodity; Cost shared resource

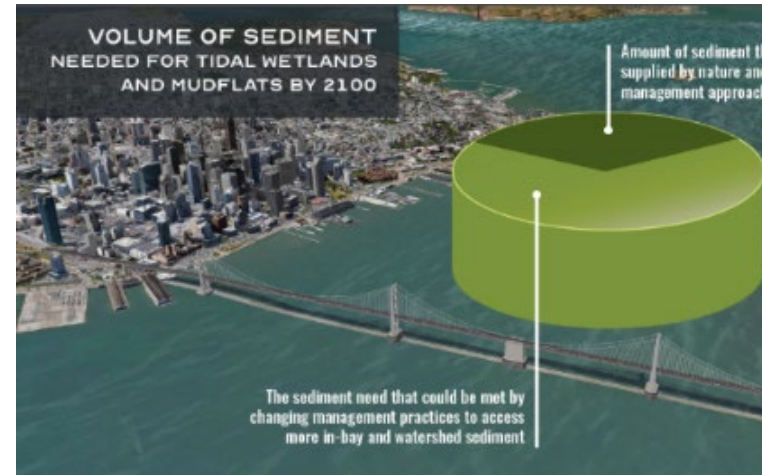
The New York Times

Coastal Sea Levels in U.S. to Rise a Foot by 2050, Study Confirms

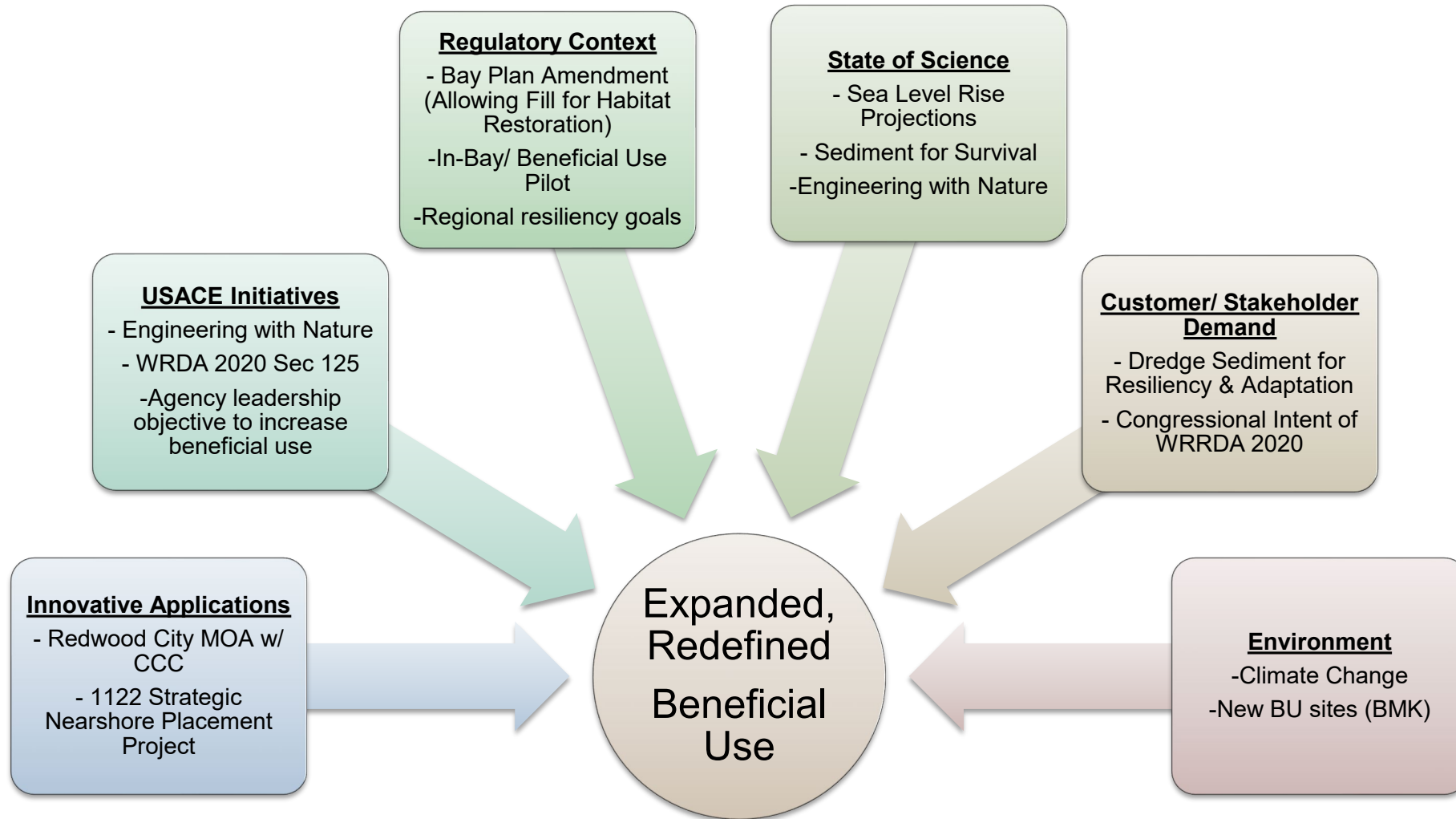
More precise measurements indicate that the increase will happen “no matter what we do about emissions.”



A “sunny day” flood in Mill Valley, Calif., last month. Such events will become more damaging in the future, scientists predict.



SHIFTING LANDSCAPE – BENEFICIAL USE





HOW DO WE GET THERE?





SAN FRANCISCO DISTRICT INNOVATIVE PILOTS & DREDGE MATERIAL MANAGEMENT PLANNING



- Pilots & Innovative Applications
 - Ocean Beach Onshore Placement (completed)
 - Oakland Harbor in-Bay/ Beneficial Use Pilot (active)
 - 1122 Nearshore Strategic Placement Pilot (active)
 - Humboldt Nearshore Demonstration site (potential)
 - Beneficial use of Moss Landing Material at Elkhorn Slough (potential)
- Dredge Material Management Planning
 - San Francisco Bay Regional Dredge Material Management Plan (active)
 - Oakland Harbor Turning Basin Widening Feasibility Study Beneficial Use Planning (active)
 - Cullinan Ranch Restoration Project Continuing Authorities Program (CAP) Section 204 Beneficial Use study (active)
 - Bel Marin Keys Wetland Restoration



OAKLAND 2022 - IN-BAY/ BENEFICIAL USE PILOT



- Multi-agency collaborative effort to accomplish more beneficial use
- Target placement:
 - 50% of material in-bay
 - 50% of material at a beneficial use site
- Recognition and acceptance by all agencies that placement percentages will vary from targets in practice
- Approximately 330K CY placed at SF-11 to date; beneficial use placement to begin in near future

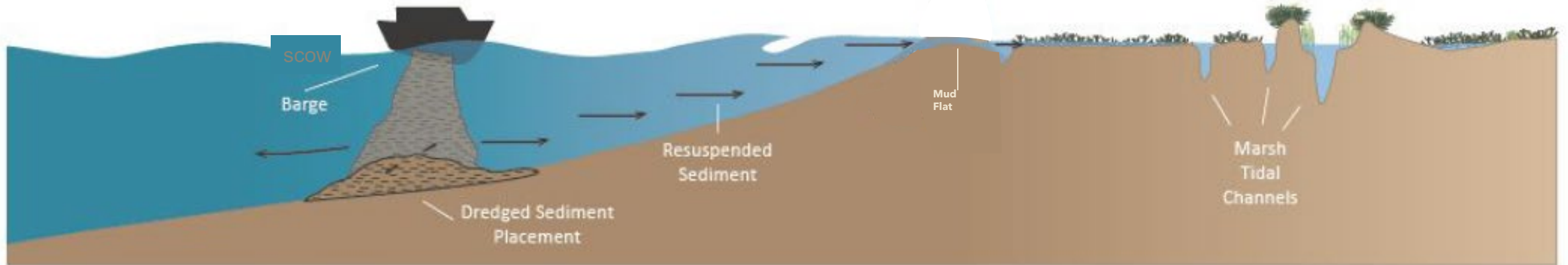


1122 STRATEGIC SHALLOW WATER PLACEMENT PILOT



- Pilot placement of approximately 100K CY in the nearshore adjacent to Whale's Tail Marsh at Eden Landing proposed to occur in connection with 2023 O&M dredging of Redwood City Harbor
 - Will test using natural transport processes to move sediment onshore
 - Objective is to increase resilience for mudflats and marshes
 - Innovative, cost-effective way to move towards regional goals
 - Monitoring impacts and effectiveness will be key

Shallow-Water Placement



OAKLAND HARBOR TURNING BASINS WIDENING NAVIGATION FEASIBILITY STUDY



- Purpose: to reduce navigation inefficiencies at existing turning basins in the Port of Oakland
- Recommended Plan proposes:
 - Expanding both inner and outer turning basins
 - **Beneficial use of all suitable material (Estimated 2.2 million cubic yards)**
 - 450K CY estimated to be suitable for beneficial use site cover material
 - 1.7 MCY estimated to be suitable for beneficial use foundation material
 - Electrified dredge equipment to minimize construction-related air pollutant emissions
 - Dredging activities within environmental work windows





BEL MARIN KEYS V PROJECT



- Project to restore the 1612-acre BMKV parcel of agricultural fields at Bel Marin Keys to tidal marshlands
- Could require as much as 24MCY of dredge material
- Aquatic Transfer Facility (ATF) was pursued as the most cost-effective mode of transporting dredge material to the site, but supplemental EIS/EIR was shelved after public comment in 2008
- San Francisco District received FY2023 funds to re-start work on the project



Credit: Alan Dep/Marin Independent Journal





SF BAY REGIONAL DREDGE MATERIAL MANAGEMENT PLAN (RDMMP)



- **Objectives**

- Demonstrate placement capacity for SF Bay region O&M of federal channels for 20 years
- Establish the Federal Standard “Base Plan”
- Prepare/obtain new multi-year dredging program permits associated with RDMMP Base Plan
 - 2025-2034 National Environmental Policy Act (NEPA) coverage
 - Associated CWA 401 and CZMA coverage

- **Implementation**

- Phase I – Develop detailed scope of work (2020-2022)
 - Broad Stakeholder Engagement
 - Literature Review/ Science Gap Analysis by SFEI
 - Scopes of work to address gaps (ERDC/SFEI)
 - Scopes of work to prepare engineering, economic, environmental inputs (USACE)
- Phase II – Execute scope of work (2022-2024)
 - Initiate Science Studies (identified through gap analysis)
 - Engineering, Economic, Environmental Analyses
 - Draft /Final RDMMP Document and obtain associated environmental compliance



RDMMP AND ENVIRONMENTAL COMPLIANCE TIMELINE

[illegible]



OTHER CONSIDERATIONS



- Dredge material suitability may directly or indirectly limit beneficial use applications in certain cases
- Tradeoffs with species protections
 - Previous challenges to the use of an Aquatic Transfer Facility for the Bel Marin Keys project centered around impacts to listed aquatic species (e.g. Green Sturgeon)
 - USFWS also recently posted in the Federal Register the proposed listing of the San Francisco Bay Delta Distinct Population Segment (DPS) of Longfin Smelt
- Clean cover requirements under LTMS programmatic EFH consultation



Questions & Discussion





ADDITIONAL INFORMATION SLIDES



LONG TERM MANAGEMENT STRATEGY (LTMS) PROGRAM



-Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region

- Cooperative effort; based on existing law and policy of LTMS agencies

-Provides strategy for dredging and disposal of dredged material over a 50-year period starting in 2000

-LTMS Goals

- Reduce in-bay disposal, Increase beneficial reuse and disposal at SF DODS
 - 20% In-bay
 - 40% Beneficial Use
 - 40% Ocean



DREDGING VOLUMES WITH LTMS 3-YEAR AVERAGES 2000-2017



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%	883,435	29.2%	922,594	30.5%	3,025,756	
2018	1,250,000								
Mean		1,346,897		1,429,073		690,573		3,466,544	
Total		24,244,148	38.9%	25,723,316	41.2%	12,430,319	19.9%	62,397,783	

* Final volumes based on post-dredge surveys. May differ from volumes published in individual DMMO Annual Reports.

** Not including 250,000 cy Contingency Volume