DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT
450 GOLDEN GATE AVE, 4TH FLOOR
SAN FRANCISCO, CALIFORNIA 94102-3404

FINDING OF NO SIGNIFICANT IMPACT

ADVANCE IDENTIFICATION OF SF-17 AS A PERMANENT DREDGED-MATERIAL, BENEFICIAL-USE SITE SAN FRANCISCO, CALIFORNIA

The U.S. Army Corps of Engineers, San Francisco District (USACE) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The Final Environmental Assessment (EA) dated 7 May 2025, for the Advance Identification of SF-17 as a Permanent Dredged-Material, Beneficial-Use Site addresses permanent beneficial use of dredged material while maintaining navigational safety for the San Francisco Bay.

The EA evaluated various alternatives that would maintain navigational access and safety in the study area. The recommended plan is described below:

- The Proposed Action is the advance identification of a permanent beneficial-use dredged sand placement site (SF-17), to support federal Operation and Maintenance (O&M) of the San Francisco Main Ship Channel. The San Francisco Main Ship Channel (MSC) is regularly dredged by the USACE. SF-8 was the previous ocean disposal site for material from the MSC. However, the site experienced unanticipated shoaling which created navigational safety concerns and restricted the use of the site, leading to the creation of the Ocean Beach Demonstration Site (OBDS) in 2005.

- The OBDS has been successfully used to place over 5 million cubic yards of sand, with approximately 83% of the sand dredged from the San Francisco Bay being beneficially used at the site since 2005. The SF-17 footprint is a moderate expansion of the OBDS extent (1.05 mi^2 to 2.5 mi^2) and is intended to allow greater operational flexibility for dredging vessels during variable weather/wave conditions, as well as provide broader spatial extent for deposited sand to have a wider range of movement and still be retained within the littoral zone.

- The SF-17 site is located approximately 0.35 miles offshore and is intended to provide a long-term solution for the placement of dredged material from the San Francisco Bay. The San Francisco Main Ship Channel (MSC) is 2,000-ft wide by 16,000-ft long. The material dredged from the MSC is comprised of medium-sized, clean sand that is highly suitable for beneficial uses. The USACE will be the primary user of SF-17. The designation of SF-17 as a permanent beneficial-use site will alleviate the navigational safety concerns associated with SF-8 and provide a long-term solution for the placement of dredged material from the San Francisco Bay.

The only alternative was the no action plan:

- Under the No-Action Alternative, continued use of SF-8 would lead to further shoaling at SF-8, increasing the risk of navigational hazards. Restrictions to ensure safe use of the

site would become more frequent, and at times, the *Essayons* dredge or other vessels may be unable to fully maintain MSC depths. As a result, larger commercial and military vessels might only access the Bay during high tide or with reduced cargo loads, negatively impacting maritime trade, commerce, maritime associated jobs, and safety.

SUMMARY OF POTENTIAL EFFECTS:

The Proposed Action would not have significant adverse indirect or cumulative impacts on the physical, biological, and human environment. Temporary and minor adverse effects associated with the proposed and reasonably foreseeable future actions are expected to be short and would be diminished to less than significant at the completion of the individual projects through avoidance measures and best management practices (BMPs) associated with each project. Long-term impacts are anticipated to be less than significant or minimized for each project and would not result in significant adverse cumulative impacts. The magnitude, extent, and duration of both indirect and cumulative effects of proposed designation of SF-17 are determined to be less than significant due to the nature of the proposed usage, i.e., only sandy material >80% will be used onsite, feeding the littoral cell will positively support the resiliency of Ocean Beach, and placement operations are short in duration and extent. It is also determined that the proposed project would have less than significant beneficial cumulative effects to aesthetics, safety, and recreation.

A summary assessment of the potential effects of the recommended plan are listed in Table 1:

Table 1: Summary of Potential Effects of the Recommended Plan

	Insignificant effects	Insignificant effects as a result of mitigation*	Resource unaffected by action
Aesthetics	☒	☐	☐
Air quality	☐	☐	☒
Aquatic resources/wetlands	☒	☐	☐
Fish and wildlife habitat	☒	☐	☐
Threatened/Endangered species/critical habitat	☒	☐	☐
Historic properties	☐	☐	☒
Other cultural resources	☐	☒	☐
Hazardous, toxic & radioactive waste	☒	☐	☐
Land use	☐	☐	☒
Navigation	☒	☐	☐
Noise levels	☒	☐	☐
Water quality	☒	☐	☐

*the required mitigation is detailed in Section 4.4 of the EA and would only be required if a cultural object was found during dredging placement

40 CFR 1505.2(a)(2) requires a summary of the alternatives considered.

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. BMPs as detailed in the EA will be implemented, if appropriate, to minimize impacts.[1] BMP's in accordance with the Clean Water Act are detailed in Appendix B.
1.
No compensatory mitigation is required as part of the recommended plan.

A 30-day public review of the draft IFR/EA and FONSI was completed on June 7, 2025. All comments submitted during the public review period were responded to in the Final EA and FONSI.

OTHER ENVIRONMENTAL AND CULTURAL COMPLIANCE REQUIREMENTS:

ENDANGERED SPECIES ACT

Compliance with the Endangered Species Act (ESA) is covered by the Biological Opinions of NMFS and USFWS issued to the Long-Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region (NMFS, 2015; USFWS, 1999; USFWS, 2004; USFWS, 2024a; USFWS, 2024b. The LTMS provides a comprehensive framework that integrates ESA requirements along with other key environmental regulations, such as the Clean Water Act (CWA), the National Environmental Policy Act (NEPA), and the Magnuson-Stevens Fishery Conservation and Management Act. By incorporating ESA compliance into its coordinated management approach, the LTMS ensures that dredging and sediment placement activities are conducted in a manner that protects endangered species and their habitats while streamlining the regulatory process across the San Francisco Bay region.

CLEAN WATER ACT SECTION 404(B)(1) COMPLIANCE

Pursuant to the Clean Water Act of 1972, as amended, the discharge of dredged or fill material must be found compliant with section 404(b)(1) Guidelines (40 C.F.R. Part 230). USACE Operations and Maintenance Dredging analysis and compliance with section 404(b)(1) is found in the Final Environmental Assessment/Environmental Impact Report for Maintenance Dredging of the Federal Navigation Channels in SF Bay, Fiscal Years 2025-2034, as those projects are the ones that place fill into the site.

[1] Best management practices (BMPs) as detailed in the EA will be implemented, if appropriate, to minimize impacts

CLEAN WATER ACT SECTION 401 COMPLIANCE

As explained above, compliance with the Clean Water Act Section 401 will also be covered by the Section 401 Certification to the USACE Operations and Maintenance Dredging program.

COASTAL ZONE MANAGEMENT ACT

CZMA CONSISTENCY DETERMINATION

A determination of consistency with the California Coastal Zone Management program pursuant to the Coastal Zone Management Act of 1972 was obtained from the California Coastal Commission on 25 April 2025. The California Coastal Commission concurred with the USACE that the recommended plan is consistent to the maximum extent practicable with state Coastal Zone Management plans. All conditions of the determination shall be implemented in order to minimize adverse impacts to the coastal zone.

NATIONAL HISTORIC PRESERVATION ACT

Under Section 106 of the National Historic Preservation Act, USACE will consult with the State Historic Preservation Officer and any other Section 106 consulting parties, such as Tribes or historic organizations, to review USACE's identification efforts and the proposed projects finding of effects to historic properties. The appropriate mitigation measures listed in section 4.4 Human Environment will be incorporated to ensure no inadvertent cultural resources not included in the current round of literature review and research can be mitigated.

NO EFFECT TO HISTORIC PROPERTIES:

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers determined that the recommended plan has no effect on historic properties.

OTHER SIGNIFICANT ENVIRONMENTAL COMPLIANCE:

All applicable environmental laws have been considered and coordination with appropriate agencies is expected to be completed by 9 June 2025.

FINDING

Technical, environmental, and economic criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the

review by my staff, it is my determination that the recommended plan would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

Date Click here to enter text.
18 JUN 25

Virginia R. Brickner
Lieutenant Colonel, U.S. Army
Commanding

Final Environmental Assessment and Finding of No Significant Impact

Advance Identification of SF–17
A Nearshore Dredged-Sand Beneficial-Use Site
Adjacent to South Ocean Beach
City and County of San Francisco, California

US Army
Corps of Engineers
San Francisco District

EPA

18 JUNE 2025
EAXX-202-00-L3P-1743085363

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FIGURES

TABLES

AIS	Automatic Identification System
Bar	San Francisco Bar
Bay	San Francisco Bay
BCDC	(San Francisco) Bay Conservation and Development Commission
BMP	Best Management Practices
CCC	California Coastal Commission
CCSF	City and County of San Francisco
CD	Consistency Determination
CDIP	Coastal Data Information Program
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CSLC	California State Lands Commission
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DMMO	Dredged Material Management Office
DPS	Distinct Population Segments
EA	Environmental Assessment
EFH	Essential Fish Habitat
FESA	Federal Endangered Species Act
FMP	Fisheries Management Plan
FONSI	Finding Of No Significant Impact
GGNRA	Golden Gate National Recreation Area
GMP	General Management Plan
LTMS	Long Term Management Strategy
MBTA	Migratory Bird Treaty Act
MLLW	Mean Lower Low Water
MMPA	Marine Mammal Protection Act
MOP	Monitoring and Prediction
MSC	San Francisco Main Ship Channel
MSL	Mean Sea Level
ND	Negative Determination
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
O&M	Operations and Maintenance
OBDS	Ocean Beach Demonstration Site
SAP	Sampling and Analysis Plan

SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SHPO	State Historic Preservation Office
SPN	San Francisco District
SWOO	Southwest Ocean Outfall
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VTS	Vessel Traffic Service

UNITS

CY	cubic yards
ft	foot or feet
kg	kilograms
m	meters (1.00 m = 3.28 ft)
m^3	cubic meters
MCY	million cubic yards
mg	milligrams
mi	Miles
mi^2	square miles
s	Seconds
µg	Micrograms
µm	Micrometer

1. INTRODUCTION

This Environmental Assessment (EA) is written in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. § 4321 et seq), as amended, and USACE Procedures for Implementing NEPA (33 C.F.R. Part 230). It presents an evaluation of the potential impacts associated with the proposed designation of SF-17 as a permanent site for sand placement by the United States Army Corps of Engineers (USACE) in the nearshore of the Pacific Ocean adjacent to South Ocean Beach, City and County of San Francisco, California.

This EA outlines the purpose, need, and proposed actions for the project, including an analysis of environmental impacts, alternatives considered, and compliance requirements. The document also details the affected environment, cumulative effects, and findings on the potential impact of the project, with references provided for further information.

2. PROPOSED PROJECT

The USACE San Francisco District (SPN) and the United States Environmental Protection Agency, Region 9 (USEPA) propose a permanent nearshore placement site for the beneficial use of clean dredged sand. The proposed site, designated SF-17, is seaward of Ocean Beach, which is the boundary between the Pacific Ocean and the City and County of San Francisco (CCSF), California (Figure 1). Ocean Beach and SF-17 are both within the San Francisco littoral cell that extends from the Golden Gate to Pedro Point. The site would primarily accept material from the annual USACE operations and maintenance (O&M) dredging of the San Francisco Main Ship Channel (MSC), although clean sand from other channels could be accepted in coordination with the interagency San Francisco Dredged Material Management Office (DMMO[2]). SF-17 would be established as a beneficial reuse site under the auspices of the Long-Term Management Strategy for Placing Dredged Material in the San Francisco Bay Region (LTMS) (Figure 1). The LTMS program was established in the 1990s, as evaluated in the Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region Policy Environmental Impact Statement/Programmatic Environmental Impact Report (EIS/EIR) in 1998 (USACE et al.). The LTMS Management Plan was adopted in 2001 (USACE et al.). The EIS/EIR evaluated alternative long-term dredged material management strategies for dredged material placement in San Francisco Bay, the ocean, and at beneficial reuse sites.

[2] The DMMO is an interagency office under the LTMS program, comprised of SPN, USEPA Region IX, San Francisco Bay Regional Water Quality Control Board, San Francisco Bay Conservation and Development Commission, and the State Lands Commission.

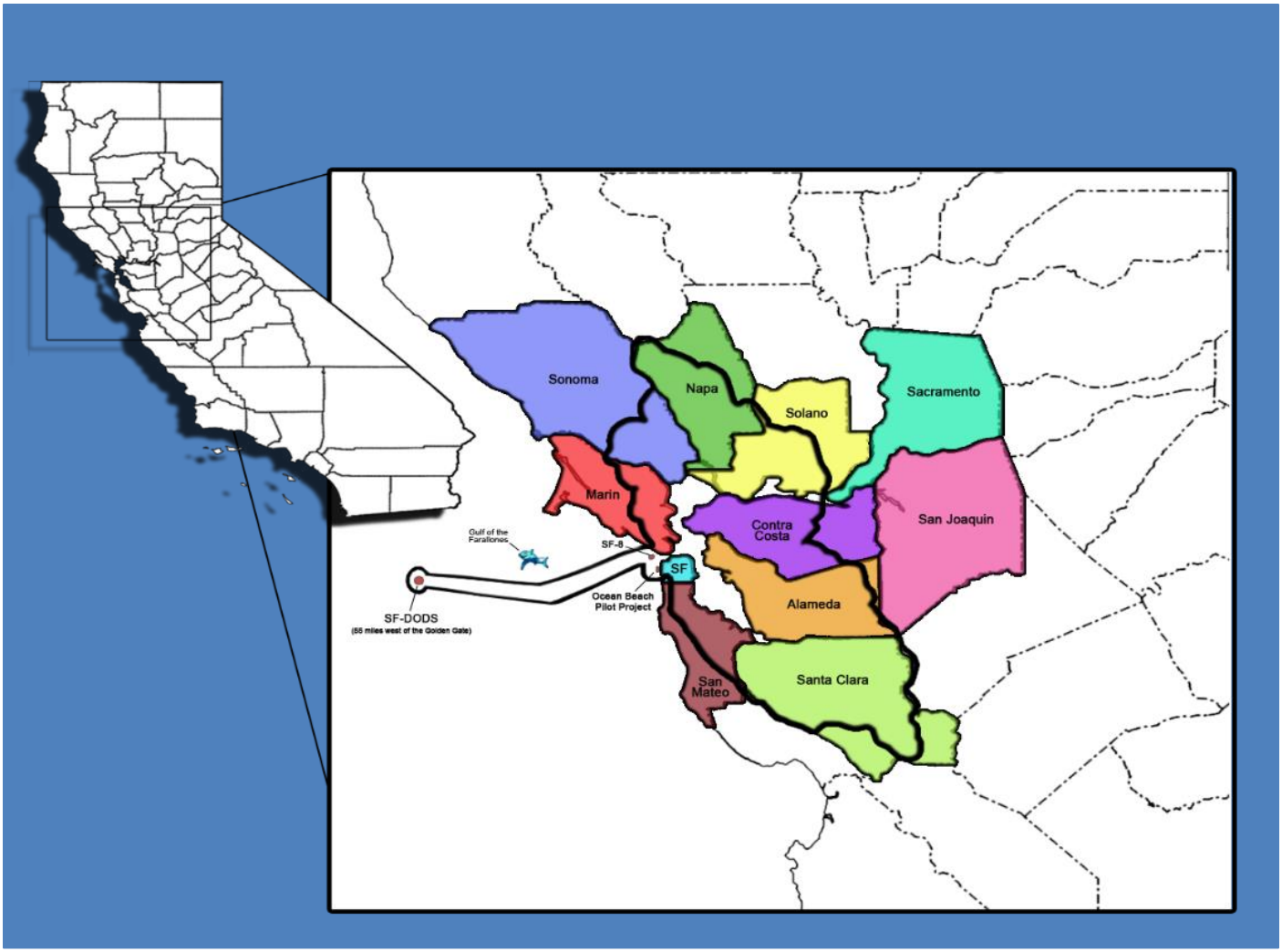

Figure 1. Boundaries of the San Francisco regional Long Term Management Strategy (LTMS) program within the thick black line. The Ocean Beach Pilot Project (a.k.a. OBDS) is where SF-17 would be.

The SF-17 site incorporates the Ocean Beach Demonstration Site (OBDS), which has received MSC sand annually since 2005 for beneficial-use purposes related to the adjacent, periodically eroding stretch of Ocean Beach. The OBDS has also reduced USACE reliance on the existing SF-8 ocean placement site (Figure 1), which, because of unanticipated shoaling, has limited capacity for safe operation of the large hopper dredges that maintain the MSC. Designating SF-17 would replace the OBDS pilot project, which showed that sandy material placed at OBDS stays in the littoral cell and provides for continuing beneficial use of dredged sand to serve the littoral cell at Ocean Beach (as an option to disposal at SF-8).

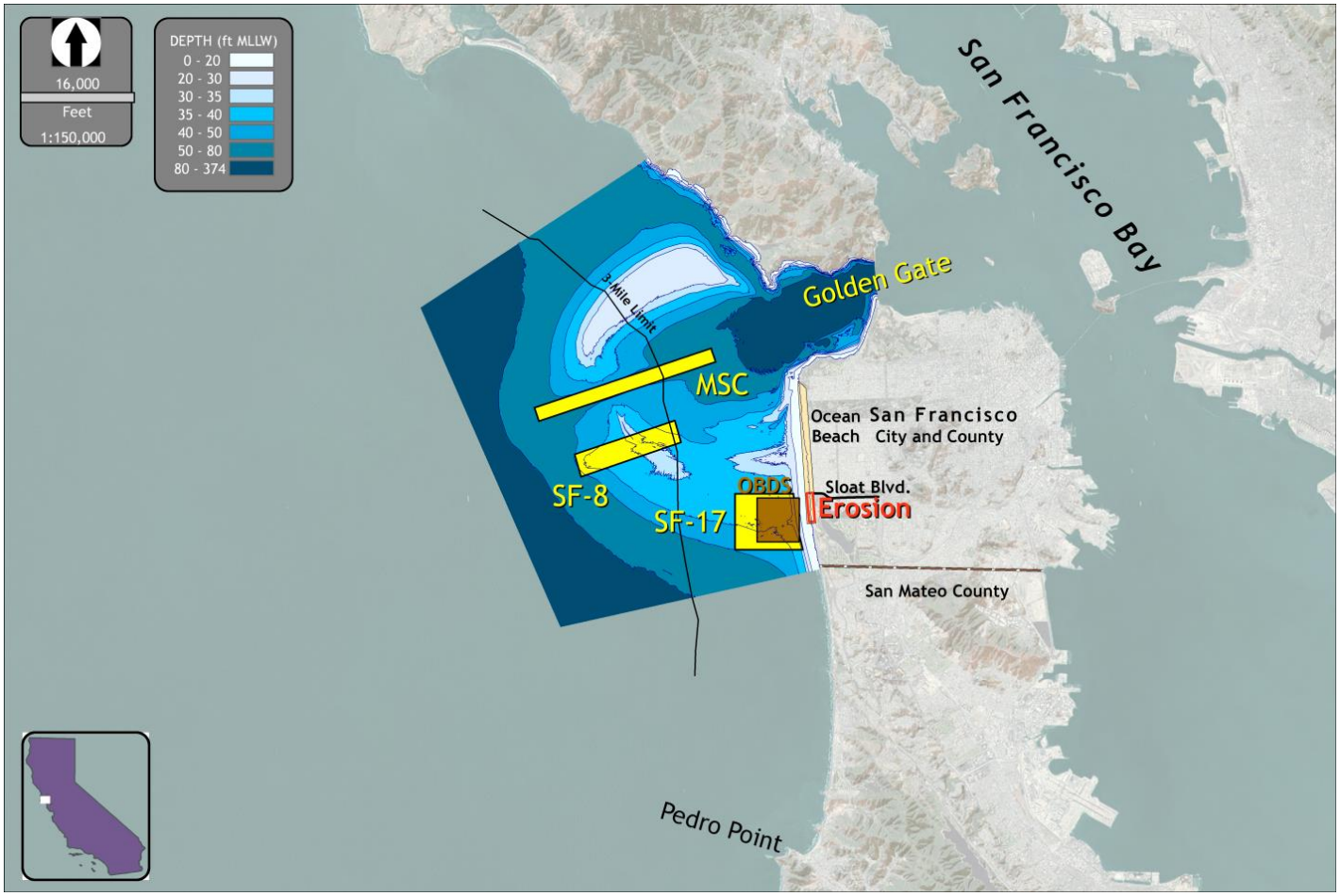

Figure 2. Map of Ocean Beach, San Francisco, and vicinity. Features pertinent to this EA are shown. The San Francisco littoral cell extends from the Golden Gate southward to Pedro Point. Contours from a USGS 2011 bathymetric survey.

2.1. SETTING

SF-17 is in the waters of the Pacific Ocean adjacent to the stretch of Ocean Beach south of Sloat Boulevard (Figure 1). The landward boundary, which lies approximately 0.25 mi offshore of the mean sea level (MSL) line, stretches from Sloat Blvd south to the San Mateo County line (~1.5 mi). SF-17 is outside of the southern lobe of the San Francisco Bar, which is a massive ebb-tidal delta (>39 mi^2) comprising relic sand and sand carried out of San Francisco Bay (Bay) by strong ebb tides. The Bar is shaped by strong tidal currents associated with the Bay and waves originating from the Pacific (Barnard, 2005). The center of SF-17 is 4 mi southeast of the designated ocean disposal site, SF-8, which is on the southern lobe of the Bar just south of the MSC. Within the SF-17 footprint, the OBDS has been used since 2005 for nearshore placement of sand in this area. The site is ideal for beneficial use and to offer relief from navigation concerns associated with significant sand accretion at SF-8.

Ocean Beach serves as a buffer between the Pacific Ocean and major CCSF infrastructure (Figure 3). It is a valuable ecological resource and a recreational destination for residents and visitors. It is part of the Golden Gate National Recreation Area (GGNRA), U.S. National Park Service. For decades, the stretch of Ocean Beach south of Sloat Boulevard has undergone sporadic erosion during stormy winter months (Figure 4).

Figure 3. Aerial photograph of CCSF infrastructure landward of the South-of-Sloat stretch of Ocean Beach. Blue line: the Great Highway; red line: Sloat Boulevard; A: San Francisco Zoo; B: the Oceanside Water Pollution Control Plant; C: Lake Merced; D: Dunes. Two large wastewater transport tunnels run under the Great Highway: one north and one south of Sloat Boulevard.

Figure 4. Winter storm damage along the South-of-Sloat stretch of Ocean Beach looking north.

From 1971–2004 the only placement site for MSC sand was SF-8 (Figure 2). During this time, approximately 18,000,000 cubic yards (CY) of sand dredged from the MSC was placed at SF-8. Sand placement at SF-8 resulted in significant shoaling because the placement rate significantly exceeded the dispersal rate. Shoaling at SF-8 created large areas where water depths are less than required for safe operation of the dredges[3]: in 2017, 10% of SF-8 was shallower than 35 ft MLLW, 44% was shallower than 40 ft, and 80% was shallower that 45 ft (Figure 5). This led to periodically unsafe operating conditions for the USACE hopper dredge *Essayons* (and similarly sized contract hopper dredges) during rough, unpredictable seas that often pummel the Bar. Shoaling progressed to the extent that the hopper dredges were operating in hazardous conditions.

[3] Fully loaded, those hopper dredges draw at least 32 ft. Thus, they need at least 45 ft of water to operate safely when wave heights are over 5 ft.

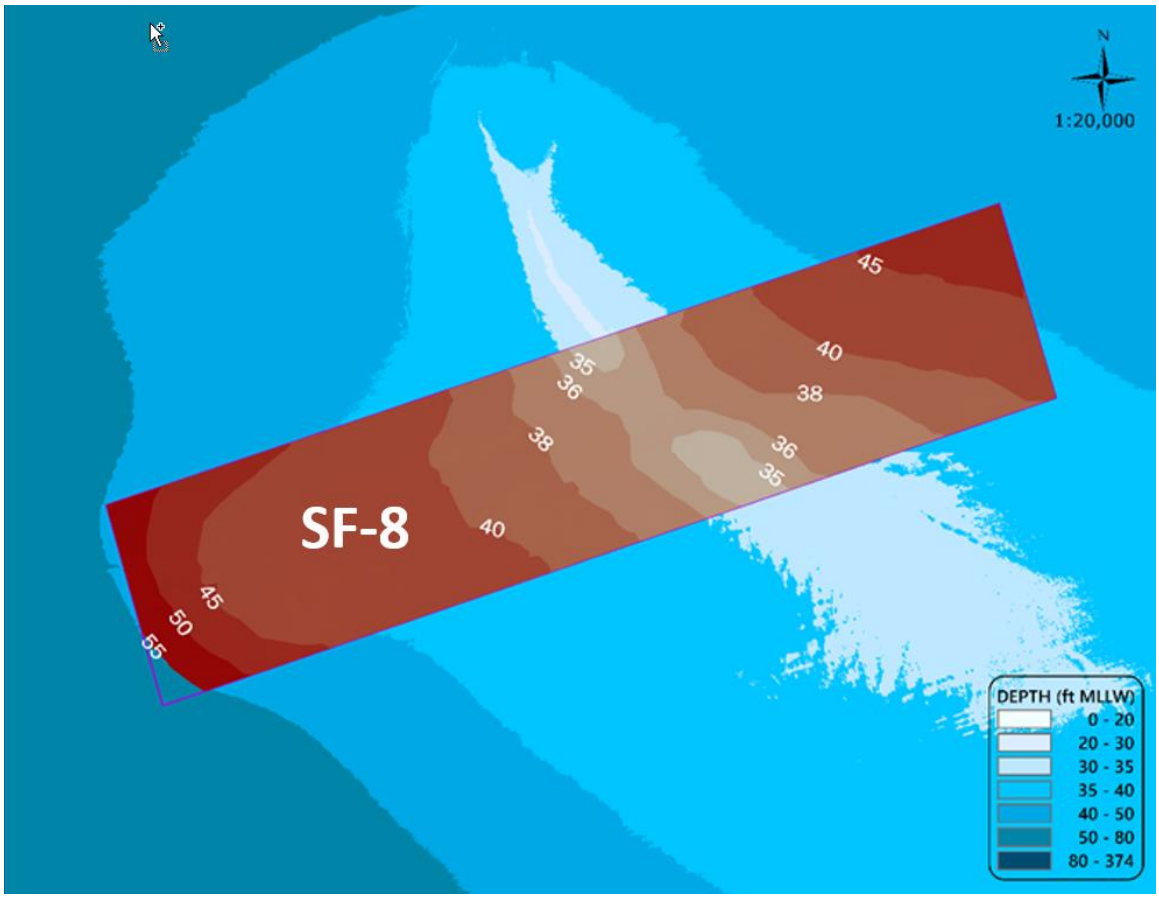

Figure 3. A Digital Elevation Map (DEM) from the 2017 USACE multibeam survey of SF–8 (red colored box) atop the 2011 USGS survey. Contours represent depths below MLLW.

2.2. Purpose and Need

The project needs and objectives of the action are the following:

1. Minimize the operation of the USACE dredge *Essayons* and other large dredges in unsafe shallow water depths at SF-8 by designating an alternate nearby permanent placement site while maintaining the authorized depths at the MSC (Figure 5).

2. Reduce beach and bluff erosion along Ocean Beach, south of Sloat Boulevard, by establishing a permanent placement site within the littoral cell to enhance sand supply to the littoral zone. This additional sand in the San Francisco Outer Coast Littoral Cell could help reduce the high wave energy produced by large winter storms before it reaches the beach and bluff. This action could create a wider beach by providing more sand to the littoral zone. A wider beach would create a safer environment for beach goers, increase protection of the coastal bluff during winter storms, and increase protection for coastal structures by decreasing the rate of bluff retreat.

2.3. AUTHORITY

The SPN and USEPA Region 9 are undertaking the Proposed Action under the provisions of 40 CFR Part 230. 8 for the Advance Identification of Disposal Sites under the Clean Water Act (CWA). Establishment of SF-17 does not by itself approve usage: individual dredging and placement episodes by USACE and others will require compliance with all substantive and legal requirements for NEPA and Section 404(b)(1) Guidelines, as managed through the LTMS program. Information provided herein will facilitate that compliance.

2.4. SCOPE OF ANALYSIS

The scope of analysis for this action is limited in time and space by the reasonably foreseeable direct, indirect, and cumulative impacts of the proposed site designation. Additionally, the scope of analysis incorporates evaluating potential cumulative impacts associated with reasonably foreseeable projects near the project area. The geographic scope of analysis for the Proposed Action is the area identified as SF-17 and its vicinity, including the existing SF-8 site. For certain environmental parameters such as biological resources, the geographic scope extends beyond the immediate vicinity of SF-17 and SF-8. This action does not include dredging operations, only material placement.

3. PROPOSED ACTION AND ALTERNATIVES

This section provides a background on dredging of the MSC, describes the Proposed Action (advance identification of SF-17), and discusses the No-Action Alternative. The agency-preferred alternative is identified as the Proposed Action. Other alternatives initially considered but eliminated from further consideration are also discussed.

3.1. BACKGROUND

The San Francisco Main Ship Channel (MSC) is 2,000-ft wide by 16,000-ft long (Figure 2). Starting in 1922, the MSC was dredged to 40 ft (unless otherwise noted, depths are relative to MLLW). In 1932, the MSC was deepened to 45 ft, and, for the most part, annual dredging began. In 1942, the channel was deepened to 50 ft, and in 1972, to 55 ft. SPN conducts annual maintenance dredging using the USACE owned and operated hopper dredge *Essayons*, but occasionally it uses a contract dredge of about the same draft and capacity. Between 1971 and 2022, approximately 27MCY of clean sand were dredged from the MSC. The material dredged from the MSC is comprised of medium-sized, clean sand that is highly suitable for beneficial uses.

Prior to 1971, the sand dredged from the MSC was dumped at a site located one mile southwest of the entrance to the MSC in a water depth of approximately 80 ft, outside of the Bar. In 1971, the placement site was relocated to shallower water about 6,000 ft south of, and parallel to, the channel. This new placement site, SF-8 (Figure 2), was chosen because of its proximity to the MSC and because of the expectation that placing sand back on the Bar would keep it in the littoral system, ultimately helping address erosion occurring at Ocean Beach. In

1982, the USEPA formally designated SF-8 as an ocean disposal site under the Marine Protection, Research, and Sanctuaries Act (MPRSA), specifying its availability only for clean sand dredged by USACE from the MSC. Additionally, in 2003, USEPA made the easternmost portion of SF-8 (within the three-mile limit) available as a beneficial-use placement site for clean sand from other federal and non-federal dredging projects near San Francisco Bay (Figure 6). To date, these other projects have included Port of Oakland berth dredging, Bodega Bay entrance channel and US Coast Guard dock dredging, Conoco-Phillips berth dredging, and USACE Pinole Shoal maintenance dredging. The other projects using this small area are managed under the CWA as beneficial use rather than under MPRSA for “disposal” since they involve a new addition of sand from elsewhere to the Bar, as opposed to simply moving existing MSC sand from one area of the Bar to another. The USEPA’s most recent Site Management and Monitoring Plan (SMMP) for SF-8 is published at https://www.epa.gov/sites/production/files/2015-08/documents/r9_sf8_smmp_2010.pdf.

Use of the OBDS started in 2005; its purpose was to study the feasibility of directly placing MSC sand in the nearshore off an eroding area of Ocean Beach and as an alternative to SF-8. As shown in Table 1, the total volume of sand placed at the ODBS between 2005 and 2022 was about 5,200,000 CY, during which time about 1,100,000 CY went to SF-8. Thus, since 2005 approximately 83% of the MSC sand has been beneficially used at the OBDS.

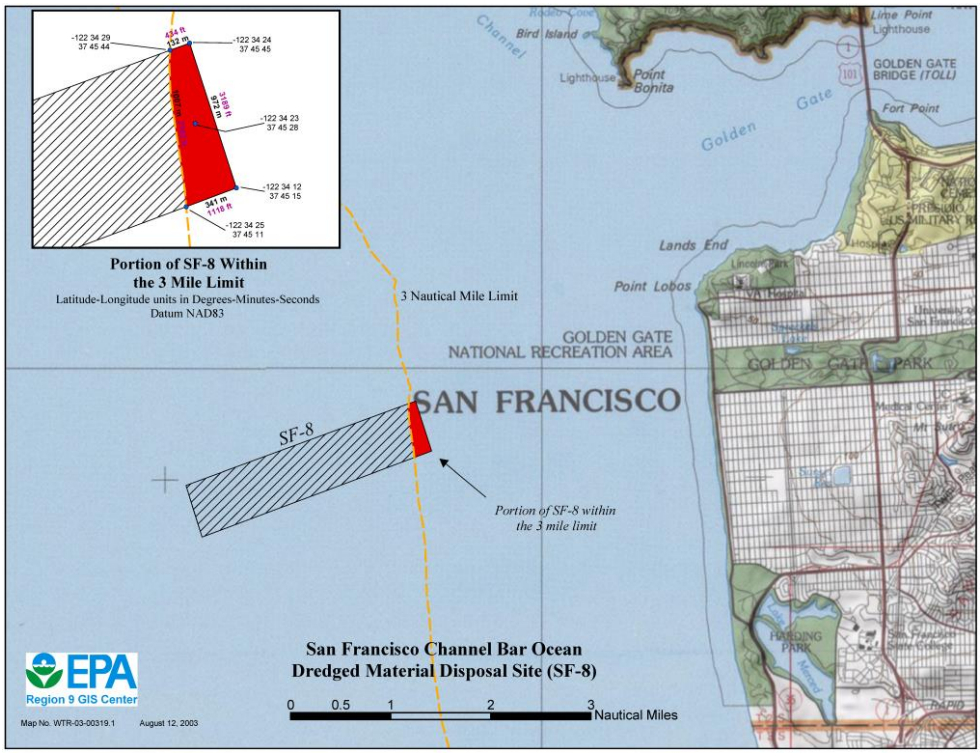

Figure 4. Map of SF-8 with the portion inside the three-mile limit highlighted in red. Material from the MSC will be placed in the cross-hatch area and material dredged from other locations will be placed in the red area of SF-8.

Table 1: SF Main Ship Channel Dredged Volumes

Calendar Year	Dredged Volume (CY)	Placement Site
2000	613,000	SF-8
2001	78,000	SF-8
2002	268,000	SF-8
2003	367,000	SF-8
2004	233,000	SF-8
2005	97,000	SF-8
	278,000	OBDS
2006	60,000	SF-8
	321,000	OBDS
2007	85,000	SF-8
	240,000	OBDS
2008	200,000	SF-8
2009	7,000	SF-8
	282,000	OBDS
2010	3,000	SF-8
	448,000	OBDS
2011	7,000	SF-8
	332,000	OBDS
2012	188,000	OBDS
2013	488,000	SF-8
2014	118,000	OBDS
	122,000	SF-8
2015	203,000	OBDS
	147,000	SF-8
2016	287,000	OBDS
	6,000	SF-8
2017	312,000	OBDS
	3,000	SF-8
2018	467,000	OBDS
2019	428,000	OBDS
2020	457,000	OBDS
2021[1]	540,000	OBDS
2022	251,000	OBDS
Total MSC Dredging 2000-2022	7,936,000,000	
Annual Average	240,480	
SF-8 Total	2,784,000,000	
SF-8 Total 2005–2022	1,068,000,000	
OBDS Total 2005–2022	5,152,000,000	

[1]About 320,000 CY was pumped directly ashore south (i.e., not within the OBDS itself) of Sloat Boulevard to protect CCSF infrastructure

3.1.1. San Francisco Bar Channel Site (SF-8)

SF-8 is a rectangle (Table 2) that is in the nearshore zone approximately 4.7 mi seaward of the northern end of Ocean Beach. It is approximately 6,000 ft south of and parallel to the MSC. The site is 3,200 ft wide and 15,000 ft long with a total area of 1.72 mi^2. At present, water depths range from less than 30 ft to approximately 60 ft MLLW.

Table 2: SF-8 Vertices

VERTEX	NAD 27 COORDINATES	NAD 83 COORDINATES
NW	37°44’55”N, 122°37’18”W	37°44’54.75”N, 122°37’21.91”W
NE	37°45’45”N, 122°34’24”W	37°45’44.75”N, 122°34’27.91”W
SE	37°45’15”N, 122°34’12”W	37°45’14.75”N, 122°34’15.91”W
SW	37°44’24”N, 122°37’06”W	37°44’23.75”N, 122°37’09.92”W

A major reason for redirecting disposal from the pre-1971 deep-water site to the shallower SF-8 placement site was to keep the dredged sand on the Bar, with the expectation that the sand would eventually move south and shoreward to the surf zone and beach (USACE, 1974). Repeated surveys, however, showed that material placed at SF-8 has not significantly moved shoreward. Operation reports from the Master of the *Essayons* hopper dredge state that vessel maneuverability is impaired during times of rough seas because sand is being placed faster than it disperses, meaning sand has mounded and remained within the site so that safe operation of the *Essayons* (and other large hopper dredges) in much of SF-8 is often restricted during the rough seas that occur on the Bar. Shoaling at SF-8 was unexpected because pre-site-designation studies concluded that the area would be dispersive, meaning that waves would spread the sand at a rate that accumulation would be minimal. The 2004 USGS multibeam survey of this region shows areas of extensive shoaling in and near SF-8 with more than 6 ft of sediment accretion in some locations over the previous 50 years (Figure 7).

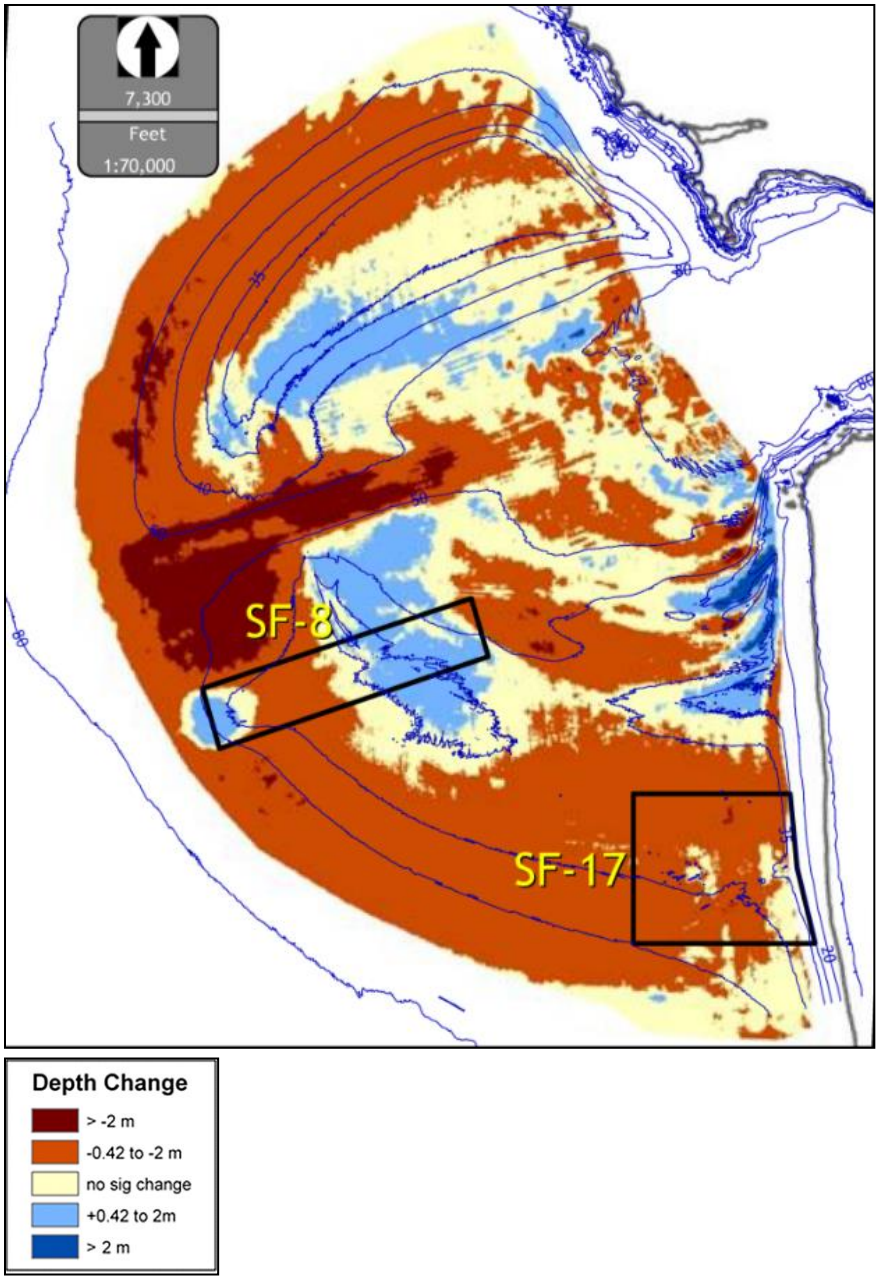

Figure 5. Bathymetric changes in and near SF-8 during the past half-century (Barnard, Modern Processes at the Mouth of San Francisco Bay, 2005). Positive values (blue) represent shoaling and negative values (red) represent erosion.

3.1.2. Ocean Beach Demonstration Site

In May 2005 USACE implemented a multi-year demonstration project for placing material dredged from the MSC in the nearshore to reduce erosion at Ocean Beach south of Sloat Boulevard and to avoid creating more hazardous navigation conditions at SF-8. The OBDS, which lies in depths that range from approximately 30 to 50 ft MLLW, was chosen to enhance the prospect of incident waves transporting sand shoreward to the littoral zone (the area from the shoreline to just beyond the breaker zone) and beach

to help alleviate erosion. The OBDS (Table 3, Figure 2) is a rectangle with sides 6,400 ft (east) and 5,800 ft (north) long and an area of 1.05 mi^2.

Table 3: OBDS corner coordinates.

	Longitude WGS 84	Latitude WGS 84	UTM X NAD 83 UTM Zone 10 N	UTM Y NAD 83 UTM Zone 10 N
NE	-122.512892	37.733626	542,921.179	4,176,372.585
SE	-122.512892	37.71625	542,921.179	4,174,435.738
SW	-122.533076	37.71625	541,152.255	4,174,435.738
NW	-122.533076	37.733626	541,152.255	4,176,372.585

Between 2005 and 2022, USACE placed about 5,200,000 CY of sand at the OBDS in depths greater than 36 ft (Table 1). In calm conditions, the minimum placement depth is 36 ft because the *Essayons'* draft is 32 ft when fully loaded, and the minimum disposal depth is 4 ft below the hull. As the wave height increases the placement depth equivalently increases, in addition to a safety factor, to account for larger-than-average waves. The placement depth varies with trip depending on wave conditions and tide level; the Master of the *Essayons* operates the dredge as far shoreward as deemed safe. Conceptually, sand placed at the site during the summer when smaller accretionary waves are common would provide some buffer to beach erosion the following winter, a time of larger, erosive waves. The buffering process occurs by causing the largest storm waves to break farther offshore thus reducing the energy reaching the beach and by adding sand to widen the littoral zone, resulting in smaller waves breaking farther from the bluff (Barnard, Eshleman, Erikson, & Hanes, 2007).

This technique of placing sandy material in the nearshore is a low-impact form of shoreline protection that has been successfully used for years around the United States and internationally (van Duin, Wiersma, Walstra, van Rijn, & Strive, 2004). At the time that sand placement at the OBDS commenced, a numerical sediment-transport model (Delft 3D) was used to evaluate whether waves would transport that sand into the littoral zone. The results from the model predicted that wave forcing (e.g., wind-driven waves) would be the dominant factor, despite strong tidal currents in the region that could move sand alongshore. The expected transport process is for sand to move slowly shoreward and alongshore in the direction of the dominant ebb-tidal currents.

Another numerical-model investigation found that the Southwest Ocean Outfall (SWOO), which runs southwest from the Oceanside Water Pollution Control Plant through the OBDS (Figure 8), modifies the wave field in a way that ultimately alters circulation in the surf zone (Hansen & Barnard, 2010). The model consistently predicts a

strong rip current onshore of the pipe and other flows that are consistent with sediment transport away from this portion of Ocean Beach.

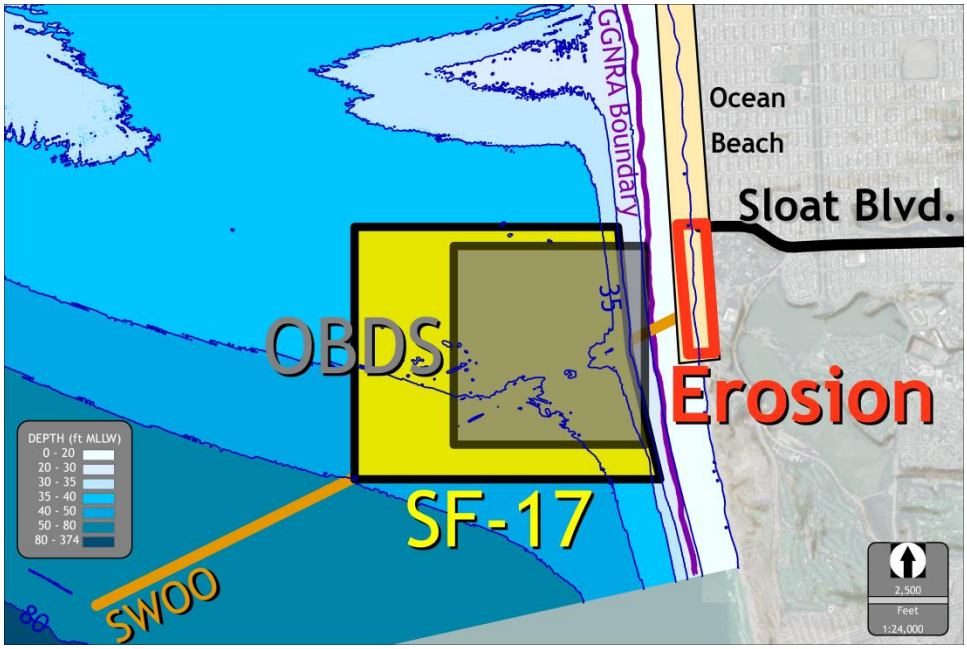

Figure 6. SF-17 and the ODBS relative to the heavily eroding stretch of Ocean Beach. The sites are on the outer edge of the San Francisco Bar, which attaches to the shore north of Sloat Boulevard – highlighted by the east-west contours at the top of the image.

Between May 2005 and June 2011, USACE and USGS monitored the OBDS and the adjacent coastal region. Multibeam surveys of the region tracked the bathymetric change over that period. During the first three years of sand placement approximately 50% of the volume was retained within the target area. The fate of the remaining material could not be determined due to limitations in the vertical resolution of the sonar (i.e., the sand could have left the area or been spread into a layer too thin to be detected). Throughout 2006 the mound slowly migrated shoreward approximately 100m, but in general, most of the sand appeared to move south. Bathymetric cross-sectional surveys conducted by USACE since 2011 (approximately 10 surveys) show that the material within the OBDS footprint remains consistent and relatively flat over the years, with more variability as expected in areas where material is placed by dredge, as well as episodic southerly movement of material (P. Chen, USACE SPN, personal communication, May 2024). Although there was no recognizable impact on the shoreline (positive or negative) attributed to the placement practice, the persistence of a significant volume (i.e., 50%) of placed sand in the nearshore zone confirmed that additional material placed here would nourish the littoral zone and help reduce erosive effects in the area. Furthermore, regularly placing sand atop the SWOO should reduce the intensity of a rip current produced by that feature.

3.2. PROPOSED (AGENCY-PREFERRED) ACTION

The proposed (agency-preferred) action is the advanced identification of SF-17 as a permanent placement site for the beneficial use of clean sand (40 C.F.R. § 230.80). The permanent designation of SF-17 does not override or eliminate other existing placement options, such as SF-8. Designation of SF-17 ensures that a viable nearshore beneficial-use placement option is available that can help nourish the littoral zone at the southern end of Ocean Beach and relieve the stress on SF-8. This is a reasonable alternative that achieves the defined purpose and need (Section 2.2) while meeting environmental standards.

3.2.1. Location

The proposed placement site, SF-17, is in the waters of the Pacific Ocean offshore of San Francisco, California and adjacent to the stretch of Ocean Beach that is south of Sloat Boulevard (Figure 8). It is within the San Francisco Outer Coast Littoral Cell. The site, whose area is approximately 2.5 mi^2, is a quadrilateral with a north-south orientation except that the east side is a shore-parallel line approximately 0.35 mi offshore of the base of the back-beach bluff. Table 4 gives the coordinates and side lengths for SF-17. The entire site is seaward of the GGNRA property, which has an outer boundary 0.25 mi seaward of the Mean Sea Level line at Ocean Beach. Much of the SF-17 footprint has been used since 2005 both to nourish the littoral zone and to offer relief from sediment accumulation at SF-8. Over a 17-year period approximately 5 million CY of clean sand from the MSC has been placed at OBDS, with approximately 120,000-500,000 CY of clean sand placed annually (Table 1). This amount is expected to remain similar into the future.

Table 4: SF-17 vertices and side lengths.

Vertex	Longitude WGS 84	Latitude WGS 84	UTM X NAD 83 UTM Zone 10 N	UTM Y NAD 83 UTM Zone 10 N
NW	-122.54432	37.73522	540152.822	4176547.479
NE	-122.51587	37.73522	542659.093	4176547.479
E	-122.51433	37.72450	542800.712	4175359.000
SE	-122.51072	37.71310	543125.450	4174081.480
SW	-122.54432	37.71310	540152.822	4174081.480

Side	Length (ft)
East	8,000
South	9,600
West	7,900
North	8,200

The eastern (shoreward) boundary of SF-17 follows the 30 ft contour on a 2011 United States Geological Survey (USGS) digital elevation map based on multibeam and other bathymetric surveys. Depths along the western (seaward) boundary range from approximately 37-50 ft. Those depths could vary over the course of a year as sand moves onshore and offshore due to variations in wave climate. Based on the USGS multibeam data, SF-17 is in an area where the bottom is completely covered by sand. The adjacent beach is sandy with rubble and rocks and the bluff face is comprised of sand and debris with much of it faced with riprap.

The SF-17 footprint is a moderate expansion of the OBDS area from 1.05 to 2.5 mi^2, respectively, extending slightly farther to the west (offshore) and south. The modified shape is intended to allow greater operational flexibility for the *Essayons* dredge and other authorized placement vessels during variable weather/wave conditions, as well as provide broader spatial extent for deposited sand to have a wider range of movement and still be retained within the littoral zone.

3.3. No-Action Alternative

Under NEPA, analyzing the No-Action Alternative is required to establish a baseline for comparing other alternatives. With this No-Action Alternative, dredging of the San Francisco MSC continues to maintain safe navigation for all vessels entering San Francisco Bay. Since 1971, SF-8 has been used as the primary repository of sand dredged from the San Francisco Bay MSC during annual O&M episodes. However, shoaling at SF-8 has created conditions that make exclusive use of the site increasingly

problematic. Since 2005, dredged sand from the San Francisco MSC has been placed at both SF-8 and the Ocean Beach Demonstration Site (OBDS). Use of demonstration sites must periodically be approved by the USEPA. The USEPA approves demonstration sites for five years and can grant five-year extensions as it has for OBDS since 2010. Permanent designation of a beneficial use site for continued littoral nourishment is in line with the national and regional coastal need to replenish beach shorelines for disaster resiliency.

Under the No-Action Alternative, continued use of SF-8 would lead to further shoaling at SF-8, increasing the risk of navigational hazards. Restrictions to ensure safe use of the site would become more frequent, and at times, the *Essayons* dredge or other vessels may be unable to fully maintain MSC depths. As a result, larger commercial and military vessels might only access the Bay during high tide or with reduced cargo loads, negatively impacting maritime trade, commerce, and associated jobs.

Ultimately, if shoaling at SF-8 reaches a point where it can no longer be safely used, dredging in the MSC would cease until a new site is designated. Designating SF-17 provides a proactive, viable, and immediately available alternative to SF-8, ensuring continued safe navigation of the MSC.

Alternatives Considered But Eliminated

Alternatives to designation of SF-17 include locating other appropriate sites to receive O&M dredged material from the San Francisco Bay region, including the MSC, as deemed suitable by the DMMO.

3.3.1. Alternative Locations to Nearshore Disposal

One of the primary objectives of a nearshore placement site is to use sand dredged from the MSC to help provide beach and bluff protection along Ocean Beach south of Sloat Boulevard. Although it is conceivable that another site near Ocean Beach could be designated as a permanent placement site for material dredged from the MSC and other approved projects, such a decision is impractical for several reasons. Foremost, the proposed site is as close to the eroding stretch of Ocean Beach as possible given the constraints imposed on dredge vessels. The USACE hopper dredge *Essayons* generally undertakes the O&M dredging of the MSC. The *Essayons* requires a minimum draft of approximately 36 ft under calm conditions, and the wave climate and tide level must be factored in by its operators when deciding how close to shore to take the ship. Although other nearshore locations along the northern part of Ocean Beach might be closer to the MSC, none would be as close to the severely eroding stretch of south Ocean Beach as SF-17.

Furthermore, surveys near the OBDS, which is enclosed by the preferred site, show that the placed sand stays in the littoral zone and small volumes move slowly shoreward. Since other potential locations would be more removed from the erosional area at Ocean Beach they would result in reduced availability of the sand for beach nourishment, therefore contributing less to beach and bluff protection along the most severely eroding segment of Ocean Beach. Consequently, using other nearshore sites near Ocean Beach for placing dredged material from the MSC has been eliminated and will not be discussed further.

3.3.2. OCEAN DISPOSAL AT SF-DODS

It is possible that sand dredged from the MSC could be placed at the only other EPA-designated ocean disposal site serving the San Francisco area, the San Francisco Deep Ocean Disposal Site (SF-DODS). SF-DODS is approximately 55 miles west of the Golden Gate. Use of SF-DODS would require approximately a 25-hour cycle (i.e., dredge, travel to the site, dispose of the sand, and return) for each hopper load dredged from the MSC, compared to a roughly 6-hour cycle using SF-8 or SF-17. Because the *Essayons* is shared by several USACE West-Coast dredging projects, it would not be available long enough to dredge the MSC as required if it had to use SF-DODS. Because of its greater distance from the MSC compared to SF-8 or SF-17, disposal at SF-DODS would be more expensive and result in a substantial increase in air pollution. All ocean disposal of dredged material poses inherent safety risks, including from adverse weather conditions, but shorter offshore transit to either SF-8 or SF-17 reduces this risk. USEPA regulations require the least adverse environmental impact for ocean disposal and therefore mandate the denial of ocean disposal of clean sand at SF-DODS if other alternatives are available (40 CFR § 227.16). Placement at SF-DODS would be solely a disposal action with no environmental or economic benefits. As such, it would not meet the project purpose and need of reducing wave energy and erosive effects at south Ocean Beach. For these reasons ocean disposal at SF-DODS has been eliminated from consideration and will not be discussed further. This rationale extends to other existing and potential deep-water sites.

3.3.3. Disposal Inside San Francisco Bay

Similarly, it is possible that MSC sand could be disposed of at existing in-Bay disposal sites such as the Alcatraz disposal site (SF-11). Such disposal would not be allowed under the LTMS dredged material Management Plan for the Bay. In-Bay disposal volumes are strictly limited under the LTMS plan and shoaling of silty dredged material at SF-11 is already closely managed. Adding MSC sand would likely cause in-Bay disposal limits to be exceeded and would significantly increase sand mounding and shoaling concerns at SF-11 (or other in-Bay sites). For these reasons, disposal at in-Bay sites has been eliminated from consideration and will not be discussed further.

3.3.4. Direct Pump Ashore to the Beach

Direct pump ashore involves placing sand directly onto a beach though a slurry pipe attached to the bow of the dredge (as opposed to nearshore disposal that spreads the dredged sand in shallow water by opening the doors in the hopper-dredge's hull). Pump ashore requires that the hopper dredge be equipped with pumps and fittings to connect to a slurry pipe that runs to the beach. There is a docking station at the seaward end of the pipe offshore, and the dredge connects to it when it arrives. Because the *Essayons* is not capable of pumping ashore dredged sand, a contract hopper dredge would have to be used.

In 2022/23, in partnership with the City and County of San Francisco (CCSF) Public Utilities Commission, USACE conducted a pump-ashore pilot project at Ocean Beach to build a protective sand structure in front of the bluff south of Sloat Boulevard. Pump ashore would provide some of the same benefits as nearshore placement at SF-17, in terms of infrastructure protection and beach or littoral nourishment. However, pump ashore requires a reduced energetic wave climate for placement than is required for nearshore placement at SF-17. Ocean Beach currents and climatic conditions are frequently very energetic, and thus consistent placement via pump-ashore cannot be assumed. Each load would also take longer to discharge than would placement at SF-17 (at least 7 hours a cycle), limiting the total amount of MSC dredging that could be completed in the time the dredge is available. Finally, it is unclear whether the full volume of MSC dredged sand from any one year could be managed directly on the beach. For these reasons, pump ashore by itself is not currently capable of meeting the project purpose and need, and will not be considered further here. In the long term, pump ashore could be a useful tool for protecting the bluff and expanding the beach south of Sloat Boulevard. If so, it will be subject to an additional, separate NEPA evaluation at that time.

4. AFFECTED ENVIRONMENTS AND CONSEQUENCES

This section provides an assessment of potential impacts of the Agency-preferred alternative (Proposed Action) to environmental factors. Potential impacts are evaluated in relation to the No-action alternative. If an environmental factor is considered not applicable to the Agency-preferred alternative, the factor is followed by N/A.

4.1. PHYSICAL RESOURCES

(X) Geological Setting, Bathymetry, and Sediment Transport: Ocean Beach is within the San Francisco Littoral Cell, which stretches from the Golden Gate to Pedro Point (Figure 2). The littoral cell includes all geophysical features and processes that

affect the beach, coastal bluff and dunes, and nearshore zone.[4] These processes include tidal exchange through the Golden Gate, incoming waves, and the flood-tidal delta inside the Golden Gate and the beaches north of the Golden Gate.

According to the morphodynamic classification scheme of Wright and Short (1983, 1984), Ocean Beach is an intermediate beach characterized by a moderate swash-zone slope (1.5°–4.5°), a single well-defined offshore winter sand bar that moves onshore during the summer months, and a well-defined inter-tidal bar in some locations. Shoreward of the winter bar is a deep trough that can be as much as 10 ft lower than the crest of the bar (Barnard, Eshleman, Erikson, & Hanes, 2007). Longshore topographic variation is evident most of the year with large, semicircular rhythmic sand and wave patterns developing in the winter months that couple with persistent strong rip currents (Hansen, 2007).

The coast comprises sandy beaches backed by sand dunes or coastal cliffs and bluffs except for rock outcrops between the Golden Gate and the north end of Ocean Beach, south of Fort Funston, and at Pedro Point. Throughout the nearshore area the bottom is sandy with ripples created by waves and currents. The local offshore bathymetry is dominated by the Bar, a large (~58 mi^2) ebb tidal delta located immediately west of the Golden Gate (Figure 2). This bathymetric feature causes considerable refraction and variable focusing of incident waves, leading to spatial variation in nearshore wave heights by as much as a factor of 1.5 (Eshleman, Barnard, Erikson, & Hanes, 2007). Grain sizes throughout the area are discussed in the sediment quality section.

Between April 2004 and March 2009, 61 sets of 130 sub-aerial, cross-shore surveys along Ocean Beach, spaced 50 m apart, showed a general pattern of shoreline rotation, with the shoreline at the north end of the beach accreting and the southern end eroding (Hansen & Barnard, 2010). The only observed pattern of alongshore sediment transport was the propagation of beach cusps (https://www.coastalwiki.org/wiki/Beach_Cusps) and migration to both the north and to the south (Hansen & Barnard, 2010). Conversely, the strong trend of shoreline rotation suggests that net alongshore sediment transport is from the south to the north. This pattern follows that trend observed in the San Francisco Bar since 1873. Between 1873 and 2005, the Bar radially contracted with a total loss of sediment of $100\pm52\times10^6$ m^3 (Dallas & Barnard, 2007). Dallas and Barnard (2007) speculate that Bar contraction is a result of reduced tidal prism from development inside San Francisco Bay, removal of sediment by dredging, aggregate

[4] The zone that extends from the swash zone to the position marking the start of the offshore zone, typically at water depths on the order of 60–70 ft

mining and borrow pits, and reduction of sediment supply from damming drainages entering the Bay.

The contraction of the Bar has influenced Ocean Beach. The flood tidal channel (Figure 9) filled in with up to six feet of sediment between 1956 and 2005 (Hanes & Barnard, 2007; Dallas & Barnard, 2007). This infilling is likely related to a decrease in resistance of water flow across the Bar caused by the dredging of the MSC through the center of the ebb tidal delta. It is likely that the reduced alongshore-directed tidal currents, inferred from the infilling of the flood tidal channel, are largely responsible for the observed accretion at the north end of the beach (Hansen & Barnard, 2010).

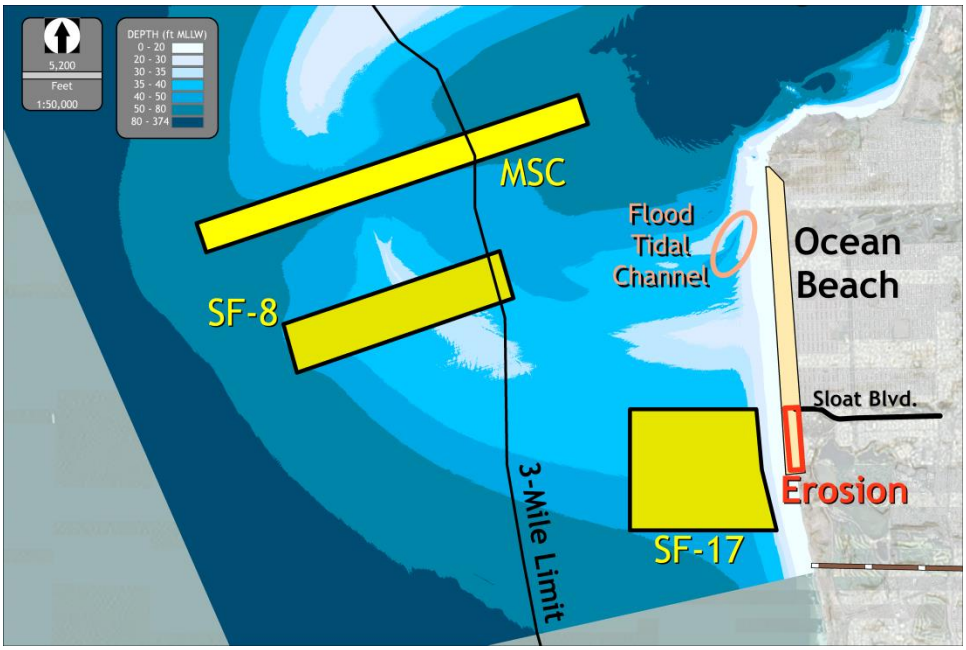

Figure 7. Location of the flood tidal channel on the inner part of the southern lobe of the San Francisco Bar.

Longshore transport along Ocean Beach has been modeled by both USACE and the Coastal Data Information Program (CDIP), a research group at the Scripps Institution of Oceanography that monitors coastal waves and nearshore sand levels on regional scales. The CDIP provides public access to its monitoring-based wave predictions via the CDIP Monitoring and Prediction (MOP) System. One MOP product is the Alongshore Sea & Swell Predictions model. The model creates directional spectra for wave periods between 2 and 30 seconds at MOP nearshore prediction stations in shallow water along a specified stretch of coast. Using the CDIP buoy located off Point Reyes and the National Oceanic and Atmospheric Administration (NOAA) buoy between the San Francisco Bar and Farallon Islands (#46026) 37 MOP stations were situated every 660 ft along Ocean Beach (Figure 10).

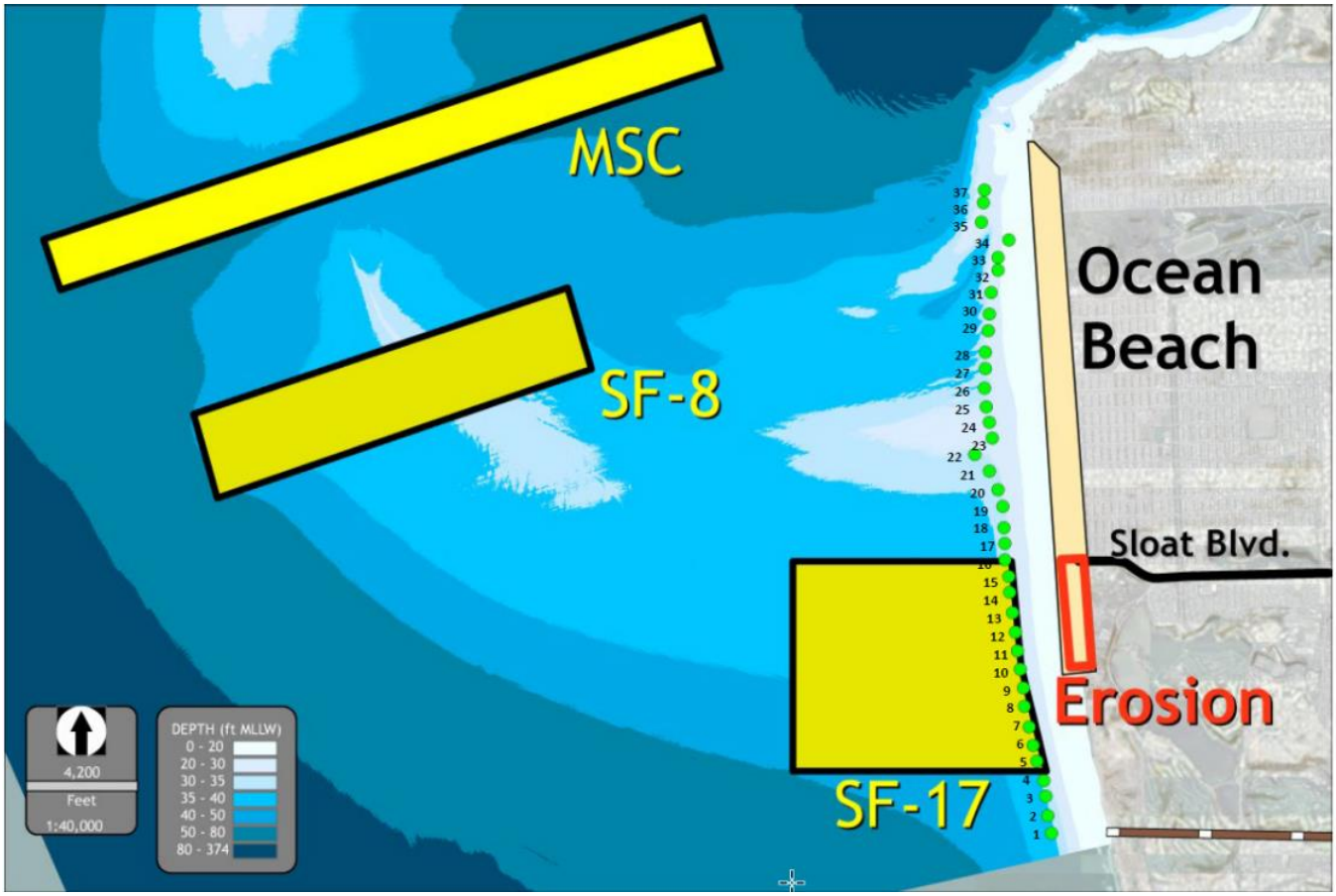

Figure 8. Monitoring and Prediction (MOP) stations 1–37 extend from south to north along Ocean Beach (green dots). The westernmost MOP station, #22, is atop the bar. The erosional area south of Sloat Boulevard extends from station #10 to station #16.

The wave-driven longshore sand transport potential derived from the MOP analysis, which has been converted to volumes by USACE engineers, shows that the annual transport direction and volume varies with location along Ocean Beach (Figure 11). For the most part, wave-driven currents move nearshore sand toward the Bar from both the north and south. However, there is a notable southerly transport reversal at the southern end of the erosional area south of Sloat Boulevard. Although sand transport out of the erosional area is small, the net result of the wave-modeled longshore-transport pattern is that sand leaves South Ocean Beach without being replaced by other sand, especially from North and Central Ocean Beach.

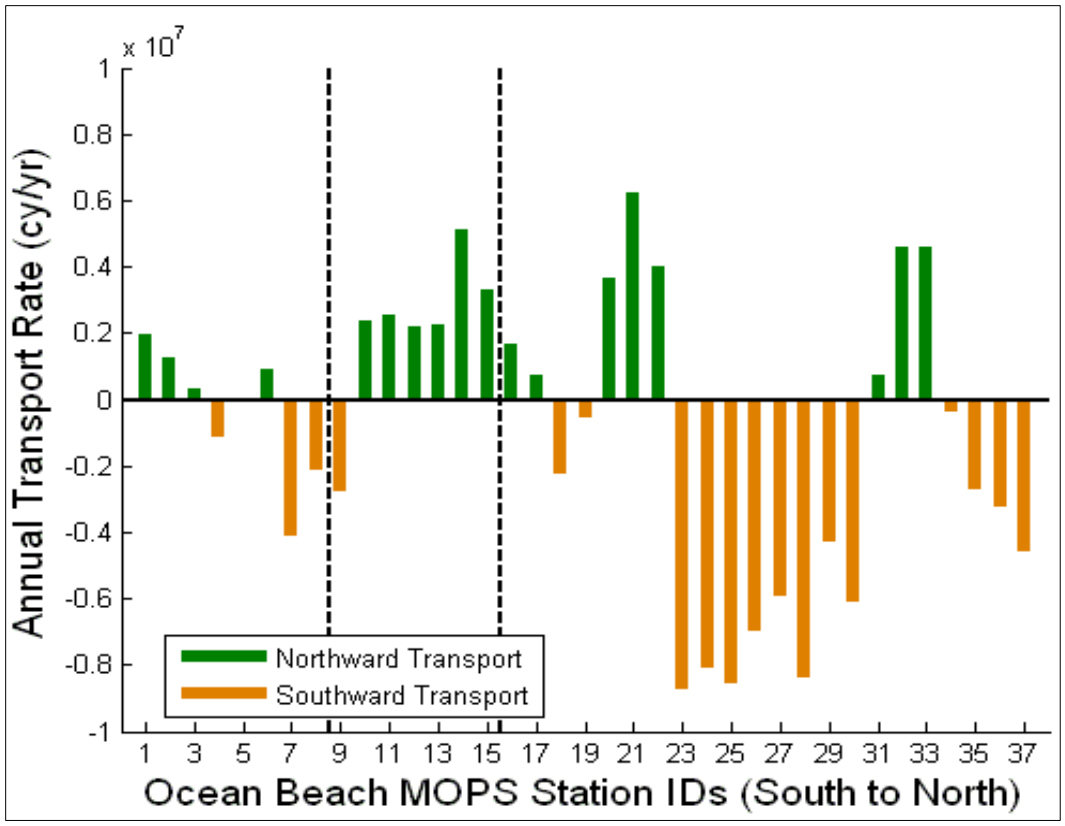

Figure 9. Calculated annual total longshore transport for the Ocean Beach MOP stations (September 2006 to August 2007). The erosional area lies onshore of MOP stations 10 16, and the SWOO crosses the MOP array at approximately station 9.

The mean monthly offshore significant wave height ranges from six ft in August to ten ft in December (CDIP, 2009). Large, long-period waves are common during the winter months. Data from deployed acoustic instruments indicate that significant wave heights in the nearshore often exceed 13 ft during the winter months, and maximum wave heights have exceeded 33 ft under extreme conditions (Barnard et al. 2007; Hansen 2011).

According to linear (Airy) wave theory, when the ratio of the water depth to deep-water wavelength is approximately 0.05, the start of the intermediate wave zone, incoming waves start sensing the bottom (shoaling), and sand movement commences. Grains move onshore and offshore as each wave passes overhead. Due to the asymmetry that results when waves shoal, the net movement of each sand grain is shoreward. The shoreward creep is small at first, but by the time the ratio is 0.25 – the start of the shallow water wave zone – shoreward migration is pronounced. For a 15 second wave, the ratio reaches 0.25 in a depth of approximately 58 ft, which is well outside of the depth at which the hopper dredges will place sand in SF-17. Consequently, sand placed in SF-17 would likely stay in the nearshore, slowly moving

shoreward while dispersing (seen in OBDS monitoring surveys), and create shallower depths, which should encourage large storm waves to break further offshore.

This scenario is expected to slow down bluff erosion because more wave energy will be dissipated farther offshore. The larger volume of sand at or inside the breaker zone should extend the length of time sand remains on the beach. Storms have the potential to erode sand from the nearshore, beach, and bluffs, so having more sand in the nearshore should result in less potential for beach erosion and bluff failure.

The advanced identification of SF-17 would preferentially place MSC material (>90% sand) at SF-17 as reuse. SF-8 would only be used when the dredge operator determines sea conditions to be unsafe for SF-17 placement. Approximately 71% of the sand dredged from MSC has been used at the OBDS, while 29% has been disposed of at SF-8. The No-Action Alternative could result in significant adverse impacts to bathymetry if SF-8 is used preferentially and continues to shoal sand and impede safe navigation. The Proposed Action of designating and preferentially placing sand in SF-17 would result in positive benefits of sediment transport into an erosional littoral area.

(X) Seismicity: Although the San Andreas Fault passes through the southwest corner of SF-17 (Figure 12), it is not within an Earthquake Fault Zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act because there are no structures within the site. The project site is located in a Seismic Hazards Study Zone designated by the California Division of Mines and Geology. SF-17 is an area subject to *heavy* to *moderate* damage from seismic ground shaking along both the Peninsula segment of the San Andreas Fault and the Northern segment of the Hayward fault. Neither the No-Action alternative nor the proposed project would affect seismicity.

(X) Sediment Quality: Sediment sampling by the USGS in 2010 shows that the mean grain size in most of the San Francisco Bight (the area just offshore Ocean Beach) falls in the fine-sand range (125 to 250 µm) with medium sand (250 to 500 µm) occurring along Ocean Beach and on the inner part of the Bar (Figure 13). Coarse sand (500 to 1,000 µm) was restricted to areas closest to the Golden Gate where strong tidal currents effectively filter away finer sand.

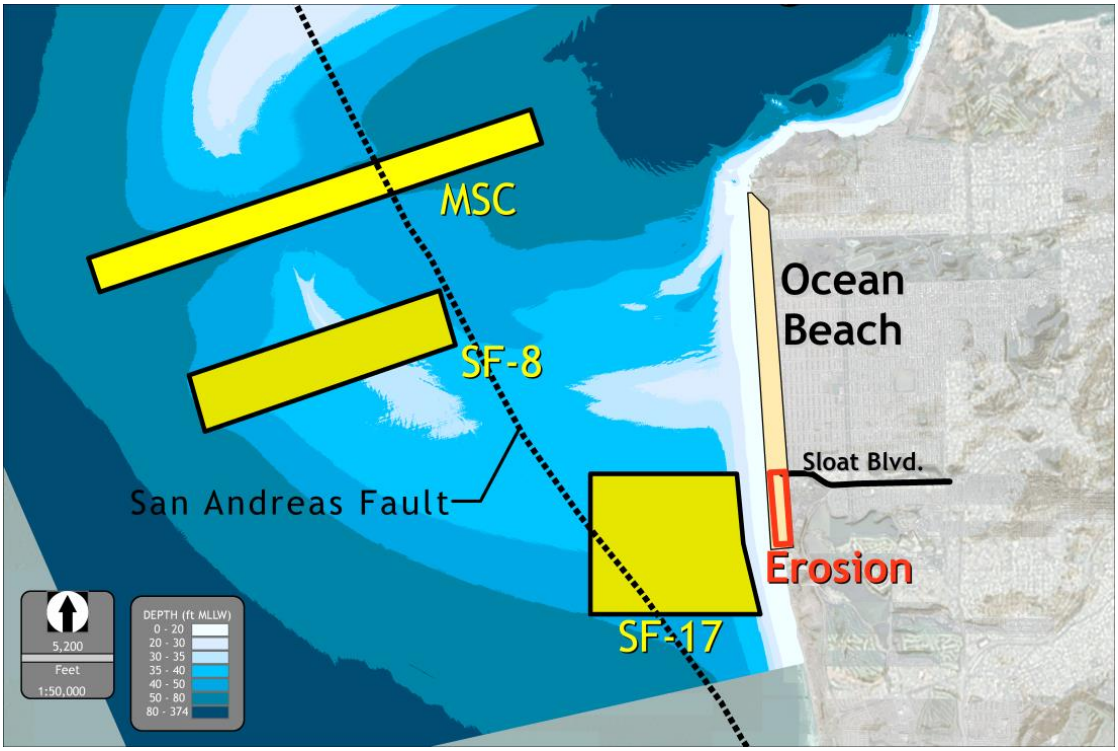

Figure 10. San Andreas Fault relative to SF 17.

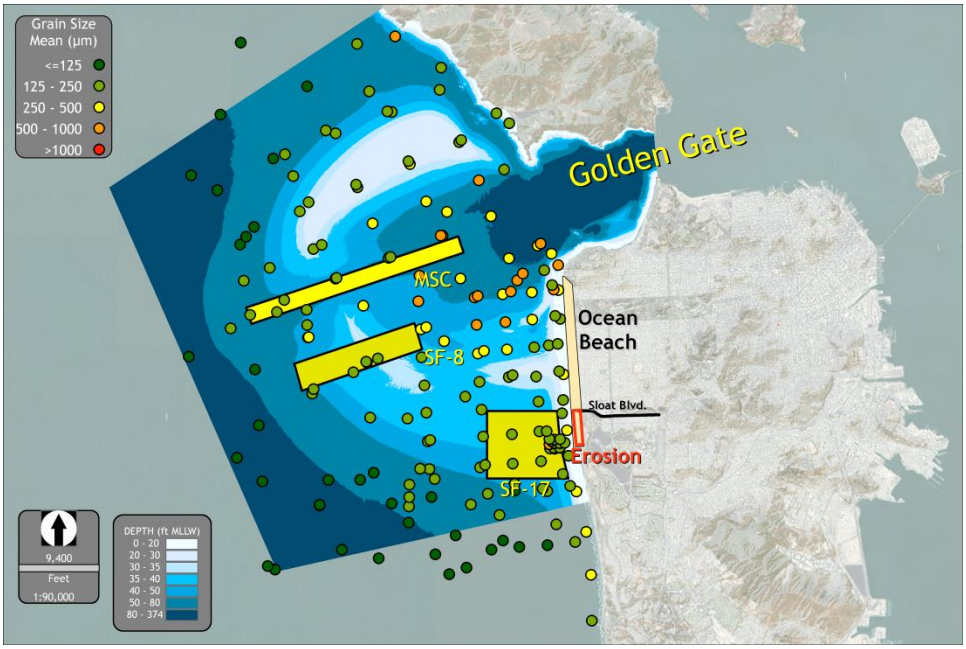

Figure 11. Grain-size distribution outside of the Golden Gate.

The USACE and USEPA require sediment testing prior to placing sediment into waters of the United States. A tiered approach is used to evaluate sediment quality for physical and chemical characteristics (USACE & USEPA, 1998). The evaluation begins with a Tier III analysis whereby a dredged material's suitability is determined by its physical characteristics and the likelihood of its contamination based on historical or

current events. For beach-nourishment projects, USACE and the USEPA also require general physical compatibility of sediment between source and receiving sites (USACE, 2004).

The DMMO has historically determined that MSC sand is suitable for disposal at SF-8 and OBDS based on a Tier I exclusion from testing (subject to grain size testing every eight years to confirm conditions have not changed). A Tier 1 determination grants an exclusion from testing based upon the following criteria:

1. The dredged material predominantly comprises sand, gravel, rock, or any other naturally occurring bottom material with particle sizes larger than silt (a.k.a., EPA's general 80–20 guidance calls for material greater than 80% sand composition for chemical testing exclusion and subsequent beach placement), and the material is found in areas of high current or wave energy; or

The dredged material is for beach nourishment or restoration and is predominantly composed of sand, gravel, or shell with particle sizes compatible with material on the receiving beaches; or When:

   a. The dredged material is substantially the same as the substrate at the proposed site; and
   b. The proposed dredging site is far removed from known existing and historical sources of pollution to provide reasonable assurance that such material has not been contaminated by such pollution.

Throughout the years that the MSC has been dredged for O&M purposes, the sediment has been determined to be suitable for unconfined aquatic placement at SF-8 and the OBDS. The Proposed Action would allow for advance identification of SF-17 for beneficial use of MSC sand in the littoral zone. This would allow for increased onshore transport of this suitable material with the high potential of the sand remaining in the littoral zone near the project area where it could contribute to protection of the coastal bluff by helping to dissipate the energy from the largest storm waves farther offshore.

In 2018, grain size testing for MSC sediment confirmed a sand range of 92% to 98% (USACE 2018; Table 5), which is consistent with the historical results of 90% to 99% sand (Table 6). That sediment exceeds the 80–20 guidance for dredged-material placement in shallow water. The average total solids content was 67%, and the average total organic content (TOC) was 1%.

Organic matter is an important source of food for benthic fauna. High organic matter content can reduce oxygen and cause the buildup of toxic by-products such as ammonia and sulfides. MSC sand is appropriate for beneficial use in the littoral zone

because MSC TOC content is appreciably less than 3.5%, which is the critical concentration Hyland et. al. (2005) suggests could lead to reduced species richness.

Table 5: Results of the 2018 Physical Analysis of SF Main Ship Channel Sediment Samples

Analyte	SFMS-2018-1	SFMS-2018-2	SFMS-2018-3	SFMS-2018-4	SFMS-2018-5	SFMS-2018-6
Grain Size (%)						
Gravel	0	0	0	0	0	0
Sand	94	92	95	97	92	98
Silt	6	8	5	3	7	2
Clay	<1	<1	<1	<1	1	<1
TOC (%)	1	1	1	1	2	1
Total Solids (%)	65	64	68	71	67	69

Table 6: Historical average grain sizes for the MSC

Year	Sand (%)
1970	90
1979	96
1980	98
1981	98
1983	90
1985	98
1987	90
1994	99
2002	98
2010	98
2018	96

In 2021, the SPN pumped ~300,000 CY of sand dredged from the MSC on South Ocean Beach directly onshore of the proposed location of SF-17. Beach samples were collected in the placement area to compare grain sizes of the beach sand prior to and after placement (Table 7). As expected, the MSC sand was slightly finer than the underlying beach sand, which is expected because the coarsest sand along a cross-shore profile is on the beach.

Table 7. 2021 pre- and post-placement grain-size analysis of beach samples where MSC sand was pumped ashore at South Ocean Beach.

PHYSICAL PROPERTIES ANALYTE	OBSDR-Pre-2021-1	OBSDR-Pre-2021-2	OBSDR-Pre-2021-3	OBSDR-Pre-2021-4		OBSDR-Post-2021-1	OBSDR-Post-2021-2	OBSDR-Post-2021-3	OBSDR-Post-2021-4
Total Solids (%)	75.7 H H3	96.1 H H3	96.2 H H3	95.0		92.9 H	96.1 H	93.5 H	95.1 H
Carbon, Total Organic (mg/kg, dry wt)	<218	<180	<188	580 Ja		403 Ja	362 Ja	652 Ja	461 Ja
Percent Solids	78.1	96.8	96.9	93.9		95.3	97.3	96.4	97.2
Clay (%)	1.5	1.7	0.9	1.0		3.0	3.2	1.8	3.2
Silt (%)	1.1	1.7	3.0	0.6		3.4	3.9	2.1	0.7
Sand (%)	97.4	96.6	96.1	98.4		93.6	92.9	96.1	96.1
Gravel (%)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Coarse Sand (%)	0.0	1.9	0.0	0.0		0.0	0.3	0.1	0.0
Medium Sand (%)	1.7	5.0	1.6	2.9		1.1	1.6	3.0	4.5
Fine Sand (%)	95.7	89.7	94.5	95.5		92.5	91.0	93.0	91.6
Hydrometer Reading 1 - (% Passing)	2.0	1.7	0.9	1.0		3.5	4.6	2.7	4.5
Hydrometer Reading 2 - (% Passing)	2.0	1.7	0.9	1.0		3.5	4.6	2.7	4.1
Hydrometer Reading 3 - (% Passing)	2.0	1.7	0.9	1.0		3.5	4.2	2.2	3.6
Hydrometer Reading 4 - (% Passing)	2.0	1.7	0.9	1.0		3.1	3.7	2.2	3.6
Hydrometer Reading 5 - (% Passing)	1.5	1.7	0.9	1.0		3.0	3.2	1.8	3.2
Hydrometer Reading 6 - (% Passing)	1.4	1.7	0.9	0.9		2.6	3.2	1.7	2.8
Hydrometer Reading 7 - (% Passing)	1.4	1.7	0.9	0.9		2.1	2.2	1.7	2.7
Sieve Size 3 inch - (% Passing)	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
Sieve Size 2 inch - (% Passing)	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
Sieve Size 1.5 inch - (% Passing)	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
Sieve Size 1 inch - (% Passing)	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
Sieve Size 0.75 inch - (% Passing)	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
Sieve Size 0.375 inch - (% Passing)	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
Sieve Size #4 - (% Passing)	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
Sieve Size #10 - (% Passing)	100.0	98.1	100.0	100.0		100.0	99.7	99.9	100.0
Sieve Size #20 -(% Passing)	99.6	96.4	99.6	99.8		99.6	99.3	99.5	99.7
Sieve Size #40 - (% Passing)	98.3	93.1	98.4	97.1		98.9	98.1	96.9	95.5
Sieve Size #60 -(% Passing)	72.7	73.2	72.0	60.4		90.3	86.5	80.8	77.5
Sieve Size #80 - (% Passing)	38.6	39.6	41.8	25.6		59.8	48.4	48.1	42.3
Sieve Size #100 - (% Passing)	9.2	21.6	12.6	11.1		23.7	20.2	17.1	14.8
Sieve Size #200 - (% Passing)	2.6	3.4	3.9	1.7		6.4	7.1	3.9	3.9
QUALIFIER	DESCRIPTION								
Ja	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.								
H	Sample was prepped or analyzed beyond the specified holding time								
H3	Sample was received and analyzed past holding time.								

The advanced identification of SF-17 would preferentially place MSC sandy material (>90% sand) at SF-17 as reuse. SF-8 would only be used when the dredge operator determines sea conditions to be unsafe for SF-17 placement. Approximately 71% of the sand dredged from MSC has been used at the OBDS, while 29% has been disposed of at SF-8. Based on the confirmed, high-quality and compatible nature of the MSC sand to the San Francisco Littoral Zone, no significant adverse physical nor chemical impacts are expected to occur because of the Proposed Action.

(X) Mineral resources: There are no known mineral resources existing within the action area, and therefore neither the Agency-preferred nor the No-Action Alternative would have any impact on mineral resources.

(X) Substrate: An effect of dredged material placement is the temporary disturbance of the existing sea floor substrate, whereby that substrate is periodically covered by newly dredged material. At both SF-8 and SF-17, the substrate is entirely sand of similar grain size as the dredged sand from the MSC. That sand is constantly moved by waves and currents (probably more so at SF-17 than SF-8). Under the No-

Action Alternative, dredged material currently placed at either SF-8 or the OBDS already produces temporary disturbance to the substrate. Sand placed at SF-17 would dissipate more rapidly, in contrast to the accretion patterns at SF-8. The impacts to the sea-floor substrate off the stretch of Ocean Beach south of Sloat Boulevard from the Proposed Action are determined not to be significant compared to the No-Action Alternative.

(X) Surface water or drainages: All portions of the project action area are within waters of the Pacific Ocean southeast of the Golden Gate Bridge. The Proposed Action would not change the surface water or drainage patterns.

(X) Quality - temperature, salinity patterns and pH, and other parameters: Studies have shown that placing dredged material from hydraulic dredges into the water column does not cause significant short- or long-term changes in salinity, temperature, or pH (USACE 1976a; USACE 1976b). Dissolved oxygen levels may experience minor and temporary reductions (1-2 parts per million), but the ambient conditions are shortly regained following settlement of the suspended sediment (USACE, 1976a). Changes to water-quality parameters are minor, localized, and of short duration where pre-placement conditions would be regained within approximately 10 minutes. These minor changes also occur under the No-Action Alternative. The surface water-quality parameters would not be exceeded (SFRWQCB, 1995), and thus no significant impacts are expected from the Proposed Project.

(X) Turbidity and suspended particulates: Turbidity is a measurement of water clarity. Factors affecting turbidity include suspended sediment, shape, size, refractive index, color, and absorption spectra of particles. Increased turbidity levels can affect flora and fauna by blocking sun penetration, injuring fish gills, interfering with prey and predator recognition, or impacting egg and larvae development. Additionally, sediment suspension can mobilize sediment-bound contaminants into the water column where they have the potential to dissolve into the water. The MSC sediments consist of >90% sand and generally <1% organic material. Contaminants in dredged material primarily bind to finer sediment and are not readily water-soluble. The MSC sediment is characterized as essentially contaminant free due to the low organic material and high sand content; therefore, release of contaminants from suspended sediment is extremely unlikely. As mentioned above, suitability of other O&M projects proposing to use SF-17 will be determined following an appropriate level of evaluation as approved by the USEPA, USACE, and DMMO.

Studies have shown that increased turbidity from placing sandy material in Bay is of short duration, and suspended sediments typically dissipate within 10 minutes (USACE, 2003). The nearshore environment off Ocean Beach is naturally very turbid due to high wave and current action. Effects of increased turbidity on biological resources are

discussed below. An episodic increase in turbidity would occur during the disposal periods, as it currently occurs when placing material at SF-8 or the OBDS. Because of the nature of material (i.e. clean sand), the short duration of activities (rapid settlement of particulates), and high baseline turbidity, the effects of the Proposed Action are determined to be not significant.

(X) Currents, circulation, or drainage patterns: Currents near Ocean Beach, which are primarily shore-parallel, are tidal with maximum ebb and flood velocities about three ft/s (Barnard, Eshleman, Erikson, & Hanes, 2007). The tides are semi-diurnal with two cycles of different ranges every 24 hours and 50 minutes (Table 8). Based on their measurements at five instrument sites in the San Francisco Bight (Table 9, Figure 14), Barnard et al (2007) concluded that:

> *Current magnitudes are much greater along the northern portion of Ocean Beach because of the proximity of the mouth of the Bay (root mean square values of depth-averaged currents were 50% greater at Site 1 than at Site 3), but wave energy is much greater along the southern portion (mean wave height was 15% greater at Site 3 than at Site 1) where erosion problems are greatest.*

Table 8: Tidal parameters for the 1983-2001 Epoch at NOAA station #9414290, which is located just bay ward of the Golden Gate Bridge.

DATUM	DEPTH (ft)	DESCRIPTION
MHHW	11.82	Mean Higher-High Water
MHW	11.21	Mean High Water
DTL	8.90	Mean Diurnal Tide Level
MTL	9.16	Mean Tide Level
MSL	9.10	Mean Sea Level
MLW	7.11	Mean Low Water
MLLW	5.98	Mean Lower-Low Water
NAVD88	5.92	North American Vertical Datum of 1988
Maximum	14.64	Highest Water Level on Station Datum
Minimum	3.10	Lowest Water Level on Station Datum

Table 9: Basic Statistics for Depth-Averaged Currents (Barnard et al. 2007)

		Eastward Velocity (m/s) *				Northward Velocity (m/s) *			
Deployment	Location	mean	min	max	rms	mean	min	max	rms
Summer 2005	Site 1	-0.05	-0.44	0.21	0.09	0.29	-0.94	1.35	0.60
	Site 2	-0.00	-0.23	0.33	0.07	0.14	-1.02	1.09	0.48
	Site 3	0.01	-0.11	0.16	0.04	0.07	-0.86	0.70	0.31
	Site 4	-0.07	-0.44	0.28	0.16	0.04	-0.47	0.56	0.15
Winter 2006	Site 3	-0.03	-0.43	0.17	0.06	0.04	-0.79	0.74	0.31
	Site 5	-0.03	-0.56	0.43	0.18	-0.07	-0.78	0.67	0.31
*1.00 m/s = 3.28 ft/s									

Barnard et al. 2007 observed that the gradients in current speed along Ocean Beach varied with the tide, whereby northward speeds were greater on the flood and high tides and southward speeds dominated on the ebb and low tides. Current directions along Ocean Beach were shore-parallel, whereas the offshore sites showed principal axes shifted more east-west with an increasing eastward magnitude of flow with increased northing and proximity to the mouth of the Bay.

In the alongshore direction, vertical gradients in current magnitude of north-south directed currents increased with increasing distance from the Golden Gate; variation in current magnitude throughout the water column was greatest at Site 3 (Figure 14). East-west currents show a relatively stronger vertical decay because of the influence of wave-induced currents. At the offshore sites (Sites 4 and 5) vertical gradients were apparent for both the north-south and east-west currents, and Site 4 had current reversal with a changing tide.

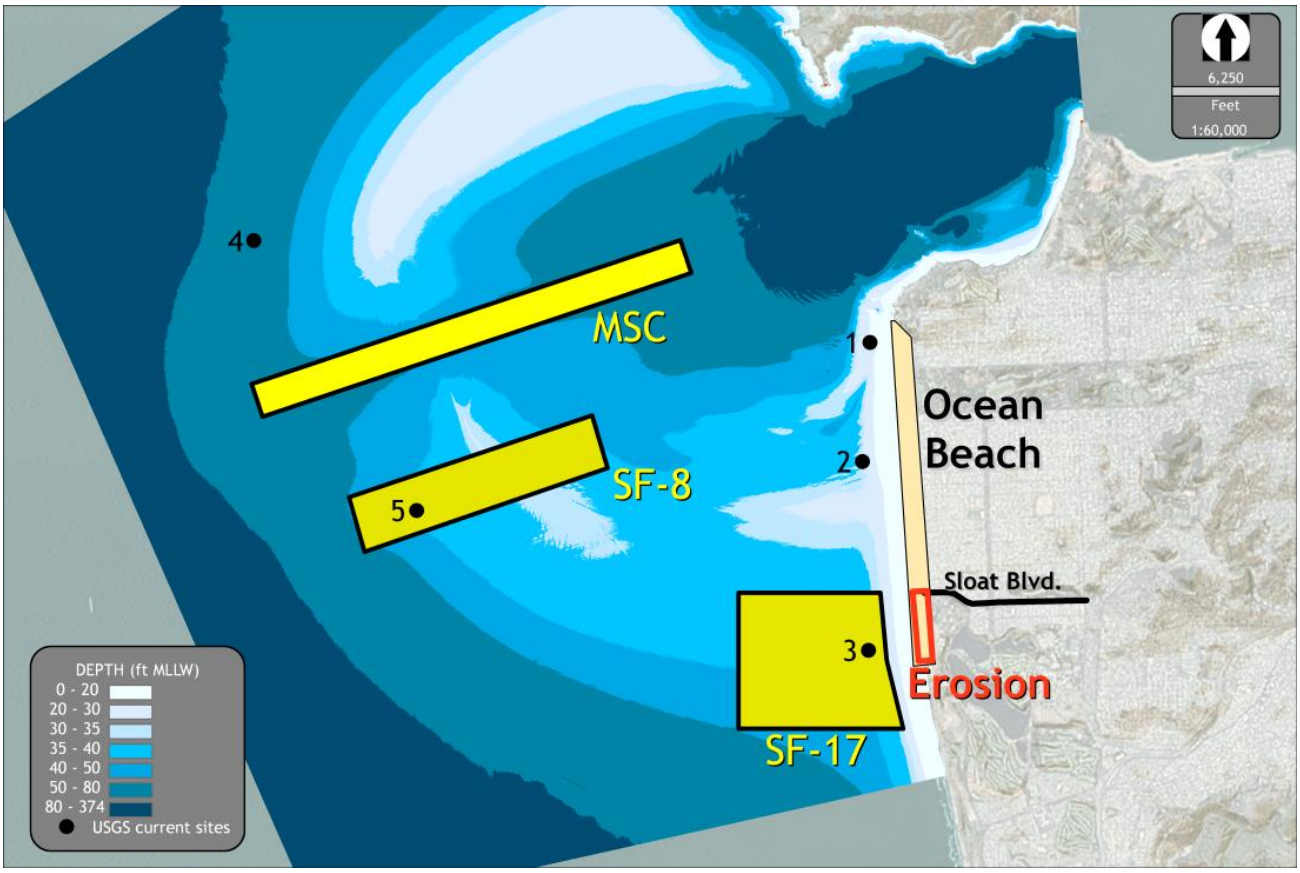

Figure 12. USGS current-meter sites.

Current and wave patterns in the project area are largely generated by the waves and tides interacting with the sandy bottom and adjacent shoreline features (USACE 2011). For most of the year, currents and waves are strong enough to reduce the height and spread the mounds of sand created during deposition of dredged material within the OBDS. Based on observations by Barnard et al. (2007) and OBDS usage surveys (P. Chen, USACE SPN, personal communication, May 2024), the same would be true for SF-17 as a portion of the dredged material will be expected to stay in the littoral zone without significant mounding. As demonstrated by the use and monitoring of the OBDS, placing dredged material in SF-17 would likely not significantly alter current and circulation patterns, whereas the No-Action Alternative (placement at SF-8) already results in potentially significant mounding and impacted circulation patterns. Minimal

changes related to currents and circulation patterns may occur with the Proposed Action, but these changes are expected to be less than significant because placed sand will disperse leaving a mound with elevation less than one foot.

(X) Mixing zone: A mixing zone is a limited area in a water body where ambient concentrations may exceed acute or chronic surface water-quality standards. Mixing zones are important considerations during discharge activities because the concentration of contaminants in this zone may exceed water-quality standards. The mixing zone is a consideration under the CWA, where increases in constituent levels are allowed in the mixing zone as defined under the regulatory requirements defined by the states.

Per requirements of the 404(b)(1) Guidelines (40 C.F.R. Part 230) for proposed disposal site determination, the following factors must be considered:

> *(1) Each disposal site shall be specified through the application of these Guidelines. The mixing zone shall be confined to the smallest practicable zone within each specified disposal site that is consistent with the type of dispersion determined to be appropriate by the application of these Guidelines. In a few special cases under unique environmental conditions, where there is adequate justification to show that widespread dispersion by natural means will result in no significantly adverse environmental effects, the discharged material may be intended to be spread naturally in a very thin layer over a large area of the substrate rather than be contained within the disposal site.*
> *(2) The permitting authority and the Regional Administrator shall consider the following factors in determining the acceptability of a proposed mixing zone:*
> *(i) Depth of water at the disposal site;*
> *(ii) Current velocity, direction, and variability at the disposal site;*
> *(iii) Degree of turbulence;*
> *(iv) Stratification attributable to causes such as obstructions, salinity or density profiles at the disposal site;*
> *(v) Discharge vessel speed and direction, if appropriate;*
> *(vi) Rate of discharge;*
> *(vii) Ambient concentration of constituents of interest;*
> *(viii) Dredged material characteristics, particularly concentrations of constituents, amount of material, type of material (sand, silt, clay, etc.) and settling velocities;*
> *(ix) Number of discharge actions per unit of time;*
> *(x) Other factors of the disposal site that affect the rates and patterns of mixing.*

The proposed project would entail placing suitable dredged material in this newly designated nearshore location, where the sediment is intended to be naturally dispersed into a thin layer covering a large area. Placement of dredged material will help alleviate severe beach and bluff erosion and protect important infrastructure at Ocean Beach. For this reason, it is not desirable that the site be confined to the smallest practicable zone. The material historically dredged from the MSC (main source of dredged material) has been >90% sand. This dredged material is physically suitable, free of constituents of concern, and has a high settling velocity (approximately within 10 minutes of each placement episode, thus quickly returning to ambient turbidity levels). Therefore, the Proposed Action would not be expected to result in significant impacts to ambient conditions in the mixing zone during placement.

( ) Flood control functions: N/A – There are no resources providing flood control functions in the Proposed Action area and therefore there is no potential for the Proposed Action or No-Action Alternative to affect flood control functions.

(X) Storm, wave, and erosion buffers: As discussed elsewhere in this document, placing sand at SF-17 will contribute to the reduction of beach and bluff erosion by encouraging storm waves to break farther seaward, thus causing more wave energy to dissipate before reaching the beach. Sand placement atop the SWOO will reduce the concentration of wave energy on the eroding part of Ocean Beach. The use of SF-8 is being curtailed because of mounding; thus, the No-Action alternative would result in potentially significant impacts to waves in that area. The Proposed Action will not result in significant negative impacts to wave conditions as determined through studies and observations, and in fact would have significant beneficial impacts of storm dampening.

(X) Erosion and accretion patterns: The proposed project is in response to shoaling at SF-8 that has resulted in unsafe navigational conditions for the USACE dredge, *Essayons* (similar commercial hopper dredges will have the same navigational problems), and to erosive conditions at Ocean Beach. Currently dredged material from the MSC is placed, first, within the OBDS and then, within SF-8. The use of SF-8 is being curtailed because of mounding and potential safety issues. The proposed SF-17 site encompasses the OBDS, and the use of the OBDS in the past has not resulted in the persistent shoaling observed at SF-8. Newly placed sand will immediately start dispersing as the bottom returns to an equilibrium profile. Post-placement surveys show that the elevation of the mound above the pre-placement bottom decreases by one to two feet in the year between placements (P. Chen, USACE SPN, personal communication, May 2024). Consequently, changes to accretion patterns along Ocean Beach will occur during sand placement and subsequent dispersal. Those changes will not be substantial given the relatively small placement footprint in any one year. Using

SF-17 as a beneficial-use site will help alleviate the beach erosion along Ocean Beach by having more sand in the adjacent littoral system. The effects of the Proposed Action on erosion along Ocean Beach and reduced accretion of sediment at SF-8 are determined to be beneficial and less than significant.

( ) Aquifer recharge: N/A – The Proposed Action areas do not provide aquifer recharge and therefore there is no potential for the Proposed Action or No-Action Alternative to affect aquifer recharge.

( ) Base flow: N/A – The Proposed Action areas do not contain streams and therefore there is no potential for the Proposed Action or No-Action Alternatives to affect base stream flow.

( ) Water supplies, conservation: N/A – No water supply or water conservation resources exist in the Proposed Action areas and the Proposed Action does not involve excessive use or conservation of water. No effect to these resources would occur under the Proposed or No-Action Alternatives.

(X) Air Quality: Designation of a dredged material placement site on its own does not result in air emissions. Individual projects authorized to use sites would be evaluated with respect to emissions of air pollutants. For placing dredged material from O&M activities, in accordance with 40 C.F.R. § 51.853(c)(2)(ix), emissions would be exempt from requirements to prepare a conformity determination with the State Implementation Plan under the Clean Air Act.

4.2. Biological Resources

We examined interactive maps and generated spatial query reports from standard resource agency websites to evaluate endangered species, critical habitats, important marine habitats, and areas important to fisheries within the SF-17 project area. Our assessment was guided by information provided in the CDFW Marine & Coastal Map Viewer, NOAA Species and Habitat App, and USFWS IPaC (accessed June 2024). From this inquiry, we are not aware of any hard substrate, eelgrass or kelp beds, unique, or of-limited-range habitat within or directly adjacent to SF-17.

(X) Aquatic Habitat and Organisms: Aquatic habitat in and adjacent to the proposed SF-17 footprint consist of open coastal waters and an open sandy strand of beach along the San Francisco coast. The proposed project area begins approximately 0.35 miles offshore of Ocean Beach, where its southern segment has been experiencing a high rate of erosion. Depths in the proposed project area range from approximately 30 feet to more than 50 ft. The open-water along the San Francisco coast provides habitat to benthos (bottom-dwelling organisms), plankton (drifting organisms in the water column), fish, birds, marine mammals, and aquatic plants.

Benthic Community. Overall, the benthic community in the project area is like those typically found in high-energy environments along the coast of Northern California. The benthic community is generally dominated by highly mobile organisms able to react to natural and human-induced changes, but there are a substantial number of sessile or non-motile organisms in the benthic community. The benthic fauna includes various assemblages of polychaete worms, crustaceans (amphipods, crabs, and ostracods), mollusks (pelecypods, and gastropods, and scaphopods), and echinoderms (starfish, brittle stars, heart urchins, sea cucumber, and sea pens). Other phyla that may be present including nematodes (roundworms), coelenterates (hydras, jellyfish, sea anemones, sea pens, sea whips, sea fans), echiurians (spoon worms), and rhychocoels (ribbon worms).

Short-term adverse effects of dredged-material placement on benthos include direct burial and mortality of invertebrates. The extent of the effect ranges amongst species, and frequency and volume of sand placement episodes. Although placing dredged material in the nearshore may cause periodic disturbances to these organisms, the nearshore along the coast of Ocean Beach is a dynamic, high-energy environment that experiences rapid sediment flux to which these communities are highly adapted. Adaptations of invertebrates to increased sand volumes can include temporary vertical retreat into the sand subsurface, organism aperture closures (e.g., shells, worm casings), and seasonal migration away from highly turbid areas such as the swash zone during winter. Although placement at SF-17 will cause burial of the less mobile benthic community, the impact will be episodic and short-term as the material is clean sand compatible with the littoral grainsize profile, it will settle out quickly without a lasting turbidity plume, and sand would be deposited into thin layers by the hopper dredge to facilitate transport by currents. Similar types of impacts to the benthic community and other communities currently occur with placing dredged sediment at SF-8 and the OBDS. As shown in OBDS studies and usage observations, the energetic littoral zone is conducive to rapid movement and leavening of the sand after placement events. In a broader regional context of the San Francisco coast, impacts from the Proposed Action to benthic communities are considered less than significant because of the relatively small area of the placement site compared to the total area comprising the existing benthic community habitat, as well as the natural dynamic nature of sand movement within the littoral zone post-placement.

Plankton Community. Plankton, which comprise drifting unicellular to multicellular plants and animal species existing in the water column, constitute a substantial component of the primary productivity. Phytoplankton, which rely on photosynthesis for energy generation, are vulnerable to light attenuation caused by turbidity plumes. In general, physical characteristics of dredged material determine the extent and duration of turbidity plume, which, in turn, affect phytoplankton energy production. At SF-17, the

primary dredged material would consist of >90% sand. Studies have shown turbidity generated from release of sandy material generally dissipates within 10-30 minutes (USACE, 2003), thus impacts from the Proposed Action to plankton communities are considered less than significant.

Fish Community. This stretch of the coast provides habitat for 50-100 species of fish. Fish species of commercial importance or ecological concern near the project area are sturgeon (*Acipenser* spp.), sole (*Psettichthys melanostictus*), sandab (*Citharichthys stigmaeus*), halibut (*Hippoglossus stenolepis*), rockfish (*Sebastes spp.*), Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha)*, steelhead trout (*Oncorhynchus mykiss)*, Central California Coast coho salmon (*Oncorhyncus kisutch*), and longfin smelt (*Spirinchus thaleichthys*). Fish species that also occur in the project area are Pacific herring (*Clupea pallasii*), starry flounder (*Platichthys stellatus*), surfperch (various spp.), sharks (*Triakis spp*.), rays (*Myliobatis spp*.), Northern anchovy (*Engraulis mordax*), Pacific mackerel (*Scomber japonicas*), jack mackerel (*Trachurus symmetricus*), and Pacific sardine (*Sardinops sagax*). Pelagic species such as anchovy and sardine spawn in the Southern California Bight and migrate into waters off Central and Northern California. Placing dredged sediment at SF-17 may affect fish and shellfish during various life stages by affecting respiration, feeding (burial of food), and movement patterns (caused by reduced visibility). Additionally, placing dredged sediment may interfere with oxygen exchange by clogging or injuring gills or by direct burial of slower-moving fish. Many fish species are highly mobile and adapt to avoid plumes of sediment (O'Conner, 1991). Dredged material from the MSC that is approved for disposal at the proposed SF-17 would be >90% sand and deposited into thin layers to be transported by currents along the shoreline. Sandy material typically settles within 10 minutes of disposal, with turbidity returning to ambient levels shortly after disposal.

Fish and shellfish are most sensitive to affects during early life-history stages, such as the egg and larval stages. These life-history stages have limited avoidance capabilities and depend on local hydrodynamic conditions for transport into and out of dredging areas. Demersal eggs (eggs sinking to the bottom) and sessile or non-motile life history stages are particularly susceptible because of their longer exposure to elevated suspended sediments or smothering by increased sedimentation. Demersal fish eggs attached to structures within the vicinity of the plume could be affected by dredged-material particles settling on the eggs. Eggs and smolts are not expected to be present in or near the proposed SF-17 because of depth, the type of substrate in this area, constant wave-generated water movement, and absence of structures. Other impacts of dredged-material placement from the No-Action alternative and the Proposed Action on fish and shellfish are determined to be minor and short-term.

4.3. EFFECTS ON SPECIAL-STATUS SPECIES

(X) Special aquatic sites (wetlands, mudflats, coral reefs, pool and riffle areas, shallows, sanctuaries, and refuges, other): There are no wetlands, rocky shoreline, salt marshes, tidal marshes tidal flats, coral reefs, salt ponds, mudflats or other special aquatic sites, as defined by the CWA, within the Proposed Action area. Although the proposed placement site is in the proximity of Greater Farallones and Monterey Bay National Marine Sanctuaries along the Northern and Central California's Pacific Coast, placing sandy sediment is not expected to have detrimental effects on the resources of these sanctuaries. Therefore, there would be no detrimental impacts to special aquatic sites or sanctuaries with the Proposed Action of designation and use of SF-17 as a beneficial-use, dredge-material placement site.

(X) Terrestrial Habitat and Organisms: The proposed SF-17 placement site is fully within the coastal waters of the Pacific Ocean. Shoreward of SF-17 is a narrow beach, Ocean Beach, backed by a steep bluff. Atop the bluff is a fully urbanized environment including a major city highway, various city infrastructure, and private abodes. Portions of the beach are covered by rock or rubble mounds placed to protect the bluff and infrastructure. The Proposed Action for designation of SF-17 as a nearshore dredged-material placement site would not have a negative impact on terrestrial species.

The open coastal waters of the Pacific Coast serve as foraging habitat for a number of bird species. Over 150 species of birds have been observed on the coast of Northern California at various times of the year. Western gulls (*Larus occidentalis*), and brown pelicans (*Pelicanus occidentalis*) are the most frequently observed birds along the project area. Other commonly observed birds include cormorants and some species of terns. Use of SF-17 as a permanent beneficial-use sediment placement area is not expected to adversely affect any of the bird species in the vicinity of the project area due to the temporary nature of sand placement operations (>90% sand that settles rapidly with short-lived turbidity plumes, few weeks a year), and birds' ability to move to wider forage areas. Sediment placement (in both SF-8 and the OBDS) has been a regular occurrence over the past two decades, and there has been no disturbance to avian species recorded in this period. The No-Action alternative and the Proposed Action would have less than significant impacts to terrestrial habitats and organisms.

(X) Special Status Species, Critical Habitat, Fishery Managed Species: State and federally listed or proposed as endangered or threatened under state and Federal Endangered Species Act (CESA and FESA), designated and proposed critical habitat under FESA, species protected under the Essential Fish Habitat (EFH) in accordance with Magnuson-Stevens Fisheries Management Act, and species protected under the

Migratory Bird Treaty Act (MBTA) with potential to occur in the project action area are listed in Table 10.

Table 10: Special Status Species and Habitats Potentially Occurring in and adjacent to the Action Area

Scientific Name	Common Name	Status	Statutory Protection
	Pacific Groundfish FMP	EFH	Magnuson-Stevens Fishery Conservation and Management Act (MSFMCA)
	Coastal Pelagic FMP	EFH	MSFMCA
	Pacific Salmon FMP	EFH	MSFMCA
Acipenser medirostris	Green sturgeon, Southern Distinct Population Segments (DPS)	Threatened Critical Habitat	FESA and California Endangered Species Act (CESA)
Archtocephalus townsendi	Guadalupe fur seal	Endangered	FESA and CESA
Brachyramphus marmoratus	Marbled murrelet	Endangered	FESA
Charadrius alexandrinus nivosus	Western Snowy Plover		FESA and CESA
Dermochelys coriacea	Leatherback Turtle	Endangered Critical Habitat	FESA and CESA
Eschrichtius robustus	Gray Whale		Marine Mammal Protection Act (MMPA)
Eumetopias jubatus	Stellar Sea Lion	Endangered	FESA, CESA and MMPA
Haliotis cracherodii	Black abalone	Endangered Critical Habitat	FESA
Larus californicus	California Gull		MBTA

Scientific Name	Common Name	Status	Statutory Protection
Megaptera novaeangliae	Humpback Whale	Endangered Critical Habitat	Federal Endangered Species Act (FESA) and MMPA
Megaptera novaeangliae	Humpback Whale Central America DPS and Mexico DPS	Endangered Critical Habitat	Federal Endangered Species Act (FESA) and MMPA
Onchorhynchus kisutch	Coho salmon, Central California Coast ESU	Endangered	FESA
Oncorhynchus mykiss	Steelhead, Central California Coast DPS	Threatened	Federal Endangered Species Act (FESA and CESA)
Onchorhynchus tshawytscha	Chinook salmon, Central Valley Spring-Run ESU	Threatened	FESA
Onchorhynchus tshawytscha	Chinook salmon, Central Valley Winter-Run ESU	Endangered	FESA
Orcinus orca	Southern Resident killer whale	Endangered	FESA, MMPA
Phalacrocorax auratus	Double-Crested Cormorant		MBTA
Phoca vitulina	Pacific Harbor Seal		MMPA
Phocoena phocoena	Harbor Porpoise		MMPA
Spirinchus thaleichthys	Longfin Smelt	Endangered	FESA and CESA
Zalophus californianus	California Sea Lion		MMPA

Fishes. The Southern Distinct Population Segment (DPS) of green sturgeon was listed as a threatened species in April 2006. Spawning typically occurs in estuarine and fresh waters. Effects related to placement of material at SF-17 includes burial of fish and benthic prey species. Green sturgeon may be attracted to the area where

placement activities occur for better availability of prey. Although adult sturgeon may be present in the project vicinity, placing dredged material in a thin layer is unlikely to result in fish burial; none has been reported during use of the OBDS or SF-8. In general, potential impacts to green-sturgeon foraging is expected to be like that at the OBDS or SF-8 and is considered not significant for the Proposed Action.

The Sacramento River winter-run (endangered) and spring-run (threatened) Chinook salmon may occasionally occur near SF-17 during migration season (November to May). The Central Valley spring-run (threatened) Chinook salmon may also occasionally occur in the project area vicinity. The threatened coastal steelhead (both Central Valley and Central California Coast ESUs) may be present once they out-migrate from the Bay. Central California Coast ESU Coho salmon migrate through the San Francisco Bay during fall months. All these species also occur at the existing placement sites (SF-8 and the OBDS). Impacts of dredging to juvenile salmonids are like those described for motile fish in the “Aquatic Organisms” section of this document. The benthic community is expected to recover quickly following dredging such that there should be no long-term effects on potential food sources for the salmon along the coast. Disposal impacts of prey burial to adult salmonids are reduced because migrating adult salmon have largely ceased to feed by the time that they enter the Bay for their upstream migration. Potential effects of impaired visibility during foraging and reduced prey availability within the area of disposal would be temporary and localized at the disposal site. Because there are no coho or steelhead spawning areas near or upstream of the coast smolts are not expected to occur in the area during placement activities.

The longfin smelt (*Spirinchus thaleichthys*), which is federally listed as endangered, is not likely to occur in the project footprint during placement of dredged material. Juvenile and non-spawning adult longfin smelt are present throughout the San Francisco Estuary at all times of year, and the majority of the population is concentrated in Suisun, San Pablo, and Central San Francisco bays, as well as nearshore ocean waters during the summer months. Even if longfin smelt are occupying habitat where they may be exposed to dredging it is not certain they would be adversely affected or entrained. Longfin smelt larvae are at peak abundance most commonly in February and March. Longfin smelt spawning adults, eggs, and larvae are not expected to encounter placement activities within the Proposed Action area which takes place annually between mid-April and mid-October.

In general, potential impacts to special status fish from the Proposed Action are expected to be like that at the OBDS or SF-8 under the No-Action alternative and are considered not significant under the Proposed Action.

Birds. The marbled murrelet (*Brachyramphus marmoratus*), which is federally listed as endangered, may occur within one-to-two miles of the shore and may be present rarely in the non-breeding season. The federally listed western snowy plover (*Charadrius alexandrinus nivosus*) is a non-breeding visitor to Ocean Beach from July to mid-May. In general, turbidity generated during dredged material placement could interfere with foraging of avian species. Such foraging habitat interference would be minor at SF-17 because material dredged from the MSC is greater than 90% sand, and thus will settle in approximately 10-30 minutes. Because the placement duration is short, potential temporary effects would be offset by the ability of these species to forage over a wider area. The proposed project would not affect nesting or roosting habitat for any of the above listed species because this type of habitat does not occur within the project boundary. In general, placing dredged material at SF-17 is not expected to have an effect that differs from the effect that annually occurs at SF-8 or the OBDS. No adverse effects on bird foraging habitat have been observed in continued use of these placement sites; thus, no significant impacts from the Proposed Action are expected on special status birds.

Marine Reptiles. Sea turtles are pelagic species but may forage in coastal waters. The Loggerhead turtle (*Carretta caretta*) and green sea turtle (*Chelonia mydas*) may occur in the project vicinity, but they are generally found in warmer waters. The leatherback turtle (*Dermochelys coriacea*) may occur in nearby Gulf of Farallones, though its occurrence is typically in deep waters (> 55 ft MLLW). Sea turtle nesting occurs in temperate water; therefore, juveniles and eggs would not occur in the project vicinity. The occurrence of adult leatherback sea turtles in the project area is rare, and their motility allows them to escape dredge-material placement. Placing sandy material at SF-17 under the Proposed Action is not expected to affect the three sea turtle species listed above because they are not expected to occur in or near the proposed placement site.

Marine Mammals. Species of marine mammals such as harbor seals (*Phoca vitulina*), northern elephant seals (*Mirounga angustirostris*), California sea lions (*Zalophus californianus*), Steller sea lions (*Eumetopias jubatus*), Pacific white-sided dolphins (*Lagenorhynchus obliquidens*), and harbor porpoises (*Phocoena Phocoena*) may be present near the proposed SF-17 site. Species of whale (blue, humpback, fin, killer, sperm, and gray) have been observed near SF-17 in their migration route through the Gulf of the Farallones.

Potential effects of placing dredged material in the nearshore on marine mammals include noise generated from the placement operation, presence of dredge plumes, and direct collision with dredging vessels. Placement operations in the proposed project area would not generate significant noise from the hydraulic opening of vessel doors

that release sand via gravity from the hull bottom. Sand released from vessels and placed at SF-17 rapidly settles via gravity on the bottom and would not generate lasting turbidity plumes, resulting in short-term temporarily reduced visibility at the placement site and potential temporary effect on foraging ability. All listed mammals forage throughout the region off the central California coast, thus any temporary reduction in food supply in an area the size of the placement site would be insignificant. Marine mammals in the area are highly motile and expected to avoid dredges and sand placement. Vessels strikes are considered to be extremely unlikely, and thus discountable, due to the rarity of species occurrence in the action area and the slow speeds of the dredge vessels under both laden and un-ladened conditions during placement operations. Overall, due to the logistics of the placement operations and as demonstrated using SF-8 and the OBDS over the past 20 years, impacts of the Proposed Action on marine mammals is expected to be minimal.

Invertebrates. The black abalone (*Haliotus cracherodii*) is listed as endangered. Black abalone are algal grazers that live in rocky habitat, which is required for all life stages. The rocks need to have holes and crevices that provide protection from predation and wave energy for smaller size abalone. Coralline algae must be present as a substrate for larvae to settle out and as a food resource for adults. The bottom substrate within the proposed SF-17 placement site is entirely sandy, so no black abalone are expected to occur in the Proposed Action area or nearby. The nearest rocky habitat that may be suitable is at Land's End and would not be affected by this project. Therefore, the Proposed Action would have no effect on black abalone.

Critical Habitat

The proposed project site and its vicinity coincide with designated critical habitat for the green sturgeon Southern DPS, leatherback turtle, black abalone, killer whale southern resident DPS, and humpback whale Central American and Mexican DPSs. FESA prohibits destruction or adverse modification of listed species proposed or designated critical habitat. Adverse changes to physical or biological features of habitat include modifications to water flow, water quality, migratory corridor, water depth, sediment quality, and food resources. All these habitat features are important for preserving critical habitat. The coastal marine waters are important for seasonal migration of adults and sub-adults of many of these species from Southern California to Alaska (50 C.F.R. Part 226). Dredging and disposal of dredged material may affect one or more of the physical or biological attributes for the above species. The USACE is currently undergoing an updated programmatic consultation under Section 7 of the

FESA for all its in-Bay LTMS O&M dredging and sediment placement activities, including the MSC annual dredging, SF-8, and the OBDS.

The direct and indirect effects of the Proposed Action on critical habitat for the green sturgeon Southern DPS, leatherback turtle, black abalone, killer whale southern resident DPS, and humpback whale Central American and Mexican DPSs include burial of prey species, and degrading water quality from turbidity and potential spills or leaks of fuel from the dredge vessels. Benthic prey items for green sturgeon may be temporarily smothered by placed material. Critical habitat for leatherback turtles includes conservation of their primary prey item, scyphomedusae (jellyfish). This project will not affect jellyfish availability or population dynamics due to the temporary nature of the placement, as well as the limited duration of turbidity plumes. Rocky substrate is critical habitat for the black abalone and there is no rocky habitat in the project area which is sandy substrate. Humpback whale Central American and Mexican DPSs primarily feed on euphausiids (krill) and small schooling fish that may temporarily be affected during placement of the dredged material. Critical habitat for western snowy plover and Steller sea lion occurs near the proposed site, but neither species occur within the project boundaries. However, movement of the dredge from the dredging site to SF-17 could cross critical habitat for Steller sea lion.

As previously discussed, prey burial within critical habitat would be temporary in nature and duration and the sand applied in thin layers to reduce surface burial, thus allowing benthic communities to recover fairly quickly. Water quality degradation impacts on critical habitat would likewise be temporary in nature within the Proposed Action and adjacent waters. Placement within SF-17 would have temporary, short-term increases in turbidity 10-30 minutes after sand placement. One of the conditions for use of placement sites is that no dredge material shall be allowed to spill or leak from barges at any time en route to or from a site. Additionally, the number of vessels traversing the area from the Proposed Action would not change from existing conditions of use of SF-8 or the OBDS. Therefore, no significant effects from transport of dredged material to water quality are expected. Under the No-Action alternative and the Proposed Action, there would be no change in existing conditions, and therefore no potential for impacts to critical habitat for special status species.

Essential Fish Habitat

The proposed project area is within the Essential Fish Habitat (EFH) for Pacific Coast groundfish, Pacific Coast salmon, and coastal pelagic Fisheries Management plan (see Table 10 for a list of potentially impacted species). EFH consultation with the National Marine Fisheries Service (NMFS) for any federal and non-federal O&M dredging activities under the LTMS was completed on June 9, 2011 (USACE et al. July

2009; USACE and USEPA June 9, 2011), and modified on March 2012 as pertaining to mercury residual testing. This consultation included existing dredging and dredged-material placement sites including the OBDS. SF-17 encompasses the OBDS, although its area extends beyond that site; thus, USACE will consult with NMFS on additional EFH consultation for the SF-17 designation.

The direct and indirect effects of the Proposed Action on EFH are expected to be short-term and limited in scope due to the episodic nature of the placement, the thin-layer placement of compatible sand, and temporary water quality impacts.

4.4. HUMAN ENVIRONMENT

(X) Noise: The ambient sources of noise in and around SF-17 are commercial and recreational vessel traffic, general vehicular traffic, and local recreational users. The proposed advanced identification and use of SF-17 as a permanent placement site would not result in a substantial temporary or periodic increase in ambient noise levels above the existing No-Action alternative levels near the project area. Therefore, there is less than significant potential for the Proposed Action to impact noise levels.

(X) Recreation: Both onshore and offshore areas of Ocean Beach are extensively used for various recreational activities. The proposed SF-17 boundary is seaward of the outer boundary of the GGNRA (one-quarter of a mile seaward of MSL). Potential impacts of the Proposed Action on recreational resources were evaluated because of the proximity of the proposed project site to the GGNRA, which is managed for its natural and cultural resources and values for the present and future enjoyment of the public. The proposed project was assessed in terms of any short-term or periodic disruption to resources or recreational activities; physical degradation of existing recreational resources; change in use of existing recreational resources; and any potential harm to the integrity of GGNRA's cultural and natural resources.

Use of SF-17 as a nearshore beneficial-use, dredged-material placement site, would involve movement of a hydraulic dredge (e.g., the USACE-operated *Essayons*) for placing thin layers of sand within this nearshore area. The activity would typically occur during dredging of MSC, which takes place annually between mid-April and mid-October. The OBDS has been used since 2005 for episodic nearshore placement. During that time, there have been no observed adverse impacts on any of the aspects defined above. Placing dredged material in a thin layer, which has been done at the OBDS since 2005, should not change the existing surf breaks. Overall, no change in wave patterns is expected to occur. Although the surface area of SF-17 is greater than that of the OBDS, adverse direct impacts to recreational resources and uses are not expected. Similarly, placing material at SF-17 is determined to have minimal episodic impacts on natural resource values. Conversely, indirect positive effects to recreational

activities such as maintenance of a wider beach area are expected to occur with the Proposed Action.

(X) Transportation: N/A – Maritime traffic (navigation) is discussed in the following section. The Proposed Action areas do not contain terrestrial transportation facilities or infrastructure and would not noticeably add to traffic or ridership on any transportation modes. Dredging vessels will access the project site from the water. The Proposed Action and the No-Action Alternative would not alter the existing transportation and traffic conditions in the area.

(X) Navigation: The waters of the Pacific Ocean along the coast of San Francisco Bay near the project area are used for recreational and commercial boat transportation and activities. As demonstrated using SF-8 and the OBDS, the proposed project would not negatively affect the existing navigation patterns of the area. Use of SF-17 in lieu of SF-8 would alleviate important navigational safety concerns currently associated with mounding at SF-8. Thus, the Proposed Action would provide navigation benefits by limiting continued mounding at SF-8, while still enabling maintenance of the authorized depths in the MSC to provide safe movement of ships and vessel access into San Francisco Bay. Under the No-Action Alternative siltation and accretion would continue to occur in SF-8 and impacts to navigation associated with that shoaling would worsen.

( ) Air Traffic: N/A

(X) Aesthetics and Visual Impacts: Ocean Beach is one of the open spaces in the CCSF that attracts many people for active and passive recreation. Shoreward of the project area is a sandy beach with rock and rubble placed along the bluff face. Landward of the beach, which is narrow in the stretch south of Sloat Boulevard, valuable CCSF infrastructure sits atop or in the bluff. The infrastructure includes public parking lots, the Great Highway, and wastewater transport pipes and a treatment facility. In several areas, no beach remains, and waves actively erode the bluff. Thus, the project vicinity presents a mix of the open Pacific Ocean and a highly urbanized surrounding area with a desirable visual quality. The proposed use of SF-17 would involve the annual movement of a hydraulic dredge in an area approximately 0.5 miles offshore of Ocean Beach for approximately 6 hours per day for 15 to 20 days. Placement operations could occur during the day and at night during those days, at which time the dredge vessel would be visible from shore. Increasing sand placement in the littoral zone increases sand movement shoreward and alongshore the beach and bluff, helping to maintain those features. This would maintain the current aesthetic of the natural open-space quality of the project area and its vicinity. Due to the extremely short nature of the annual placement activity, as well as the fact that placement has been consistently occurring at the OBDS for the past 20 years under the No-Action

alternative, the Proposed Action would have minimal impacts on aesthetics of the project area and vicinity.

( ) Land use classification: N/A – The Proposed Action has no potential to affect land use.

( ) Prime and unique farmland: N/A – No farmland exists in the Proposed Action areas and therefore the Proposed Action has no potential to affect farmland.

( ) Community Structure and Growth-inducing impacts, community growth, and regional growth: N/A – The Proposed Action does not have the potential to affect community structure or additional growth either regionally or within San Francisco County.

(X) Conflict with land-use plans, policies, or controls:

Plans Under the Coastal Zone Management Act.

The Proposed Action falls within the jurisdiction of the California Coastal Commission (CCC), the state agency with authority over coastal areas of the state that implements the Coastal Zone Management Act (CZMA). The CZMA requires that federal action be consistent, to the maximum extent practicable, with the federally approved state coastal plans. The federally approved state coastal plan applicable to this location is the California Coastal Management Program[5]. In accordance with the CZMA of 1972, as amended (16 U.S.C. §1451), before using SF-17, USACE would prepare and submit a Negative Declaration or Consistency Determination (ND or CD) to the CCC, to ensure that the Proposed Action is consistent, to the maximum extent practicable, with the regional plans and policies. Use of the site would not commence until a concurrence from the CCC on the determination is received. Designating SF-17, as proposed, is expected to be consistent with the regional plans and policies. The USACE has submitted NDs since 2005 for placing MSC sand at the OBDS.

San Francisco Bay Long-Term Management Strategy (LTMS) Management Plan.

The San Francisco Bay LTMS consists of a consortium of federal and state agencies – e.g., USACE, the USEPA, San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), California State Lands Commission (CSLC), and San Francisco Bay Conservation and Development Commission (BCDC) – with jurisdiction over dredging and dredged-material placement in the Bay including the MSC, SF-8, the nearshore

[5] The California Coastal Management Program is a combination of Federal, State, and local planning and regulatory authorities for controlling the uses of land, air, and water resources along the coast.

zone off Ocean Beach, as well as waters used by vessels en route to these sites (Note, BCDC jurisdiction does not extend to SF-8 or the SF-17 area). The goals of the LTMS Management Plan are to:

- Maintain in an economically and environmentally sound manner those channels necessary for navigation in San Francisco Bay and eliminate unnecessary dredging.
- Conduct dredged-material disposal in an environmentally sound manner.
- Maximize the use of dredged material as a resource.
- Maintain the cooperative permitting framework for dredging and disposal applications.

Since implementing the LTMS Management Plan in 2000, the limit on dredged-material disposal in the Bay has been reduced from 6,000,000 CY to 1,250,000 CY per year. Although reducing in-Bay disposal is a key goal of the LTMS program, maximizing beneficial use of dredged sediment is even more important. The LTMS program has supported restoration of approximately 3,100 acres of habitat through beneficial use of dredged material. Beach nourishment and storm damage reduction is an additional, important component of beneficial use of dredged material. Hence, the LTMS program has been supportive of placing dredged sediment at the OBDS for the goal of making the sediment available to support beach and littoral system nourishment. The proposed identification of SF-17 as a beneficial-use, dredged-material placement site fully supports and advances the goals of the LTMS program.

Golden Gate National Recreation Area (GGNRA) Plans.

Although not within GGNRA, the proposed SF-17 is adjacent to its western boundary. The basic purpose of the National Park Service (NPS), as set forth by the Organic Act of 1916 and General Authorities Act, is to conserve park resources and values. Although the project is not required to obtain approval from the NPS, it is important for the NEPA lead agencies to ensure the project is consistent with the NPS's approved plans and policies. Beneficial use at the proposed SF-17 will not change in terms of how sand placement has been occurring since 2005; thus, the Proposed Action would not have significant adverse effects on the boundaries, or the biological or cultural integrity of the GGNRA.

( ) Socio-economic: N/A – The Proposed Action has no potential to affect socio-economic conditions.

(X) Public facilities, utilities, and services: The proposed project would indirectly benefit the existing public facilities located in the area by providing additional protection to the eroding shoreline. These public utilities benefitted include the Oceanside Water

Pollution Control Plant, Lake Merced Wastewater Transport Pipe, SWOO, the Great Highway, parking lots, and beaches of Ocean Beach.

(X) Energy consumption or generation: N/A

(X) Public health and safety: Ocean Beach is a popular recreational area for surfing and other recreational beach users. The bluff supports several important elements of the CCSF's infrastructure – e.g., portions of a wastewater treatment system, the Great Highway, public parking lots. The placement activities in the nearshore areas do not pose a hazard to public health and safety because vessels used for placing dredged material would use the navigational safety measures appropriate for operation in this area. The effectiveness of these measures is demonstrated by the ongoing successful use of the existing OBDS and SF-8. Ultimately, nourishing the littoral system that supports the beach would substantially benefit public safety by contributing to bluff protection, hence the important infrastructure supported by the bluff. Enhancement of the beach areas of Ocean Beach through the Proposed Action would benefit the public safety for beach users.

(X) Hazardous and toxic materials: Use of the proposed SF-17 would be only for uncontaminated sandy material from the MSC. There will be no hazardous or toxic materials discharged in this area. Appropriate BMPs will be applied to prevent water-quality impacts from pollution caused by debris, fuels, oils, lubricants, and other harmful materials (Appendix B-1). Therefore, there would be less than significant impact from hazardous inputs from both the No-Action alternative and the Proposed Action.

(X) Historic monuments, parks, national seashores, wild and scenic rivers, wilderness area, research sites, etc.: The proposed project is immediately adjacent to the GGNRA. The use of the proposed placement site would provide indirect benefits to GGNRA and its missions and mandates by enhancing the beach and reducing threat to the public safety of the recreational users. The natural resources of Ocean Beach within GGNRA's boundaries are not expected to be negatively affected by the proposed project. This determination is supported by the use and monitoring of dredged material placement at the OBDS.

(X) Cultural Resources: Cultural resources are defined as several different types of properties: precontact and historic archaeological sites; architectural properties such as buildings, bridges, shipwrecks, and infrastructure; and resources that have cultural or traditional importance to Native American Tribes including landscapes, cultural keystone species, and sacred sites.

The San Francisco Bay region has experienced considerable landscape and environmental changes over the last 20,000 years. As the vast ice sheets that covered

the northern part of what is now North American began to melt 20,000 years ago, sea levels rose and began transforming the Bay Area. The broad inland grassland with riparian habitats that stretched near to the modern day Farallon Islands transformed into a smaller version of the San Francisco Bay by 8,000 years ago (Atwater et al. 1977). Inundation by sea level rise continued at a slower pace until about 5,000 years ago, creating extensive tidal marsh deposits and the San Francisco Bay and San Joaquin Delta Estuary that are defining features of the region today. This transformation impacts archaeological visibility as some of the earliest evidence for human occupation in the region may have been inundated during the terminal Pleistocene/Early Holocene (~11,000-8,000 years ago). Sea level rise that has occurred in the San Francisco Bay region since the Last Glacial Maximum is approximately 130 meters.

The coastline for this region was near to the edge of the continental shelf, just offshore of the Farallon Islands. What is now the San Francisco Bay and related waterways were subaerial and characterized by grasslands and river valleys at the time that archaeological evidence indicted humans were present on this landscape approximately 11,700 years ago. Human habitation has persisted in this region since this time, including thousands of years of Native American settlement as well as evidence of historic-era maritime commerce with associated coastal infrastructure and drowned watercraft. Some of the cultural sites created by the people living in this region at the end of the Pleistocene and into the Holocene would be on landscapes that are now submerged or incorporated into coastal or wetland habitats, and remnants of historic ocean-based exploration and economies including shipwrecks, may be found on submerged landscapes.

While the character and preservation of these landscapes have been altered, intact remnants of once terrestrial landscapes that can contain preserved cultural resources are present under the marine sediment that was transported to the region with sea level rise and/or historic anthropogenic infilling. Constant shifting of the submerged landscape though natural (oceanographic or tectonic movement) or anthropogenic activities may expose previously buried cultural resources and/or human remains, exposing them to impacts from project activities. Additionally, archaeological sites and built environment remnants of maritime infrastructure located near to the shorelines of inland waterways, harbors, and open ocean may erode into the water and be transported into navigation channels and placement sites. While this material is no longer considered in primary context, individual cultural items and/or human remains may be subject to other federal or state historic preservation laws.

There is evidence for human occupation of the region as early as 11,700 years ago through to the present, where the Ohlone, Coast Miwok, Bay Miwok, Plains Miwok,

and Patwin communities continue to live today. At this time Native American presence in the region began an extensive and enduring maritime history, which defines this region. Alongside Native American sites lie the remains of a bustling ocean-based commerce, with watercraft, lighthouses, wharfs, and other evidence of the historic and modern maritime economy. This extensive history of human use of the region has left a historic record rich in cultural resources both on the land and on the continental shelf. As such, the cultural resources that are of interest for the proposed project include not only archaeological sites both on the shorelines or submerged beneath the open ocean, but also evidence from the region's rich historic maritime history and its associated watercraft and onshore and nearshore infrastructure. Of particular interest are shipwrecks recorded in the region, as well as those that have not yet been identified.

Within the SF-17 footprint, there are no previously recorded cultural resources. There is one recorded shipwreck located ½ mile from the proposed project area, the remains of which are located onshore at the base of a cliff at Fort Funston. The California State Lands Commission's Shipwreck Database indicates 5 shipwrecks were recorded within the project area: the King Philip (clipper, sunk 1878), Maggie (steamship, sunk 1904), Reporter (three-masted schooner, sunk 1902), James A Garfield (three-masted schooner, sunk 1904), and Trifolicum (sunk 1914). The database also indicates an additional three shipwrecks within ½ mile of the project area: the William Frederick (two-masted schooner, sunk 1887), Republic (fishing smack, sunk 1879), and Sunlight (oil screw, sunk 1937). There are no cultural resource investigations that intersect the SF-17 project area and it has not been surveyed for cultural resources. There is one geological master's thesis focused on the infilling of the San Francisco Bay that discusses the general region where the SF-17 project area is located.

The sand generated for placement at the OBDS, SF-8, and the proposed SF-17 comes from the MSC, which is not expected to contain cultural resources. As the placement of dredged material does not disturb subsurface sediments, placement activities would not result in impacts on cultural resources, unique archaeological resources, or human remains. For SF-17, USACE has determined that there are no historic properties located within the project area. Under Section 106 of the National Historic Preservation Act, USACE will consult with the State Historic Preservation Officer and any other Section 106 consulting parties, such as Tribes or historic organizations, to review USACE's identification efforts and the proposed project's finding of effects to historic properties. The appropriate mitigation measures below will be incorporated to ensure no inadvertent cultural resources not included in the current round of literature review and research can be mitigated.

Mitigation Measure C1-1: Resolve Substantial Adverse Change Through A Cultural Resources Monitoring Program

SF-17 as a submerged landscape presents unique challenges to recognition of potential inadvertent discoveries. Development of a monitoring program that focuses on opportunistic monitoring of identified sensitive locations can reduce potential impacts on cultural resources. Opportunistic monitoring may include monitoring of the sediment as it is placed at the placement location or locations. The archaeological monitor would periodically inspect the material dredged for the presence or absence of cultural material. However, based on Native American consultation, records search and literature review, there is a low likelihood that monitoring will be needed. If cultural material is discovered during monitoring or other project activities, all work will be halted in the vicinity of the discovery until a qualified archaeologist can assess the significance of the discovery. Archaeological monitors shall have a B.S. or B.A. degree in anthropology, archaeology, or a related field, and at least one year's experience monitoring in California.

Any monitoring program shall be developed by an archaeologist meeting the minimum professional qualifications standards set forth by the Secretary of the Interior (codified in 36 C.F.R. Part 61; 48 FR 44739), including a background in maritime (underwater) archaeology.

Identification of sensitive locations may differ for various regions, but should be based on an archaeological sensitivity analysis that includes:

- mapped geologic formations and soils
- density of surrounding buried archaeological deposits
- potential for remnant Native American fish capture technologies (fish weirs and platforms)
- density of identified shipwrecks in the APE and vicinity
- Native American consultation

Mitigation Measure C1-2: Inadvertent Archaeological Discovery

If any cultural material, or an unusual amount of bone, shell, or non-native stone, is encountered during dredging, work would be immediately stopped in the area of the find until a qualified archaeologist can be retained to evaluate the find (36 C.F.R. 800.11.1 and 14 CCR 15064.5[f]). The archaeologist will determine the potential scientific/historical/cultural significance and will make a recommendation to USACE as to what action or additional measures, if any, are warranted. Examples of such cultural materials might include ground stone tools such as mortars, bowls, pestles, and manos; chipped stone tools such as projectile points or choppers; historic artifacts such as bottles or ceramics; artifacts related to history maritime economy such as watercraft pieces, anchors, and the like, or resource gathering items such as fish weir stakes.

Mitigation measures may include additional submerged study, such as geophysical survey or diver investigation, to further evaluate the context of the find and make recommendations to USACE. Typical mitigation includes development and implementation of a detailed archaeological resources management plan to recover the scientifically consequential information from archaeological resources. Treatment for most archaeological resources consists of (but is not necessarily limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data. Under all alternatives, the inadvertent discovery of cultural resources during project activities represents a potential impact; however, implementation of Mitigation Measure C1 would reduce the potential to result in impacts on cultural resources to a less-than-significant level.

Mitigation Measure CT2-1: Treatment of Human Remains, Including Those Interred Outside of Formal Cemeteries

There are no known cemeteries, formal or otherwise, or other evidence of human internment in the SF-17 placement site. Although unlikely, given the repeated dredging and dredged material placement activities that have historically occurred at the federal navigation channels and existing placement sites, there remains the potential that previously unidentified human remains could be inadvertently uncovered with project implementation. Such disturbance of human remains represents a potential project impact. Implementation of Mitigation Measures C1 Cultural Resources Monitoring Program and C2 Treatment of Human Remains, would reduce potential impacts by identifying the procedures to be followed by the applicant in the event human remains are inadvertently exposed during project implementation.

If human remains of Native American origin are discovered during ground-disturbing activities, it is necessary to comply with state laws relating to the disposition of Native American burials that fall within the jurisdiction of the California Native American Heritage Commission (Public Resources Code Section 5097). In the event the discovery is composed entirely of—or includes—human skeletal remains, dredging activities will immediately cease and USACE's project representative will immediately contact the local coroner (county in which discovery is made) to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines.

If the coroner determines that the remains are Native American, USACE will contact the Native American Heritage Commission, who will appoint a Most Likely Descendant (MLD), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC 5097.98 (as amended by AB 2641). In accordance with PRC 5097.98, USACE

shall ensure that, according to generally accepted cultural or archaeological standards or practices, the immediate vicinity of the Native American human remains is not damaged or disturbed by further development activity until USACE has discussed and conferred, as prescribed in this section (PRC 5097.98), with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The USACE and the MLD will make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines Sec. 15064.5[d]). The agreement should take into consideration the appropriate recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. PRC allows 48 hours to reach agreement on these matters. If the MLD and the other parties do not agree on the reburial method, the project will follow Section 5097.98(b) of the PRC, which states, “the landowner or his or her authorized representative will re-inter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance”. Under all alternatives, the inadvertent disturbance of human remains represents a potential impact; however, implementation of Mitigation Measures C1 and C2 would reduce the potential to result in impacts on human remains to a less-than-significant level.

Impacts on Native American Sacred Sites or Religious Ceremonies
Waterways, including rivers and creeks, and the wildlife they contain were and are essential elements to Native American lifeways and continue to be important to contemporary Native American spiritual and ceremonial practices. Dredging may indirectly impact availability of certain wildlife and cause visual or noise considerations during ceremonies. These considerations are pursuant to EO 13007 (61 FR 26771-26772 (1996) and the American Indian Religious Freedom Act (42 U.S.C. Chapter 21 Subchapter 1 § 1996 (1978). Under all alternatives, impacts on sacred sites and/or religious ceremonies would be identified during tribal consultation and best practices would be recommended. Consultation to consider Tribal cultural resources and Native American Sacred Sites was sent by USACE to Tribes identified through the Native American Heritage Commission on 15 August 2024. Impacts would be reduced to a less-than-significant level based on the results of the Tribal consultation.

(X) Irreversible changes, irretrievable commitment of resources: Dredging vessels require the use of fossil fuels, which would be considered an irretrievable commitment of resources. Since using fossil fuels would be limited, minor, and associated with the operations of the dredge, this remains unchanged from the No Action alternative in that disposal would continue at SF-8 with the same vessels.

Identification of a permanent placement site for the purpose of beach nourishment is not considered an irreversible change or irretrievable commitment of resources.

(X) Other Cumulative effects not related to the Proposed Action:

Occurred on-site historically:

The project area constitutes coastal waters of the Pacific Ocean and as such has been subject to navigational and recreational activities in the past. There are no structures in the project area (i.e., coastal waters). Activities near the proposed site include placing dredged MSC sand at SF-8. This occurs during the regulatory agency-designated environmental work windows (where applicable) and includes both federal and non-federal O&M dredged material. Use of SF-17 would reduce placement of dredged material at SF-8 that is annually dredged from the MSC.

Likely to occur within the near future:

The expected use of the area for navigational and recreational activities is anticipated to continue into the near future. Activities adjacent to the proposed project area include continued uses of the proposed site for beneficial use of dredged material from the MSC and other approved non-federal O&M dredging projects, and direct beach nourishment using the material from MSC. Direct beach nourishment may occur in lieu of or as part of the nearshore placement of dredged sand for the purpose of storm damage reduction.

Considering historic occurrences on site and activities expected to occur in the reasonably near future, there might be periodic, albeit minimal and temporary, effects on aquatic habitat and water quality from the proposed use of SF-17. Based on historical occurrences near the project area, including SF-8 and the OBDS, these effects are determined to be less than significant. There are no adverse effects to noise, traffic, navigation, or utilities. There are expected to be cumulative beneficial effects on recreation, infrastructure protection, and safety resulting from the proposed use of the site.

Considering the environmental changes that have occurred onsite historically and those foreseeable into the future, the actions associated with the Agency-preferred alternative are not expected to result in significant adverse cumulative changes to the physical, biological, or human environment. The No-Action Alternative would involve continued use of the site as a demonstration site or placement of dredged material at SF-8, which also would not result in adverse cumulative changes to the physical, biological, or human environment.

5. SUMMARY OF INDIRECT AND CUMULATIVE EFFECTS FROM THE PROPOSED ACTION

The Proposed Action would not have significant adverse indirect or cumulative impacts on the physical, biological, and human environment. Temporary and minor adverse effects associated with the proposed and reasonably foreseeable future actions are expected to be short and would be diminished to less than significant at the completion of the individual placement episodes through strategic thin-layer placement, avoidance measures, and BMPs. Long-term impacts are anticipated to be less than significant and would not result in significant adverse cumulative impacts. The magnitude, extent, and duration of both indirect and cumulative effects of proposed designation of SF-17 are determined to be less than significant due to the nature of the proposed usage, i.e., only sandy material >80% will be used onsite, feeding the littoral cell will positively support the resiliency of Ocean Beach, and placement operations are short in duration and extent. It is also determined that the proposed project would have less than significant beneficial cumulative effects to aesthetics, safety, and recreation.

6. ENVIRONMENTAL COMPLIANCE

All appropriate environmental permits and authorizations for individual placement activities would be obtained by individual projects seeking to use this beneficial sediment placement site. Table 11 provides a list of known potential compliance requirements, and compliance with additional state statues may be required for individual projects.

Table 11: List of Potential Compliance Requirements

NEPA of 1969 (42 USC § 4321 *et seq*)
U.S. Army Corps of Engineers (USACE) Planning Regulations (Engineering Regulation (ER) 200-2-2)
Clean Air Act, as amended (42 USC § 7401 et seq)
Clean Water Act, as amended (33 USC § 1251 et seq)
Executive Order 11990, Protection of Wetlands, (42 FR 26961, 1977)
National Oceanic and Atmospheric Administration Federal Consistency Regulation (15 CFR part 930)
Coastal Zone Management Act of 1972 (16 USC § 1451 et seq)
California Coastal Act of 1976
Endangered Species Act (ESA) as amended (16 USC § 1531 et seq)
Fish and Wildlife Coordination Act (16 USC § 661et seq)
Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) - Fishery Conservation Amendments of 1996, (16 USC § 1801 et seq) – EFH
Migratory Bird Treaty Act (16 USC 703-711)
Marine Mammal Protection Act (16 USC § 1361 et seq)
National Marine Sanctuaries Act (16 USC 1§ 431 et seq)
Marine Protection Research and Sanctuaries Act of 1972 (33 USC § 1401 et seq)
National Historic Preservation Act (16 USC § 470 and 36 CFR part 800): Protection of Historic Properties
Executive Order 11593: Protection and Enhancement of the Cultural Environment
Archaeological and Historic Preservation Act of 1974, (16 USC § 469 et seq)
Abandoned Shipwreck Act of 1987, (43 USC § 2101 et seq)
Submerged Lands Act, (Public Law 82-3167; 43 USC § 1301 et seq)

7. AGENCIES CONSULTED AND PUBLIC NOTIFICATION

The following federal, state, and local agencies, and various interested local individuals have been notified of the availability of this Environmental Assessment for review and comment. A Public Notice of Availability of the EA will be provided to other interested agencies, groups, and individuals.

A. Federal agencies:

U.S. Fish and Wildlife Service, Sacramento Office
National Marine Fisheries Service, Santa Rosa Office
Advisory Council on Historic Preservation
National Park Service – Golden Gate National Recreation Area

B. State and local agencies:

Bay Conservation and Development Commission
California Coastal Commission
California Department of Fish and Wildlife, Bay Delta Region Office
State Historic Preservation Officer
California State Lands Commission
San Francisco Regional Water Quality Control Board

Other organizations

1. San Francisco Library Central Branch

8. MITIGATION MEASURES

Avoidance and minimization measures for potential impacts associated with the Proposed Action are generally described with the relevant resources in Section 4 and specifically listed in Appendix B. Additionally, various BMPs listed in Section 9 below and described in Appendix B will be implemented during the Proposed Action to prevent any adverse impacts. With implementation of these BMPs and measures, no significant adverse impacts to environmental resources are expected to result from the Agency-preferred alternative.

9. SITE USE AND MANAGEMENT

The designation of SF-17 will include the following operational constraints:

9.1. USERS OF SF-17

The USACE (including its dredging contractors) will be the primary user of SF-17. It will use self-propelled hopper dredges to place clean sand at the site from maintenance dredging of the MSC and other federal navigation channels in the region. At this time, SF-17 will NOT be available for users other than USACE or for projects not placing material via self-propelled vessels. Other dredgers who have acceptable quality sand may continue to be permitted to place sand at the eastern portion of the SF-8 site.

9.2. SEDIMENT SUITABILITY PARAMETERS

Only suitable (clean) material that is predominantly (>80 percent) sand will be authorized for placement at SF-17. Sand from the MSC meets the exclusion criteria

under 40 CFR Part 230.60(a) and (b) for aquatic placement with little or no sediment testing. Nevertheless, the DMMO requires periodic confirmatory evaluation of the grain size of material dredged from the MSC. The MSC material has consistently been shown to be over 90 percent sand. The DMMO has also occasionally approved suitable sand dredged from other USACE projects in and around San Francisco Bay as suitable for placement in the eastern portion of SF-8, and this kind of material will be appropriate for placement by USACE at SF-17.

9.3. Volume Limitations

At this time, USACE and the USEPA are not proposing any limitation on the annual or overall volume of sand that can be placed at SF-17. Based on existing information, the site is expected to be capable of accepting several million cubic yards of sand over the long term. Periodic bathymetric monitoring of the placement site will continue to be conducted to determine whether mounding, which may cause draft limitations or unsafe wave conditions, is occurring. If such mounding occurs or persists, restrictions on placement volumes or locations may be imposed.

9.4. Timing Restrictions

Currently, USACE and the USEPA do not propose any seasonal or other timing restrictions on placement operations at SF-17. It is expected that the greatest volume of sand will be placed at SF-17 by USACE from its annual maintenance dredging of the MSC, which typically occurs in the late spring. Whatever the time of year, placement operations should only occur when navigation conditions are appropriately safe.

9.5. Navigation and Safety

Safety will be an overarching criterion for all placement operations. In general, sand should be placed as shallow as possible within SF-17. Specific placement location(s) within the site shall be at the discretion of the vessel's master – consistent with operational safety considering the specific placement equipment being used and the wind, wave, and current conditions immediately prior to and at the time of placement.

9.5.1. Limitations on Weather and Sea Conditions

Placing dredged sand at SF-17 shall only be allowed when weather and sea state conditions will not interfere with safe transportation and placement, and will not create risk of spillage, leaks, or other loss of material during transit. What constitutes acceptable conditions depends in large part on the characteristics and capabilities of the specific placement vessel being used and the load it is carrying. Conditions that may be perfectly manageable for one placement vessel may be inappropriate for a different vessel. The vessel's master is best able to determine on a case-by-case basis when

conditions for placement at SF-17 are acceptable, whether the alternative placement site (SF-8) should be used, or whether a placement trip should be delayed.

9.5.2. Alternative Placement Site

If the vessel master decides that weather or sea state renders sand placement at SF-17 potentially unsafe, they may place that load of sand at SF-8 (Figure 9). Dredged sand from the MSC will be placed in the part of SF-8 that is outside of the three-mile limit. Dredged sand from other projects will be placed in the portion of the SF-8 site that is inside the three-mile limit. The three-mile limit differentiates between state and federal jurisdiction in the U.S. Inside the three-mile limit is governed by state environmental agencies and the USACE under the Clean Water Act (CWA) Section 401 & 404. Outside the three-mile limit is under federal jurisdiction, primarily regulated by the EPA under the Marine Protection, Research, and Sanctuaries Act (MPRSA), also known as the Ocean Dumping Act. In all cases, conditions at SF-8 must be appropriate for the placement vessel.

9.5.3. Communication with US Coast Guard

All placement vessels shall be in direct communication with the US Coast Guard San Francisco Vessel Traffic Service (VTS) during transportation and placement operations[6] and shall comply with any navigation directives issued by the VTS. Operations at SF-17 (or SF-8) will be published in the USCG weekly Notice to Mariners.

9.5.4. Vessel Tracking

The Automatic Identification System (AIS) is an automatic tracking system used on ships and by VTS for identifying and locating vessels by electronically exchanging data with other nearby ships, AIS base stations, and satellites. AIS information supplements marine radar, which continues to be the primary method of collision avoidance for water transport. Dredging vessels placing material at either SF-17 or SF-8 must be using an AIS system.

In addition to AIS, each placement vessel shall be equipped with sensors and satellite tracking systems that record placement location and load information for all operations at SF-17 (and SF-8 if used as an alternate placement site for any loads). No placement trip may be initiated if the tracking system described above is not operational. If the tracking system fails during transit or placement operations, that

6 The VTS uses radar, closed-circuit television and VHF-FM radiotelephone to gather information, and uses VHF-FM radiotelephone to disseminate information. Information provided by the VTS is mostly generated from vessel reports; this information can therefore be no more accurate than the reports received from mariners coupled with the ability of VTS equipment to verify those reports. Consequently, the VTS may not have first-hand knowledge of hazardous circumstances existing in the VTS area. Unreported hazards may still confront mariners at any time. This service does not in any way supersede or alter applicable Navigation Rules. The owner, operator, charterer, master, or person directing the movement of the vessel remains at all times responsible for the manner in which the vessel is operated and maneuvered, and is responsible for the safe navigation of the vessel under all circumstances (https://www.pacificarea.uscg.mil/Our-Organization/District-11/District-Units/Sector-San-Francisco/VTS-San-Francisco/).

placement trip may be completed, at the vessel master's discretion consistent with safe navigation, using the vessel's separate navigation system. In such a case, the vessel's master must manually report the estimated placement coordinates. No further placement trips may be initiated with that placement vessel until the primary tracking system is restored to full operability.

9.6. Site Monitoring

Bathymetric monitoring of the placement site and the nearby littoral zone will be conducted by USACE at least annually in any year that placement at SF-17 is planned to occur (https://www.spn.usace.army.mil/Missions/Surveys-Studies-Strategy/Hydro-Survey/San-Francisco-Harbor-Disposal-Site-SF-17/). The purpose of the monitoring is to ensure continual safe operations, and to evaluate the degree to which placed sand is benefitting the beach and littoral system in the area. Individual surveys will be posted on the District's hydrographic survey web site[7]. Annual placement volumes will also be summarized in DMMO Annual Reports.

10. DETERMINATIONS AND STATEMENT OF FINDINGS

No significant direct, indirect, or cumulative adverse impacts to the physical, biological, or human environment are expected from either the Agency-preferred alternative or the No-action alternative. The No-action alternative will result in no change to the existing condition of environmental resources in and around the action area. Conversely, the agency-preferred alternative is expected to benefit resiliency for beach users and the adjacent infrastructure.

[7] https://www.spn.usace.army.mil/Missions/Surveys-Studies-Strategy/Hydro-Survey/San-Francisco-Harbor-Disposal-Site-SF-17/

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APPENDIX A: AVOIDANCE AND MINIMIZATION MEASURES

In addition to the overall site use limitations listed in Section 9, the following standard BMPs will be applied to prevent water quality impacts from pollution due to debris, fuels, oils, lubricants, and other harmful materials. Vessels and equipment that are used during a project will be fueled and serviced in a manner that will not affect water quality.

Equipment and Fueling

- Well-maintained equipment will be used to perform the work, and except in the case of a failure or breakdown, maintenance will be performed off site. Equipment will be inspected daily by the operator for leaks or spills. If leaks or spills are encountered, the source of the leak will be identified, the leak will be cleaned up, and the cleaning materials will be collected and will be properly disposed.
- Fueling of marine-based equipment will occur at designated off-site safe locations. Fueling of land-based equipment will occur in a staging area or over pavement, and the location will be inspected after fueling to document that no spills have occurred. Spills will be cleaned up immediately using spill response equipment.
- Offsite fueling will occur at locations covered under the Regional Water Quality Control Boards National Pollutant Discharge Elimination System (NPDES) industrial storm water permit (SIC Code 4493).

Hazardous Materials

- A Spill Prevention Control and Countermeasure (SPCC) plan will be prepared to address the emergency cleanup of any hazardous material and will be available on site.

Environmental Protection Plan (EPP)

- A project specific EPP is incorporated into the SPCC, hazardous waste BMPs, and emergency planning requirements to ensure that operations will not adversely affect water quality. The federal hopper dredges *Essayons* and *Yaquina* each have a project specific EPP; contract hopper dredges will be required to have an EPP and SPCC.

APPENDIX B: COMMENTS RECEIVED ON THE DRAFT ENVIRONMENTAL ASSESSMENT

Commentor: Kevin Lunde, San Francisco Bay Regional Water Quality Control Board
Received: May 23, 2025 Format: email

Comment:
The Water Board supports the formal establishment of SF-17 as a nearshore beneficial-use placement site. We agree with the USACE and U.S. EPA conclusion in the draft Environmental Assessment that dredged sand placed within SF-17 should be considered beneficial reuse because it will nourish the Ocean Beach area.

Response:
Acknowledge

For further information regarding this document, contact:

Jamie Rose Sibley Yin
US Army Corps of Engineers, San Francisco District
450 Golden Gate Avenue, 4th Floor
San Francisco, CA 94103-3404
(415) 503-2905
Jamie.R.Yin@usace.army.mil

This document was reviewed by the following individuals:

Sahrye Cohen
Manager, Wetlands and Ocean Section
US Environmental Protection Agency, Region IX

Jennifer Siu
Physical Scientist
US Environmental Protection Agency, Region IX

Peter Mull
Project Manager
US Army Corps of Engineers, San Francisco District

Liesel Sanstrom
Environmental Manager
US Army Corps of Engineers, San Francisco District

Rose Wang
Assistant District Counsel
US Army Corps of Engineers, San Francisco District

Brandon Beach
Chief, Public Affairs
US Army Corps of Engineers, San Francisco District

Eric Jolliffe
Environmental Manager
US Army Corps of Engineers, San Francisco District