FINAL

ENVIRONMENTAL ASSESSMENT

For

NBPL PIER 5000 NORTH SIDE OUTER BERTH AND PIER APPROACH DREDGING

at

Naval Base Point Loma, San Diego, California

June 2019

NAVFAC
Naval Facilities Engineering Command
NAVFAC SOUTHWEST

NAVAL BASE POINT LOMA

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Abstract

Designation:	Environmental Assessment
Title of Proposed Action:	NBPL Pier 5000 North Side Outer Berth and Pier Approach Dredging
Project Location:	Naval Base Point Loma
Lead Agency for the EA:	Department of the Navy
Cooperating Agency:	Not applicable
Affected Region:	San Diego County, California
Action Proponent:	Naval Facilities Engineering Command Southwest
Point of Contact:	NBPL Pier 5000 North Side Outer Berth and Pier Approach Dredging Project Manager Department of the Navy Naval Facilities Engineering Command Southwest, Coastal 1220 Pacific Highway San Diego, CA 92132-5190
Date:	June 2019

Naval Facilities Engineering Command, Southwest, a Command of the United States Navy (hereinafter, jointly referred to as the Navy), has prepared this Environmental Assessment in accordance with the National Environmental Policy Act, as implemented by the Council on Environmental Quality Regulations and Navy regulations for implementing National Environmental Policy Act. The Proposed Action would dredge approximately 110,619 cubic yards of San Diego Bay bottom material over 90 days, to support continued Navy submarine fleet operations at Naval Base Point Loma. This Environmental Assessment evaluates the potential environmental impacts associated with two action alternatives (i.e., Proposed Action and the Reduced Dredging Footprint Alternative) and the No Action Alternative on the following resource areas: marine biological resources, water resources, hazardous materials and wastes, noise, air quality and greenhouse gases, and transportation and traffic.

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EXECUTIVE SUMMARY

ES.1 Proposed Action

The United States Navy (Navy) proposes to dredge sediment in the North Side Outer (NSO) berth and pier approach areas in the vicinity of Pier 5000 at Naval Base Point Loma (NBPL) to reach depths of -42.5 feet (ft) mean lower low water (MLLW) north of Pier 5000 to the main navigation channel of San Diego Bay (Bay). The proposal includes the potential disposal of dredge sediments at nearshore replenishment sites, offshore disposal sites, or upland disposal sites.

This Environmental Assessment (EA) addresses the potential environmental impacts of the Proposed Action, the Reduced Dredging Footprint Alternative, and the No Action Alternative.

ES.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide adequate deep-water berthing capability at Pier 5000 to satisfy operational requirements for navigation and berthing per the 2015 established requirements.

The need for the Proposed Action is to ensure NBPL's capability to berth all classes of submarines in the Pacific Fleet, furthering the Navy's ability to train and equip combat-capable naval forces ready to deploy worldwide.

ES.3 Alternatives Considered

Three alternatives are carried forward for detailed analysis in this EA: (1) the Proposed Action; (2) Reduced Dredging Footprint Alternative, and (3) No Action Alternative. Under Alternatives 1 and 2, options for dredge disposal were also identified and are evaluated herein.

ES.4 Summary of Environmental Resources Evaluated in the EA

The Council on Environmental Quality regulations, National Environmental Policy Act (NEPA), and Navy instructions for implementing the National Environmental Policy Act specify that an Environmental Assessment (EA) should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

The following resource areas have been addressed in this EA: air quality and greenhouse gases; water resources; hazardous materials and wastes; noise; biological resources; transportation and traffic; topography, geology, and soils; public services and utilities; aesthetics and visual quality; land use; socioeconomics and environmental justice; cultural resources; and public health and safety. Resources potentially subject to impacts were: air quality and greenhouse gases, water resources, hazardous materials and wastes, noise, biological resources, and transportation and traffic.

ES.5 Summary of Potential Environmental Consequences of the Action Alternatives and Major Mitigating Actions

Table ES-1 provides a tabular summary of the potential impacts to the resources associated with each of the alternative actions analyzed followed by the respective avoidance and minimization measures for the Proposed Action, Reduced Dredging Footprint Alternative, and No Action Alternative. Chapter 3 provides a detailed discussion of environmental consequences for the six resources that would potentially be subject to project impacts. As described in Table ES-1, implementation of the Proposed Action, Reduced

Dredging Footprint Alternative, or No Action Alternative would not result in significant impacts to any of the analyzed resource areas.

ES.6 Public Involvement

The Navy published a Notice of Availability of the Draft EA in the *San Diego Union-Tribune* on 5, 6, and 7 April 2019. The Notice described the Proposed Action, solicited public comments on the Draft EA, provided dates of the 15-day public comment period, and announced that a copy of the EA would be available for review on the Navy Region Southwest website (http://www.cnic.navy.mil/regions/cnrsw.html) and at the San Diego Central, Ocean Beach, and Point Loma/Hervey libraries. The Draft EA was made available for public review beginning on April 5, 2019 and ending on April 20, 2019.

Table ES-1. Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Air Quality	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet the submarine operational depth requirements. Therefore, there would be no significant impacts to air quality. **Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	Air quality impacts from dredging and sediment disposal activities would largely be combustion emissions originating from the use of fossil-fuel-powered equipment. Because of the nature of the Proposed Action, earthmoving and grading would not be required; dredging activities would not generate fugitive dust because the marine sediments that would be dredged are wet. Dredging operations would take place 24 hours per day for approximately 90 days to remove approximately 110,619 cubic yards. Estimated emissions would be below the *de minimis* threshold levels for Clean Air Act conformity. Therefore, implementation of the Proposed Action would not result in significant impacts to air quality. **Avoidance and Minimization Measures** Under the Proposed Action, avoidance and minimization measures would not be required.	Under the Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity would be approximately 102,637 cy and dredging duration would be 84 days. Therefore, the Reduced Dredging Footprint Alternative has lesser impacts than the Proposed Action. There would be no significant impacts to air quality. **Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would not be necessary.
Water Resources	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet submarine operational depth requirements. Existing conditions would remain unchanged. Therefore, no impacts to water resources would occur under the No Action Alternative.	Dredging operations would temporarily increase water movement in the area where dredging would occur, but the effect would be strictly limited to the duration of the dredging period and work area. The minor changes to bathymetry would not be sufficient to affect circulation patterns in the Bay. Therefore, dredging associated with the Proposed Action would not have a significant impact to bathymetry and circulation.	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and duration would be reduced. Therefore, the Reduced Dredging Footprint Alternative would have lesser impacts than the Proposed Action and would not result in significant impacts to water resources.

Table ES-1. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Water Resources (continued)	**Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	Sediment samples from the Pier 5000 dredging area were collected in January and February 2019 and tested in accordance with regulations in Title 40 CFR Parts 220–228. The sediment characterization report will be provided to USEPA and USACE for review and comment. It is anticipated that the sediment characterization and chemistry test results will meet the allowable parameters for unconfined aquatic disposal due to the fact that the project area in particular, and the NBPL waterfront in general, has repeatedly and historically met these parameters and because of the area's high-velocity currents that scour the native bay floor surface and prevent sedimentation of fine particulates (silty fine material) that would otherwise contain and retain contaminants. Sediments across the proposed project footprint are expected to exhibit the same characteristics and to be found suitable for unconfined aquatic disposal through Tier III ITM/Green Book testing results, as verified by USEPA and USACE. Increases in turbidity would be reduced due to the physical characteristics of the dredged materials (mainly sand) and would be limited to the immediate vicinity of the operation. Decreases in levels of light penetration and dissolved oxygen would occur only within a few hundred feet	**Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would be identical to those associated with the Proposed Action.

Table ES-1. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Water Resources (continued)		of the dredging site and would end several hours after the cessation of dredging activities, making a permanent decline in aquatic primary productivity unlikely. The material to be dredged is believed to be mostly sand. Based upon the sand content of the proposed dredged material as well as the results of previous dredged material evaluations conducted at NBPL in the vicinity of the Pier 5000 site, it is believed that elevated levels of contaminants are unlikely to occur onsite or to potentially cause dredging-induced mobilization of significant levels of dissolved-phase contaminants into the water column. Impacts to water quality due to increased turbidity, therefore, would not be significant. Therefore, impacts to water quality would not be significant. **Avoidance and Minimization Measures** Implementation of the Proposed Action or the Reduced Dredging Footprint Alternative would not result in significant impacts to water resources. Therefore, implementation of the Proposed Action would not result in the need to implement avoidance and minimization measures. Normal best management practices (BMPs) would be followed during dredging, such as requiring the dredging contractor to have and deploy, as needed, spill kits and cleanup supplies.	

Table ES-1. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Biological Resources	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet the submarine operational depth requirements. Existing conditions would remain unchanged. Therefore, there would be no impacts to marine biological resources under the No Action Alternative. **Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	Implementation of the Proposed Action would result in temporary habitat disturbance from an increase in turbidity and underwater noise generated during dredging activities, which is expected to last 90 days. Physical disturbance would result in the short-term loss of marine benthic organisms. Turbidity would persist throughout dredging activities; however, it would vary spatially based on currents and sediment grain size. Turbidity plumes from dredging are expected to persist for several hours following dredging activities. Additionally, fish are expected to temporarily leave the project area. These impacts are not considered significant because affected areas would be recolonized by affected benthic and fish communities within 12 months. Dredging activities would result in the temporary displacement of marine birds and minimal alterations to foraging conditions and/or prey availability. These impacts would not be significant because of their limited scale and duration. Further, dredging would occur outside the California least tern breeding season. Underwater noise generated during dredging activities would disturb fish and marine mammals within the vicinity. As a result, fish and marine mammals may leave the project area during the	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and duration would be reduced. Therefore, there would be no significant effect on marine benthic organisms, marine birds, fish, marine mammals, green sea turtles, and California least tern populations or habitats as a result of the Reduced Dredging Footprint Alternative and would have lesser effect. **Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would be identical to those associated with the Proposed Action.

Table ES-1. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Biological Resources (continued)		duration of dredging activities. Implementation of avoidance and minimization measures would prevent impacts to fish and marine mammals. Additionally, increased underwater noise and activity would not vary substantially from normal levels of activity in the immediate area and would cease when dredging activities ended. Project activities are not expected to adversely affect highly mobile marine mammals following implementation of avoidance and minimization measures listed below, including monitoring during dredging activities. Therefore, there would be no reasonably foreseeable harassment or "take" of marine mammals, as defined by the Marine Mammal Protection Act (MMPA). Under NEPA, no significant impacts to marine mammals would result from the Proposed Action. In summary, implementation of the Proposed Action would result in no significant impacts to marine biological resources. **Avoidance and Minimization Measures** The following avoidance and minimization measures would be taken during the proposed dredging activities. In addition, the project's surface area would be visually scanned for the presence of marine mammals and sea turtles prior to commencement of in-water dredging activities.	

Table ES-1. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Biological Resources (continued)		Dredging activities would occur outside of the California least tern breeding season (April 1 – September 15). A pre-dredging survey for *Caulerpa* (*Caulerpa taxifolia*), an invasive alga, would be conducted consistent with National Marine Fisheries Service and California Department of Fish and Wildlife requirements. If *Caulerpa* is found in the project area during this survey, National Marine Fisheries Service-approved *Caulerpa* Control Protocols would be followed. During project implementation, dredging activities would be regularly monitored to ensure no deviations from the project as described herein. Dredging activities would not employ hydraulic dredging methods.	
Noise	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet the submarine operational depth requirements. Existing conditions would remain unchanged. Therefore, the No Action Alternative would have no significant impacts with respect to noise.	Under the Proposed Action, airborne noise would be produced from dredging equipment, tugboats and barges, and associated human activity. Noise from grab dredging is relatively quiet in comparison to the Bay's ambient sound levels and duration of the activity would be short-term. Dredging operations would take place 24 hours per day for approximately 90 days. Underwater noise associated with dredging activities would temporarily disturb fish and, if present, marine mammals and sea turtles in the vicinity of the	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and duration would be reduced. Dredging noise generated under this alternative would be generally consistent with the industrial waterfront nature of NBPL and would not permanently alter the overall noise environment. Therefore, implementation of the Reduced Dredging Footprint Alternative would have no significant impacts with respect to noise and

Table ES-1. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Noise (continued)	**Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	project site. However, impacts would be limited in scale and would be temporary. Therefore, impacts would not be significant. Noise associated with implementation of the Proposed Action would be generally consistent with the industrial waterfront area and would not significantly alter the overall airborne or underwater noise environment. Activities associated with the Proposed Action are temporary; therefore, noise generated from dredging would similarly be short-term. As such, implementation of the Proposed Action would not have a significant short- or long-term impact with respect to noise. Therefore, impacts would not be significant. **Avoidance and Minimization Measures** Under the Proposed Action, avoidance and minimization measures would be necessary.	because of the reduced duration would result in lesser impacts. **Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would not be necessary.
Transportation and Traffic	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet the submarine operational depth requirements. Therefore, there would be no significant impacts to transportation and/or traffic.	Under the Proposed Action, one or a combination of the following disposal options would occur. The primary traffic-related impacts would be to vessel transportation in the Bay and Pacific Ocean or between the confined drying facility and Otay Landfill. <u>Nearshore Replenishment – Beneficial Reuse Option</u> The primary traffic-related impacts under implementation of the Nearshore Replenishment Option would be to vessel transportation within the Bay and Pacific	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and duration would be reduced. Fewer barge or truck trips associated with sediment disposal would be necessary. Therefore, under the Reduced Dredging Footprint Alternative, there would be no significant impacts to vessel or ground transportation and lesser impacts than the Proposed Action.

Table ES-1. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Transportation and Traffic (continued)	**Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	Ocean. Approximately 69 round trips would be necessary to transport dredged sediment from the dredge site to the disposal site. There would be less than significant impacts to vessel transportation as a result of implementation of the Nearshore Replenishment Option of the Proposed Action. <u>Ocean Disposal Option</u> The primary traffic-related impacts under implementation of the Ocean Disposal Option would be to vessel transportation within the Bay and Pacific Ocean. Approximately, 138 round trips, at two trips per day, would be necessary to transport the dredged sediment from the dredge sites to the Ocean Dredged Material Disposal Site (ODMDS) LA-5. There would be temporary and less than significant impacts to vessel transportation as a result of implementation of the Ocean Disposal Option of the Proposed Action. <u>Upland Disposal Option</u> The primary traffic-related impacts under implementation of the Upland Disposal Option would be to truck trips between the designated confined drying facility and the Otay Landfill. Approximately 9,218 truck trips would be necessary to transport the dredged sediment from the confined drying facility to the Otay Landfill disposal site. There would be temporary and less than significant impacts to	**Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would be identical to those associated with the Proposed Action.

Table ES-1. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Transportation and Traffic (continued)		level of service on the local road network as a result of implementation of the Upland Disposal Option of the Proposed Action. **Avoidance and Minimization Measures** Implementation of the Nearshore Replenishment Option, Ocean Disposal Option, or Upland Disposal Option would not require any avoidance or minimization measures.	
Hazardous Materials and Wastes	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet the submarine operational depth requirements. Existing conditions would remain unchanged. Therefore, no impacts from hazardous materials or substances would occur under the No Action Alternative. **Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	Sediment testing and characterization will be completed for the sediment samples from the Pier 5000 dredging area. All dredged sediment disposal operations performed under the Proposed Action would comply with CWA Section 404 and be in accordance with a dredging permit issued by USACE, and CWA Section 401 Water Quality Certification from the San Diego Regional Water Quality Control Board. Implementation of the Proposed Action would result in a less than significant impact from hazardous materials and wastes. **Avoidance and Minimization Measures** Implementation of the Proposed Action or the Reduced Dredging Footprint Alternative would not result in significant impacts from hazardous materials and wastes. Therefore, implementation of the Proposed Action would not result in the need to implement avoidance and	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and duration would be reduced. Therefore, the Reduced Dredging Footprint Alternative would have a less than significant impact and overall less impact than the Proposed Action. **Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would not be necessary.

Table ES-1. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Hazardous Materials and Wastes (continued)		minimization measures. Typical BMPs would be followed during dredging, such as requiring the contractor to have and deploy, as needed, spill kits and cleanup supplies.	

Final Environmental Assessment

NBPL Pier 5000 North Side Outer Berth and Pier Approach Dredging Naval Base Point Loma, California

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Appendix A Correspondence With Other Government Agencies

Appendix B Air Quality Analysis and RONA

Appendix C Essential Fish Habitat Assessment

Abbreviations and Acronyms

Acronym	Definition
ACM	asbestos-containing material
ADT	average daily trips
AICUZ	Air Installation Compatible Use Zone
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
ANSI	American National Standard Institute
APE	Area of Potential Effect
ASW	anti-submarine warfare
Basin Plan	Water Quality Control Plan for the San Diego Basin
Bay	San Diego Bay
BCC	Birds of Conservation Concern Status
BMP	best management practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCC	California Coastal Commission
CCR	California Code of Regulations
CDF	confined drying facility
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm	centimeters
CNEL	community noise equivalent level
CNM	Cabrillo National Monument
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CONBPL	Commanding Officer Naval Base Point Loma
CSS-11	Commander, Submarine Squadron 11
CTR	California Toxics Rule
CWA	Clean Water Act
cy	cubic yards
CZMA	Coastal Zone Management Act
dB	decibels
dBA	A-weighted sound level
dBPEAK	peak decibels
dBSEL	sound exposure level decibels
dBRMS	root mean square decibels
DEH	San Diego County Department of Environmental Health
DERP	Defense Environmental Restoration Program
DNL	day-night average sound level
DoD	United States Department of Defense
DON	United States Department of the Navy
DOSITS	Discovery of Sound in the Sea
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act

Acronym	Definition
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FICUN	Federal Interagency Committee on Urban Noise
FITCPAC	Fleet Intelligence Training Center Pacific
FMP	Fishery Management Plan
FONSI	Finding of No Significant Impact
ft	foot/feet
GHG	greenhouse gas
GPS	Global Positioning System
H_2S	hydrogen sulfide
HAP	hazardous air pollutant
HAPC	habitat areas of particular concern
Hz	hertz
in	inches
INRMP	Integrated Natural Resource Management Plan
ITM	Inland Testing Manual
LBP	lead-based paint
Leq	Equivalent Sound Level
L_{max}	maximum A-weighted sound level
ln	natural logarithm
LOS	level of service
m	meters
m^3	cubic meters
MBTA	Migratory Bird Treaty Act
mg	milligram
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
mL/L	milliliters per liter
MLLW	mean lower low water
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
MPRSA	Marine Protection, Research, and Sanctuaries Act of 1972
MSAT	Mobile Source Air Toxic
MSDS	Material Safety Data Sheet
MSF	magnetic silencing facility
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NA	not available or not applicable
NAAQS	National Ambient Air Quality Standards
NABC	Naval Amphibious Base Coronado
NAVFAC SW	Naval Facilities Engineering Command Southwest
NAVSEA	Naval Sea Systems Command
Navy	United States Navy
NBPL	Naval Base Point Loma
NBSD	Naval Base San Diego
NEPA	National Environmental Policy Act
NIOSH	National Institute for Occupational Safety and Health
NIPTS	noise induced permanent threshold shift
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRSW	Navy Region Southwest
NSO	North Side Outer
NTU	nephelometric turbidity units
O_3	ozone
ODMDS	Ocean Dredged Material Disposal Site
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Office of the Chief of Naval

Acronym	Definition
	Operations Instruction
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
PAH	polycyclic aromatic hydrocarbon
Pb	lead
PCB	polychlorinated biphenyl
PFMC	Pacific Fishery Management Council
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTS	Permanent Threshold Shift
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act
RHMP	Regional Harbor Monitoring Program
RMS	root-mean square
RMS re: 1 µPA	root-mean square referenced to one micro-Pascal
ROI	region of influence
RONA	Record of Non-Applicability
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SCCWRP	Southern California Coastal Water Research Project
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SEL	sound exposure level
sq ft	square feet
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPL	sound pressure level
sq ft	square feet
SSC	Species of Special Concern
SSC Pacific	Space and Naval Warfare Systems Command Pacific
SUAD	suitability for unconfined aquatic disposal
TMDL	total maximum daily load
tpy	tons per year
TSCA	Toxic Substances Control Act
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USCG	United States Coast Guard
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound
µg	micrograms
µg/L	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
µPA	microPascals

1 Purpose of and Need for the Proposed Action

1.1 Introduction

The United States Navy (Navy) has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.]); Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] Sections 1500–1508) and associated CEQ guidelines; and Navy regulations for implementing NEPA (32 CFR Part 775).

> 10 U.S.C. Section 5062: "The Navy shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations at sea. It is responsible for the preparation of naval forces necessary for the effective prosecution of war except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Navy to meet the needs of war."

Naval Base Point Loma (NBPL) is part of Navy Region Southwest, the naval shore installation management headquarters for the Southwest region (California, Arizona, Nevada, Utah, New Mexico, and Colorado). Navy Region Southwest is responsible for ensuring safety and providing infrastructure shore support for approximately one sixth of the entire United States Fleet homeported in the San Diego Bay (Bay) region (Naval Facilities Engineering Command Southwest [NAVFAC SW] 2007). NBPL was first set aside for military purposes in 1852, and the Navy Submarine Support Facility was established in November 1963. In November 1974, NBPL was redesignated a shore command, serving assigned submarines (Submarine Group FIVE, Submarine Squadron THREE, and Submarine Development Group ONE), the Submarine Training Facility and later, Commander, Submarine Squadron 11 (CSS-11). Since 1995, several commands have been decommissioned or their homeports changed to meet downsizing requirements of the Navy. Commands throughout the San Diego area were regionalized in an effort to provide equal or better base services while managing a reduced budget. As a result of this initiative, the six naval installations on Point Loma were consolidated under Commander Navy Region Southwest as NBPL on 1 October 1998 (NAVFAC SW 2007).

Pier 5000 was constructed in 1962 at NBPL and refurbished in 1991 (NAVFAC SW 2007). Historically, Pier 5000 has been used for berthing large submarines. Historic dredging activities at the Pier 5000 site occurred in the 1940s; more recently, maintenance dredging occurred in 2014 (Peeling 1975 and Navy Region Southwest [NRSW] 2012). A map from the Port of San Diego archives identifies Bay dredging projects between 1935 and 1960 and shows that the Pier 5000 site was dredged to a depth of -36 feet (ft) mean lower low water (MLLW) in 1940. A 2013 dredging project achieved a bottom depth at Pier 5000 of -40 ft MLLW.

1.2 Location

The approximately 15.60-acre (679,451-square-foot [sq ft]) project site is located within NBPL, which is situated on the western side of San Diego Bay, near the mouth of the Bay directly opposite Naval Air Station North Island (Figure 1-1) (NAVFACSW 2019). NBPL is bordered by the communities of La Playa to the south and Sunset Cliffs to the north, to the south and west by the Pacific Ocean, and to the east by the Bay.

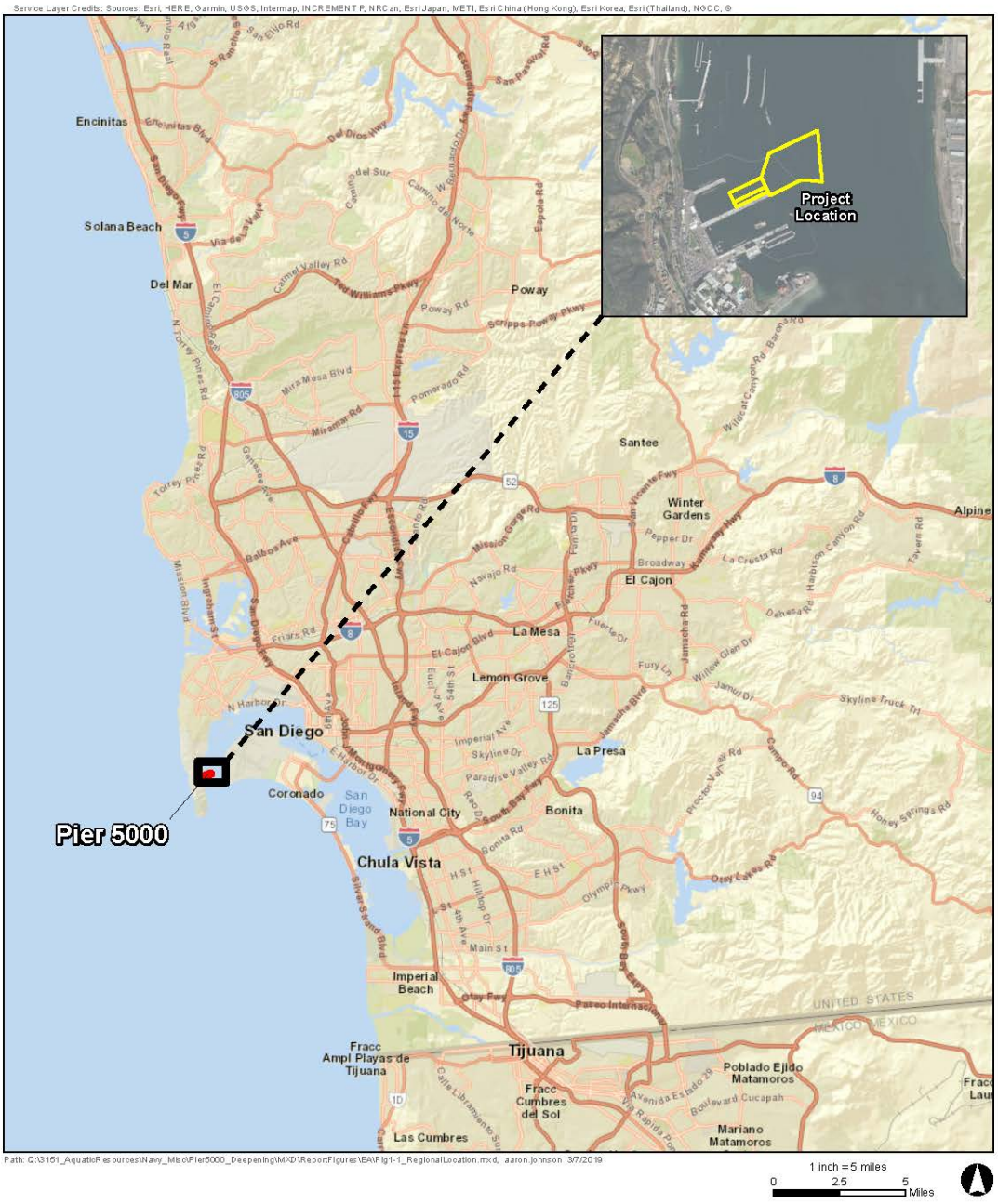

FIGURE 1-1
Regional Location
Pier 5000 North Side Outer Berth
and Pier Approach Dredging
Naval Base Point Loma, San Diego, CA

1

Figure 1-1. Regional Location

1.3 Purpose of and Need for the Proposed Action

In 2015, new submarine water depth requirements were updated for inner harbor and pier-side berths to accommodate all current Navy fleet and future vessels (Naval Sea Systems Command [NAVSEA] Memo 3120 Ser 39T236/088). This updated requirement resulted in a finding that both the berth and transit area for Pier 5000 did not provide adequate berth width and vertical clearance (-42.5 ft MLLW), pursuant to NAVSEA Memo 3120 Ser 39T236/088, for the navigation and berthing of large submarines, including "Jimmy Carter" and Ohio class vessels. The purpose of the Proposed Action is to provide adequate deep-water berthing capability at Pier 5000 to satisfy operational requirements for navigation and berthing per the 2015 established requirements. Therefore, Naval Facilities Engineering Command Southwest (NAVFAC SW), a Command of the US Navy (hereinafter, jointly referred to as the Navy) proposes to conduct dredging activities at the berth and approach areas of Pier 5000 at NBPL.

The need for the Proposed Action is to ensure NBPL's capability to berth all classes of submarines in the Pacific Fleet, furthering the Navy's ability to train and equip combat-capable naval forces ready to deploy worldwide. Current depth conditions at the berth and in the approach area to Pier 5000 do not meet these clearance requirements; therefore, Pier 5000 cannot support berthing of all classes of deep-draft submarines that are currently projected to moor at the pier. Submarines currently use both Pier 5002 and 5000; however, Pier 5002 is at capacity and Pier 5000 is required to moor deep-draft transient vessels. In this regard, the Proposed Action furthers the Navy's execution of its congressionally mandated roles and responsibilities under 10 U.S.C. Section 5062.

1.4 Decision to be Made

The decision to be made as a result of the analysis in this EA is first to determine whether an Environmental Impact Statement (EIS) needs to be prepared. An EIS would be required if it is anticipated that the Proposed Action would have significant impacts to the human or natural environment. Should an EIS not be deemed necessary, the Proposed Action or an alternative action from this EA would be selected for implementation. This selection would be documented in a Finding of No Significant Impact (FONSI).

1.5 Scope of Environmental Analysis

Prior to the preparation of this EA, NAVSEA Memo 3120 Ser 39T236/088, dated March 2015, established submarine depth of water requirements for inner harbor and pier-side berths, including an operational depth of -42.5 ft MLLW at Pier 5000. Results from a previous sediment testing effort at Pier 5000 conducted in 2014/2015 are deemed reflective of sediment conditions at the project site and are therefore used in this EA's impact analysis. Additionally, a new sediment testing effort is underway at this project site to support regulatory decision making on sediment disposal (i.e., nearshore replenishment, unconfined aquatic disposal, and upland disposal). This EA includes an analysis of potential direct, indirect, short-term, long-term, and cumulative impacts to the human and natural environment associated with the action alternatives and the No Action Alternative.

1.6 Key Documents

Key documents are sources of information incorporated into this EA. Documents are considered to be key because of similar actions, analyses, or impacts that may apply to this Proposed Action. CEQ guidance encourages incorporating documents by reference. Documents incorporated by reference in part or in whole include:

- *Environmental Assessment Naval Base Point Loma Pier 5000 Dredging* (July 2012). This EA analyzed a previous dredging project adjacent to the northeastern side of Pier 5000 at NBPL. This analysis included dredging and sediment disposal similar to the Proposed Action but over a smaller, limited area immediately adjacent to the northside of Pier 5000.
- *Final Report Sediment Testing to Support Future Dredging at Naval Base Point Loma Pier 5000 South Side Outer Berth, Pier 5002 North Side Outer Berth, and Pier 5002 Approach Channel* (August 2015). This document is a technical report with sediment testing data and the agency suitability for unconfined aquatic disposal (SUAD) determination for the most recent dredging project in the North Side Outer (NSO) berthing area of Pier 5000.
- *Final Dredged Material Characterization Study, Pier 5000 Berth Deepening Project, Naval Base Point Loma, San Diego, California* (July 2012). This document is a technical report with sediment testing data and the agency SUAD determination for the most recent dredging project in the South Side Outer berthing area of Pier 5000.
- *Environmental Assessment, Naval Base Point Loma Piers 5000/5002/Approach Channel Dredging and Disposal Project* (2014). This EA analyzed a previous dredging project at both Pier 5000 and the adjacent Pier 5002 at NBPL. This analysis included dredging and sediment disposal similar to the proposed action but occurred on the south side of Pier 5000 between that pier and Pier 5002 and in the approach area connecting the north side of Pier 5002 to the main channel of San Diego Bay.
- *Final Naval Base Point Loma Integrated Natural Resources Management Plan and Appendices* (November 2012). This document is a comprehensive plan prepared in coordination with numerous federal and state resource management agencies prepared to ensure no net loss of military mission or function through management of natural resources in an adaptive ecosystem-based approach.

1.7 Relevant Laws and Regulations

The Navy has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including the following:

- NEPA (42 U.S.C. Sections 4321–4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500–1508)
- Navy regulations for implementing NEPA (32 CFR Part 775), which provides Navy policy for implementing Council on Environmental Quality regulations and NEPA
- Clean Air Act General Conformity Rule, 42 U.S.C. 7506(c)
- Clean Water Act (CWA), 33 U.S.C. 1251 *et seq.*
- Coastal Zone Management Act (CZMA), 16 U.S.C. 3505
- National Historic Preservation Act, 54 U.S.C. 300101 *et seq*.
- Endangered Species Act (ESA), 16 U.S.C. 1531 *et seq.*
- Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), 16 U.S.C. 1801–1883

- Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361-1407, P.L. 92-522) 21 October 1972, as amended
- Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA), 16 U.S.C. 1431
- Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703
- Executive Order (EO) 11988, Floodplain Management
- EO 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- EO 13693, Planning for Federal Sustainability in the Next Decade

The following agency consultations and associated permits/authorizations/concurrences would be required with implementation of the Proposed Action:

- CWA Section 404 and Rivers and Harbors Act (RHA) Section 10 permits from the United States Army Corps of Engineers (USACE) Carlsbad Field Office
- USEPA and USACE suitability determination for ocean disposal of dredged sediments
- CWA Section 401 Water Quality Certification from the San Diego Regional Water Quality Control Board (RWQCB)
- Section 103 of the MPRSA approval for dredged sediment disposal at Ocean Dredged Material Disposal Site (ODMDS) LA-5
- Concurrence from the California Coastal Commission for a Coastal Consistency Negative Determination in accordance with the CZMA.
- Concurrence from the National Marine Fisheries Service (NMFS) of the Essential Fish Habitat (EFH) analysis and determination
- Concurrence from NMFS and United States Fish and Wildlife Service (USFWS) on the informal ESA Section 7 Consultation

A description of the Proposed Action's consistency with these laws, policies, and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 5.

1.8 Public and Agency Participation and Intergovernmental Coordination

The Navy published a Notice of Availability of the Draft EA in the *San Diego Union-Tribune* on 5, 6, and 7 April 2019. The Notice described the Proposed Action, solicited public comments on the Draft EA, provided dates of the 15-day public comment period, and announced that a copy of the EA would be available for review on the Navy Region Southwest website (http://www.cnic.navy.mil/regions/cnrsw.html) and at the San Diego Central, Ocean Beach, and Point Loma/Hervey libraries. The Draft EA was made available for public review beginning on April 5, 2019 and ending on April 20, 2019.

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2 Proposed Action and Alternatives

2.1 Proposed Action

The scope of the project includes the proposed dredging and disposal of sediment from the NBPL Pier 5000 North Side Outer (NSO) berth and approach areas, as shown on Figure 2-1. The proposed dredge footprint is located outside of areas previously dredged by the Navy. Dredging is proposed to a design depth of -42.5 ft MLLW plus an additional 2 feet of allowed overdredge depth. Computer modeling for the dredge footprint resulted in a predicted pre-dredge event volume of 119,185 cy. This volume was predicted by estimating the sediment volume that may form within the dredge footprint prior to the start of dredging activities. Because this computer modeling is predictive in nature, this EA is based on the calculated dredge volume of 110,619 cy (Personal Communication James Georgo (Navy) 2019). Dredging would remove an estimated 110,619 cubic yards (cy) of sediment – comprising 17,463 cy for the NSO berth and 93,156 cy in the approach area – within a 15.60-acre total area (or 679,451 square feet [sf]).

Dredging is planned to be completed using a barge-mounted clamshell or backhoe dredge. Dredging is anticipated to take up to 90 days to complete. Dredging and sediment disposal would comply with pertinent regulatory programs, including the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA), Sections 404 and 401 of the Clean Water Act (CWA), and Section 10 of the Rivers and Harbors Act (RHA). Dredging would occur outside of the nesting season of the endangered California least tern (*Sternula antillarum browni*), which occurs from April 1 through September 15. Based on relatively recent sediment testing results for projects in the immediate vicinity, it is anticipated that the sediment onsite will be suitable for either ocean disposal or beneficial reuse.

2.2 Alternative Selection Criteria

The National Environmental Policy Act's (NEPA) implementing regulations provide guidance for considering alternatives to a federally proposed action and require rigorous exploration and objective evaluation of reasonable alternatives. Only those alternatives determined to be reasonable and to meet the purpose and need require detailed analysis.

Potential alternatives that meet the *purpose* and *need* of the action were evaluated against the following screening factors:

1. Must achieve dredging to the required operational depth of -42.5 ft MLLW for improved navigation and berthing of large submarines at the NSO berth and in the approach areas.
2. Must achieve sediment dredging and disposal in accordance with the following natural resource protection controls and programs:
    a. San Diego Bay Integrated Natural Resources Management Plan;
    b. Clean Air Act General Conformity Rule;
    c. MPRSA;
    d. CWA Section 401 and 404, and RHA Section 10 Regulatory Programs; and
    e. Coastal Zone Management Act (CZMA) and California Coastal Commission (CCC) Coastal Development Permit Program
    f. U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers' (USACE's) "Green Book" and Inland Testing Manual (ITM)
    g. Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA)

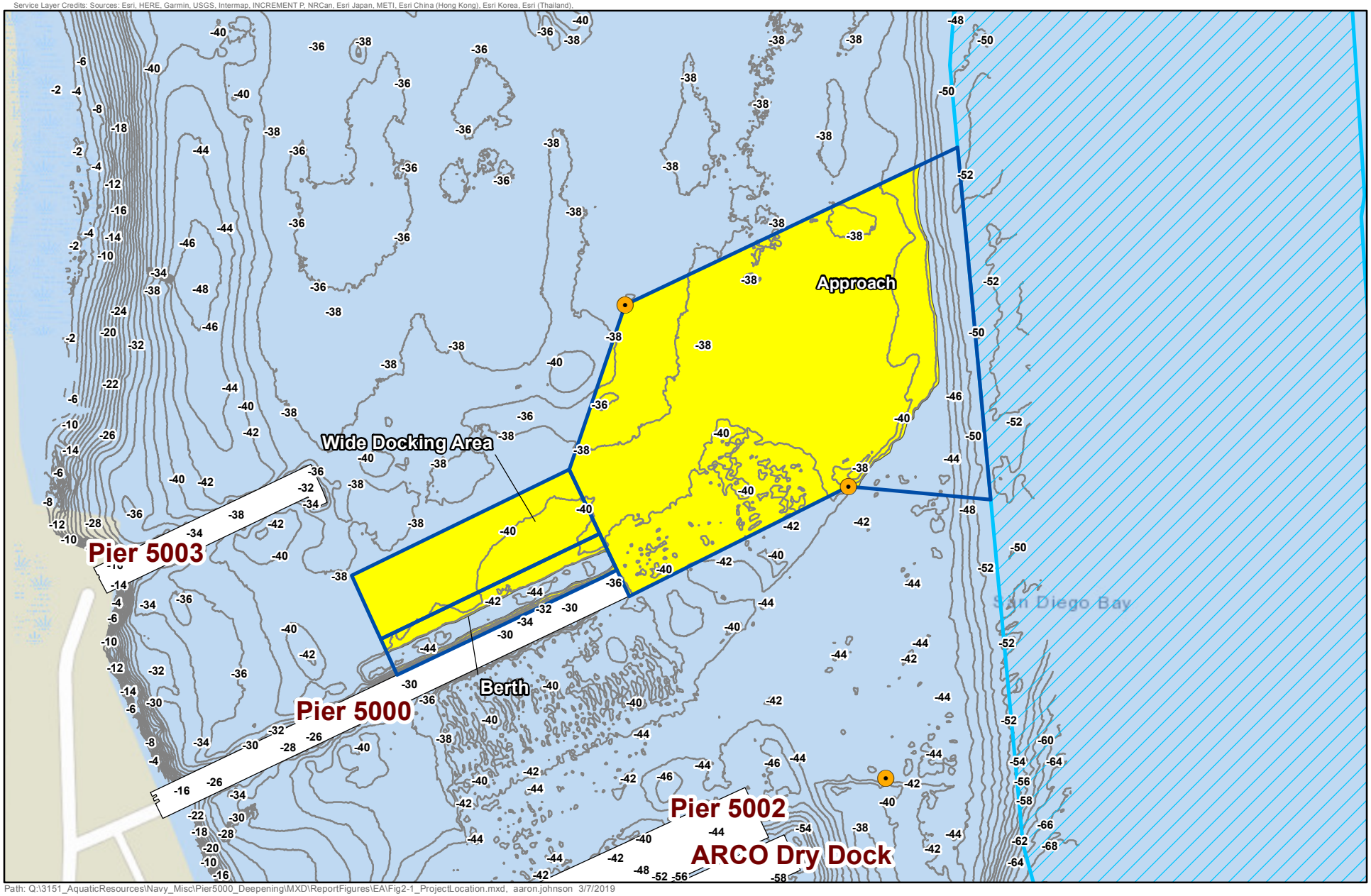


FIGURE 2-1

Project Location
Pier 5000 North Side Outer Berth
and Pier Approach Dredging
Naval Base Point Loma, San Diego, CA

Notes: MLWW = Mean Lower Low Water, OD = Over Dredge

The following alternatives were evaluated against the screening factors:

- Proposed Action
- Alternative Locations
- Reduced Dredging Footprint Alternative
- Maintenance Dredging
- No Action Alternative
- Alternative Disposal Locations/Placement.

2.3 Alternatives Carried Forward for Analysis

Three alternatives are carried forward for detailed analysis in this Environmental Assessment (EA): 1) the Proposed Action; 2) Reduced Dredging Footprint Alternative; and 3) No Action Alternative. Under Alternatives 1 and 2, alternative options for dredge disposal were also identified and are evaluated herein.

Two other alternatives – (1) Alternative Locations and (2) Maintenance Dredging – were identified but deemed not viable to satisfy the purpose and need of the action. These alternatives are presented in Section 2.4 *Alternatives Considered but not Carried Forward for Detailed Analysis*.

2.3.1 No Action Alternative

Under the No Action Alternative, and without dredging at the Pier 5000 North Side Outer (NSO) berth and approach areas, tidal restrictions at existing dredge depths would continue to limit the ability to accommodate deep-draft submarine during one-third of the year. Transient deep-draft submarines intended to berth at Pier 5000 would continue to need to be berthed at Pier 5002, which would displace submarine maintenance activities.

The No Action Alternative would not meet the purpose and need for the Proposed Action; however, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action, not simply to conclude no impact, and will serve to establish a comparative baseline for analysis.

2.3.2 Proposed Action (Preferred Alternative)

The scope of the Proposed Action involves dredging of sediment at the Pier 5000 site and offsite sediment disposal. The proposed dredging would include approximately 110,619 cy of sediment across 679,451 square feet (15.60 acres) in the Pier 5000 berth and approach areas. Specifically, the Pier 5000 NSO berth would be dredged to a depth of -42.5 ft MLLW plus an additional 2 feet of potential overdredge (Table 2-1). If suitable, the dredge material would be disposed of via ocean disposal or beneficial reuse. If the material is not suitable for in-water disposal, then upland disposal would occur.

Table 2-1. Estimated Depth and Dredging Values for the Proposed Action

Dredging Site	*Composite Area*	*Design Depth (ft MLLW)*	*Estimated Dredge Volume to Design Depth (cy)*	*Estimated Total Volume with 2-foot Over Dredge Allowance (cy)*
NSO Berth	A	-42.5	9,902	17,463
Approach Area	B		3,243	20,737
	C		4,997	29,707
	D		4,062	17,849
	E		5,169	24,863
Total	**All**	**NA**	**21,251**	**110,619**

Notes: cy = cubic yards; ft MLLW = feet mean lower low water; NA = not applicable

A previous dredging project at the Pier 5000 site in 2014 identified several underwater obstructions that will require investigation prior to the start of proposed dredging activities (Figure 2-2). Upon identification of these obstructions, a work plan for their removal would be prepared that would include appropriate disposal methods and locations. Removal of the obstructions would wholly occur within the dredge footprint identified for the Proposed Action.

Dredging would occur within a 679,451-sq-ft (or 15.60-acre) area and would last approximately 90 days (based on typical fill rate of an 800-cy barge and depending on disposal location). Dredging would be completed using a barge-mounted clamshell or backhoe dredge. Dredging activities could occur as long as 24 hours per day, based on site-specific conditions. A conservative estimate of 20 workers would be required for the duration of dredging activities to transport, set up, and operate the dredging equipment and sediment transport tugs and barges (Alberto Sanchez, personal communication 2019).

Under the Proposed Action, sediment disposal would comply with the Navy's project-specific consultations performed under the regulations and guidance documents listed above. The Proposed Action incorporates three options for sediment disposal; the executed option will be determined by sediment test results and consultation with the USEPA and USACE if the sediment meets acceptability criteria for beneficial reuse, this preferred option would be explored and analyzed to the maximum extent possible pursuant to CWA Section 404(b)(1) requiring analysis of the Least Environmentally Damaging Practicable Alternative. It is anticipated that the sediment characterization and chemistry test results will meet the allowable parameters for unconfined aquatic disposal due to the fact that the project area in particular, and the NBPL waterfront in general, has historically met these parameters and because of the area's high-velocity currents that scour the native bay floor surface and prevent sedimentation of fine particulates (silty fine material) that would otherwise contain and retain contaminants. However, if the results do not meet the allowable parameters for beneficial reuse, ocean disposal or landfill disposal options would be considered. Testing results would dictate whether a combination of the disposal options would be necessary.

The most recent dredging activities at NBPL occurred in 2014 and 2015. These sediments were determined by the USACE and USEPA to be suitable for unconfined aquatic disposal because they were found to be:

- composed primarily of clean sand;
- substantially free of chemical contamination;
- did not result in any significant toxicity to five separate sensitive marine organisms in laboratory tests; and

- did not result in any significant bioaccumulation in two separate test organisms.

Dredged material for the Pier 5000 north side outer berth and pier approach dredging project is currently undergoing the same suite of analytical analyses (i.e., chemistry, toxicity, and bioaccumulation) as those recent NBPL dredging projects. Based on the unconfined aquatic disposal approvals for recent NBPL projects, it is likely that the sediment for the current project will be also be approved for beneficial reuse and/or ocean disposal.

Future maintenance dredging may be necessary to maintain the operational depth requirement of -42.5 ft MLLW. Maintenance dredging refers to the routine removal of accumulated sediment to maintain a desired depth. Routine maintenance dredging would not include any expansion of the previously dredged area or increase in depth. Future maintenance dredging would depend on sedimentation patterns, and such maintenance dredging would be evaluated as a separate action and permitted accordingly.

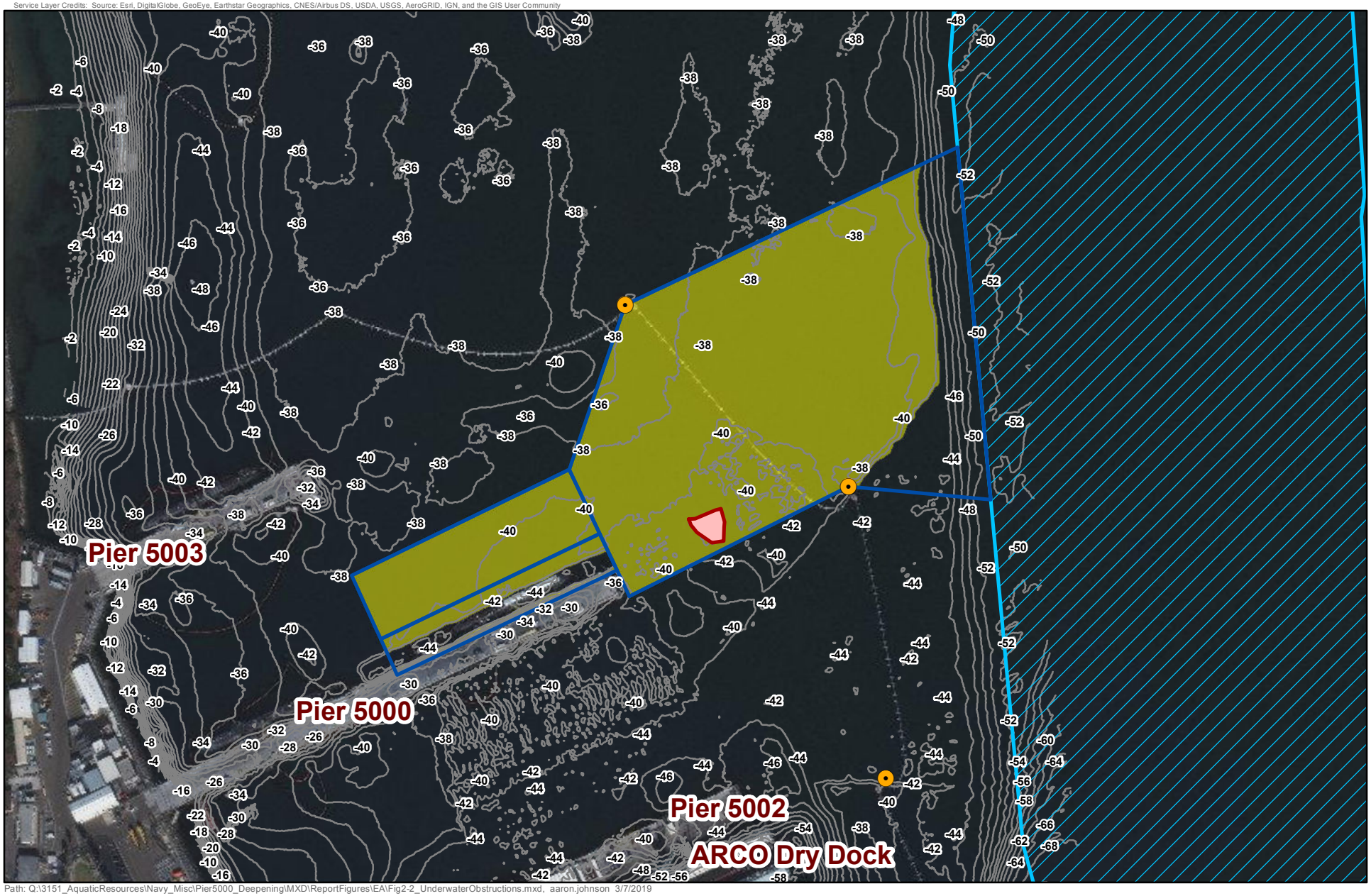


FIGURE 2-2

Underwater Obstructions
Pier 5000 North Side Outer Berth
and Pier Approach Dredging
Naval Base Point Loma, San Diego, CA

Notes: MLWW = Mean Lower Low Water, OD = Over Dredge

Option 1: Nearshore Replenishment – Beneficial Reuse

The *Nearshore Replenishment Option* involves loading the dredged sediment into barges and transporting it to a Nearshore Replenishment site for beneficial reuse. Beneficial reuse sites being considered include (1) Imperial Beach, (2) Naval Air Station North Island, and (3) Silver Strand Boat Lanes. One or a combination of sites may be used to receive the dredged material. Consistent with a recent dredging project conducted at NBPL in 2016, the average daily dredging and disposal production rate is expected to be approximately 1,350 cy (Alberto Sanchez, personal communication). The locations of the beneficial reuse sites relative to NBPL are:

- Imperial Beach, located approximately 9 miles from the Pier 5000 project site;
- Naval Air Station North Island beach, located approximately 1.5 miles from the Pier 5000 project site; and,
- Naval Base Coronado Silver Strand Training Complex beach (Silver Strand Boat Lanes), located approximately 6 miles from the Pier 5000 project site.

The round-trip durations from the dredging site to the beneficial replenishment site would vary depending on the site selected (16 hours for Imperial Beach, 10 to 12 hours for Silver Strand Boat Lanes, and 5 to 6 hours for Naval Air Station North Island) (Navy Region Southwest [NRSW] 2014). Barges would be equipped with electronic tracking devices to document that material releases occurred within the disposal site boundaries, as specified by the dredging permit. Locations of each are shown on Figure 2-3.

Option 2: Ocean Disposal

The *Ocean Disposal Option* for disposal of sediment associated with the Proposed Action involves loading the dredged sediment into barges and transporting it to LA-5 Ocean Dredged Material Disposal Site (ODMDS). The LA-5 ODMDS is a designated offshore open-water disposal site located on the ridged slope of the continental shelf at a depth of approximately 600 ft, 5.4 nautical miles from Point Loma, off the San Diego Coast. Consistent with a recent dredging project conduct at NBPL in 2016, the average daily dredging and disposal production rate is expected to be approximately 1,350 cy (Alberto Sanchez, personal communication). One tug/barge would be loaded with material at the dredge site, while the other is disposing of sediment at LA-5 ODMDS, ensuring that dredging can be completed in a timely manner while complying with LA-5 restrictions prohibiting more than one barge onsite at a time. Round trip from the Pier 5000 project site to LA-5 ODMDS is expected to take about 10 to 12 hours. The barges would be equipped with electronic tracking devices to document that material releases occurred within the disposal site boundaries, as specified in the dredging permit. The ocean disposal of dredged sediment is regulated under Section 103 of the MPRSA and disposal operations would need to comply with permitting and dredging regulations published in Title 33 Code of Federal Regulations (CFR) Parts 320 through 330 and 335 through 338 (33 CFR 320–330 and 33 CFR 335–338).

Option 3: Upland Disposal

The *Upland Disposal Option* would be implemented if it is determined that the sediment is not suitable for either beneficial reuse or ocean disposal. Upland disposal involves transporting dredged sediment via barge across San Diego Bay to an upland confined drying facility (CDF) at Naval Base San Diego (NBSD) and a round trip to that facility would be expected to take about 4 to 6 hours. Once adequately dried, the sediment would be placed on a dump scow and mixed with a thickening agent. The sediment would then be transferred to a secondary holding site and tested for pH and water content in accordance with applicable landfill requirements and then transported via large trucks to a landfill such as the Otay Landfill,

a permitted Class III Landfill (USEPA Facility Registration System ID 110000832243) located at 1700 Maxwell Road in Chula Vista, California, approximately 12.2 miles from NBSD. The landfill has a permitted maximum disposal rate of 5,830 tons per day, and it does not have a daily truck count limit.

Figure 2-3. Potential Beneficial Reuse Options

FIGURE 2-3
Potential Beneficial Reuse Options
Pier 5000 North Side Outer Berth
and Pier Approach Dredging
Naval Base Point Loma, San Diego, CA

Of the permitted maximum disposal rate of 5,830 tons per day, the landfill has the capacity to accept 1,500 to 2,000 tons per day of dried dredged sediments. For a fleet of 12-cy-capacity trucks, each carrying approximately 50,000 pounds (25 tons), the maximum number of trucks per day would be limited to 60 one-way sediment haul trips from the CDF to the Otay Landfill.

2.3.3 Reduced Dredging Footprint Alternative

The scope of the Reduced Dredging Footprint Alternative would involve reducing the NSO Berth at Pier 5000 and implementing dredging (and associated disposal of sediment) in a reduced footprint. The area width would be reduced by 50 ft from 150 to 100 ft. The required operational depth for improved navigation and berthing of large current and future submarines would remain at -42.5 ft MLLW, with an additional 2 feet of overdredge allowance. Therefore, the maximum dredge footprint for this alternative of 652,789 square ft (14.99 acres) to a depth of -42.5 ft MLLW, with an additional 2 ft of overdredge, would result in approximately 102,637 cy of sediment to be disposed of. The Reduced Dredging Footprint Alternative would limit the maneuverability and access capacity of submarines at Pier 5000 relative to the Proposed Action; however, implementation of this alternative would meet the basic purpose and need for the Proposed Action by accommodating berthing of large submarines.

Disposal locations for dredged sediment would be determined by sediment sampling and laboratory analysis and would follow Option 1, 2, or 3 referenced in the Proposed Action in Section 2.3.2.

Table 2-2. Comparison of Alternatives

Alternative	*Dredge Footprint (sq ft)*	*Dredge Depth (ft)*	*Approximate Dredge Volume (cy)*	Aquatic Disposal Location
Proposed Action	679,451	To -42.5 ft MLLW (+2 ft overdredge)	110,619	Three options: 1. Nearshore Beneficial Reuse 2. LA-5 Ocean Disposal 3. Upland Disposal
Reduced Dredging Footprint Alternative	652,789	To -42.5 ft MLLW (+2 ft overdredge)	102,637	Three options: 1. Nearshore Beneficial Reuse 2. LA-5 Ocean Disposal 3. Upland Disposal
No Action Alternative	None	None	None	None

2.4 Alternatives Considered but Not Carried Forward for Detailed Analysis

The following alternatives were considered, but not carried forward, for detailed analysis in this EA because they do not meet the purpose and need for the project and do not satisfy the reasonable alternative screening factors presented in Section 2.2.

2.4.1 Alternative Dredging Location

Historically, Pier 5000 has been used for berthing large submarines. Pier 5000 is designed for berthing activities to occur on the northeastern side of the pier only. Berth deepening by dredging on the southern, western, or eastern sides of Pier 5000 would meet the need for increasing water depth to a level for submarine navigation; however, submarine berthing is not feasible at these locations because of design

constraints of the pier. Alternatives to the Proposed Action involving sediment dredging to support submarine berthing at a location other than the northeastern side of Pier 5000 would require redesign of the pier. While an alternate dredging location at Pier 5000 may meet the Navy's need for submarine navigation and berthing, redesign of Pier 5000 is outside the scope of this project and is not financially feasible. Also, it does not meet the first Alternative Selection Criterion (Required Operational Depth) listed in Section 2.2. Therefore, this alternative was eliminated from further consideration.

2.4.2 Maintenance Dredging

Large submarines currently berth at Pier 5000; however, the required operational depth for improved navigation and berthing large submarines is -42.5 ft MLLW based on Naval Sea Systems Command (NAVSEA) Memo 3120 Ser 39T236/088. As previously stated, previous dredging at the Pier 5000 site has occurred to a depth of -40 ft MLLW. Maintenance dredging would limit removal of sediment to -40 ft MLLW or shallower. This alternative to the Proposed Action that relies on maintenance dredging does not meet the first Alternative Selection Criterion (Required Operational Depth) listed in Section 2.2 and was therefore eliminated from further consideration.

2.5 Best Management Practices Included in Proposed Action

This section presents an overview of the best management practices (BMPs) that are incorporated into the Proposed Action in this document. BMPs are existing policies, practices, and measures that the Navy would adopt to reduce the environmental impacts of designated activities, functions, or processes. Although BMPs mitigate potential impacts by avoiding, minimizing, or reducing/eliminating impacts, BMPs are distinguished from potential mitigation measures because BMPs are (1) existing requirements for the Proposed Action, (2) ongoing, regularly occurring practices, and/or (3) not unique to this Proposed Action. In other words, the BMPs identified in this document are inherently part of the Proposed Action and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action. Table 2-3 includes a list of BMPs. Mitigation measures are discussed separately in Chapter 3.

Table 2-3. Best Management Practices

BMP	*Description*	*Impacts Reduced/Avoided*
California Least Tern Avoidance	All work will occur between September 16 and March 31 to avoid the nesting season of the endangered California least tern.	Potential impacts to California least tern.
Pre-Construction *Caulerpa* Survey	A pre-construction *Caulerpa* survey would occur for both sediment collection and dredging activities per the *Caulerpa* Control Protocol.	Potential spread of invasive *Caulerpa* associated with transport of sediment testing collections or dredged material.
Vessel Speed Limits	Vessel operators will follow designated speed zones to and from the project site and selected disposal site	Potential water quality impacts associated with sediment spillage from barges/scows.
Vessel Anchorage Limits	Vessel operators will not drop anchors/spuds within or directly adjacent to identified populations of eelgrass.	Potential impact damage to sensitive eelgrass beds.

Table 2-3. Best Management Practices

BMP	*Description*	*Impacts Reduced/Avoided*
Green Sea Turtle Monitoring (clamshell dredge/daytime operation)	Dredging contractor will designate a Green Sea Turtle monitor and conduct Green Sea Turtle monitoring during all operations.	Potential impacts to green sea turtle.
Prohibition on Hydraulic Dredging Methods	Dredging contractor will not employ hydraulic dredging methods would be limited to other methods including but not limited to clamshell dredging.	Potential impacts to green sea turtle.
Green Sea Turtle Protection	Operations will be temporarily halted if green sea turtles are observed in transit or occupying the dredging or disposal site. If individuals are observed, operations will be suspended for at least 15 minutes following observations that the individual has vacated the area.	Potential impacts to green sea turtle.
Marine Mammal Monitoring	Dredging contractor will designate a Marine Mammal Monitor and will conduct Marine Mammal Monitoring during all operations.	Potential impacts to marine mammals.
Dredge Direction	Dredge passes will start on the berth near the shoreline and move toward deeper water.	Potential water quality impacts.
Vessel Grounding Prevention	Vessel draft and movements will be controlled by the contractor to limit potential for grounding.	Potential water quality impacts associated with sediment disturbance or material spill due to vessel grounding incidents.
Spillage Control	During transport and handling of sediment, containment measures will be used to minimize spillage.	Potential water quality impacts associated with sediment spillage outside of selected disposal sites.
Surface Debris Survey	The contractor will be required to conduct a surface debris survey prior to dredging.	Potential water quality impacts associated with transport and deposition of non-dredge material.
Global Positioning System (GPS) Locator Requirement	The contractor will use a GPS to ensure that material is removed from the correct locations.	Potential water quality impacts associated with dredge and transport of materials outside the project area.
Dredge Depth Limit and Area Limits	The contractor will not be allowed to excavate beyond the overdredge depth or outside of the project area limits.	Potential water quality impacts associated with dredge and transport of materials outside the project area.
Dredge Bucket Swing Limit	The dredge bucket will be swung directly to the barge after it breaks the water surface using the minimal swing distance	Potential water quality impacts associated with sediment release at dredge site due to prolonged transit of dredge bucket to barge/scow.

Table 2-3. Best Management Practices

BMP	*Description*	*Impacts Reduced/Avoided*
Bottom Stockpiling and Dredging Limit	No bottom stockpiling or multiple bites of the clamshell bucket will be allowed.	Potential water quality impacts associated with unnecessary sediment disturbance at dredge site.
Overdredge Limit	Overdredging at the bases of the slope will be limited.	Potential water quality impacts associated with over-steepening of the slope resulting in unnecessary sediment movement/sliding or impacts to adjacent structural stability.
Dredge Bucket Fill Limit	The dredge bucket will not be overfilled.	Potential water quality impacts associated with sediment spillage from overfilled dredge bucket.
Barge/Scow Maximum Capacity	The barge/scow will not be filled beyond 85 percent capacity.	Potential water quality impacts associated with sediment spillage outside of selected disposal sites
Dredge Material Control	Material will not be allowed to leak from the discharge pipeline or leak from the bins or overtop the walls of the barge/scow.	Potential water quality impacts associated with unintended sediment release outside of selected disposal sites.
Offloading Spill Control	During offloading, metal spill aprons, upland spill control curbing and collection systems, and other spill control measures will be implemented. If a bucket is used, a dribble apron will be used.	Potential water quality impacts associated with uncontrolled deposition of sediment during offloading operations.
Spill/Sheen Response Materials	Surface booms, oil-absorbent pads, and similar materials will be maintained onsite to contain any sheen that may occur on the surface of the water during dredging.	Potential water quality impacts associated with spill/sheen.

3 Affected Environment and Environmental Consequences

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementing any of the alternatives and an analysis of the potential direct and indirect effects of each alternative.

All potentially relevant environmental resource areas were initially considered for analysis in this Environmental Assessment (EA). In compliance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and Department of the Navy guidelines; the discussion of the affected environment (i.e., existing conditions) and environmental consequences focuses only on those resource areas potentially subject to impacts. Additionally, the level of analysis presented in this EA is commensurate with the anticipated level of impact.

"Significantly," as used in NEPA, requires considerations of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant. Intensity refers to the severity or extent of the potential environmental impact, which can be thought of in terms of the potential amount of the likely change. In general, the more sensitive the context, the less intense a potential impact needs to be in order to be considered significant. Likewise, the less sensitive the context, the more intense a potential impact would be expected to be significant.

The potential impacts to the following resource areas are considered to be negligible or non-existent so they were not analyzed in detail in this EA:

Geological Resources: No changes to terrain, other than dredging, would occur as a result of the Proposed Action. No construction is proposed. Dredging would not result in impacts to geology and topography. San Diego is a seismically active region, as is most of Southern California. Seismic hazards can include landslides, ground shaking, surface displacement, and rupture, liquefaction, and tsunamis. The Proposed Action would comply with the provisions of the Unified Facilities Criteria and would incorporate best management practices (BMPs) specifically addressing susceptibility to geological/seismic hazards (e.g., overdredge limit); therefore, with these design considerations incorporated, implementation of the Proposed Action would result in negligible impacts to topography, geology, and soils.

Cultural Resources: Implementation of the Proposed Action would not affect any archaeological sites or other cultural resources, because none occur within the Area of Potential Effect (APE), as defined under the Commanding Officer Naval Base Point Loma (CONBPL) Programmatic Agreement (PA) (CONBPL 2014). Consistent with Stipulation 6.A. of the CONBPL PA, the APE is defined as the discrete site of the undertaking and any associated staging or laydown areas. The Proposed Action consists of in-water dredging activities only and would not require any associated staging or laydown areas. Therefore, the APE for the Proposed Action consists of the submerged 15.60-acre (679,451- square feet [sq ft]) dredge area. The project is located on bay bottom that was created in 1942 by backfilling tidelands with excavated material; given that development history, the potential for buried archaeological resources (including shipwrecks) to either occur or to be adversely affected by the Proposed Action is precluded.

The Proposed Action would not affect listed, contributing, or eligible properties on the National Register. Consistent with Stipulation 8.A. of the CONBPL PA, the Proposed Action qualifies for a determination of "No Historic Properties Affected," in accordance with 36 Code of Federal Regulations (CFR) 800.4 (d)(1).

Therefore, implementation of the Proposed Action would not have a significant impact to cultural resources.

Land Use: The Coastal Zone Management Act of 1972 (CZMA) (16 U.S.C. Section 1451) encourages coastal states to be proactive in managing coastal zone uses and resources. The CZMA established a voluntary coastal planning program and required participating states to submit a Coastal Management Plan to the National Oceanic and Atmospheric Administration (NOAA) for approval. Under the CZMA, federal agency actions within or outside the coastal zone that affect any land or water use or natural resource of the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved state management programs. Each state defines its coastal zone in accordance with the CZMA. Excluded from any coastal zone are lands the use of which by law is subject solely to the discretion of the federal government or which is held in trust by the federal government (16 U.S.C. 1453).

Accordingly, although Naval Base Point Loma (NBPL) land is federal government property and therefore excluded from the coastal zone, the Navy conducted an effects analysis of the Proposed Action's reasonably foreseeable future direct and indirect effects on coastal uses and resources. The Project Area is currently used for the transit, berthing, and repair of submarines among other general marine, industrial, and military uses characteristic of NBPL. Public access, including coastal recreation, is restricted at the site because it is a federal defense installation. Additionally, this project is located in a designated United States Coast Guard (USCG) Security Zone, which under the exclusive jurisdiction of the Navy, requires vessels desiring entry into, remaining in, or transiting the Security Zone to receive authorization from the Captain of the Port of San Diego or CONBPL. Recreation in the surrounding Bay is similarly restricted in the project vicinity for safety and anti-terrorism/force protection concerns. The Proposed Action is consistent with existing and ongoing use and would neither directly affect nor further restrict access to, or use of, the area to the public at large. Other effects to coastal resources are minimal and have been analyzed in previous dredging projects conducted at military installations in San Diego. Therefore, it is expected that the Proposed Action would have no adverse effect on coastal zone uses or resources and would be consistent with the California Coastal Management Plan. The Navy intends to prepare a coastal consistency negative determination and seek concurrence from the California Coastal Commission in compliance with the CZMA. No changes to shoreside land use would occur as a result of the Proposed Action. The existing military land use at the Pier 5000 site would continue to support naval operations and no land use compatibility issues or conflicts would occur. Each of the proposed disposal placement options – the three beneficial reuse locations, LA-5 Ocean Dredged Material Disposal Site (ODMDS), and Otay Landfill – are permitted to operate as receiving sites for dredged material. As such, potential use of any of these locations is consistent with current land use designations and is compatible with ongoing activities. Therefore, no land use impacts would occur.

Visual Resources: There would be no significant changes to the existing views at NBPL under the Proposed Action. Views within the Bay would remain consistent with the military and industrial nature of the project site surrounding area. Dredging operations would occur over an 80- to 90-day period; such activities are common and consistent with both existing military and civilian waterfront and in-water activities, which include frequent and ongoing dredging operations. Upon completion of the proposed dredging project, temporarily placed dredging equipment would be removed; development of permanent structures is not proposed. Each of the proposed disposal placement options – the three beneficial reuse locations, LA-5 ODMDS, and Otay Landfill – are permitted to operate as receiving sites for dredged material. As such,

potential use of any of these locations is consistent with existing visual resources. Therefore, aesthetic or visual quality impacts would not occur as a result of the Proposed Action.

Airspace: There would be no changes to local air traffic in the vicinity of NBPL, including at Naval Air Station North Island or San Diego International Airport, under the Proposed Action. The Proposed Action would neither create any obstructions to the safe operation of aircraft in the project vicinity nor necessitate any substantial increases in military or civilian air traffic in the project vicinity during dredging activities. Therefore, no impacts to airspace would occur.

Infrastructure: No new public services or utility connections would be needed or constructed under the Proposed Action. There would be no changes to the existing public services and utility connections to the existing Pier 5000 site. Otay Landfill, a permitted and existing dredged sediment disposal location under the upland disposal option for the Proposed Action and Reduced Dredging Footprint Alternative, has a permitted disposal rate of 5,830 tons per day total with a daily dredged sediment capacity of 1,500 to 2,000 tons per day. Under the upland disposal option, transport of suitably dried sediment from the CDF at NBSD would be metered to ensure that it would not exceed the Otay Landfill daily dredged material limit. Therefore, no impacts to public services or utilities would occur.

Public Health and Safety: Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* states that each Federal Agency must, to the extent permitted by law and appropriate and consistent with the agency's mission: (a) make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) ensure that policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks (62 Federal Register 1997). The Proposed Action would neither require the use of any hazardous materials nor produce any hazardous wastes, and it would not introduce a new hazardous use at NBPL. The area to be dredged is located offshore of Pier 5000 and is not occupied by any residents, including children. Therefore, the Proposed Action would not substantially affect human health or the environment and thus would not create disproportionate risks for children. Therefore, EO 13045 impacts would not occur. Additionally, contractors would be required to comply with safety requirements of Occupational Safety and Health Administration (OSHA), the most recent versions of United States Army Corps of Engineers (USACE) EM 385-1-1 Safety and Health Requirements (USACE 2014), and multiple other Naval Facilities Command Southwest (NAVFAC SW) and Navy health and safety instructions. Further, dredging would be completed to a depth and will be sloped such that the structural integrity of the pier and quay walls will be maintained and therefore would not affect the stability of Pier 5000. All of these requirements and regulations address the potential risks to health and safety and would be followed; therefore, impacts to public health and safety would not be significant.

Socioeconomics and Environmental Justice: The Proposed Action would be temporary in nature and would generate short-term employment opportunities, a beneficial impact, but negligible at a local or regional scale. There would be minor materials spending, which would be negligible in the context of the regional San Diego Economy. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that "each Federal Agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health effects in its programs, policies, and activities on minority populations and low-income populations" (59 Federal Register 1994). The Proposed Action would not substantively affect human health or the environment. Proposed dredging would occur within NBPL property boundaries; dredge transport would be within San Diego Bay and potentially the Pacific Ocean; and dredge replenishment would occur at one of three controlled locations. For all three project elements,

implementation of the Proposed Action would occur on submerged federal lands, over open water, or at restricted beneficial reuse locations. No permanent populations – minority, low-income, or otherwise – would be directly affected. Therefore, there would be no disproportionate environmental or health impacts to low-income populations or minority populations per EO 12898 under implementation of the Proposed Action.

3.1 Air Quality/Climate Change

Air quality in a given location is defined by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors, including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions.

Most air pollutants originate from human-made sources, including mobile sources (e.g., cars, trucks, buses) and stationary sources (e.g., factories, refineries, power plants), as well as indoor sources (e.g., some building materials and cleaning solvents). Air pollutants are also released from natural sources such as volcanic eruptions and forest fires.

The main pollutants of concern considered in this air quality analysis include volatile organic compounds (VOCs), ozone (O_3), carbon monoxide (CO), nitrogen oxides (No_x), particulate matter less than or equal to 10 microns in diameter (PM_{10}), and particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$). Although VOCs and No_x (other than nitrogen dioxide) have no established ambient standards, they are important as precursors to O_3 formation. The area of study for this air quality analysis is the entire San Diego Air Basin (SDAB), which encompasses San Diego County.

3.1.1 Regulatory Setting

NBPL is in San Diego County, which is within the SDAB. The County of San Diego Air Pollution Control District (SDAPCD) is responsible for implementing and enforcing state and federal air quality regulations in San Diego County. San Diego has been determined by the U.S. Environmental Protection Agency (USEPA) to be a nonattainment area for 8-hour ozone, with a classification of Marginal under the 2008 standard and Maintenance under the 1997 standard. San Diego is also on maintenance for CO. The county is classified by USEPA as unclassified/attainment for all other criteria pollutants. Because the county is in nonattainment for ozone and maintenance for CO, a General Conformity evaluation is required.

3.1.1.1 Criteria Pollutants and National Ambient Air Quality Standards

The principal pollutants defining the air quality, called "criteria pollutants," include CO, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), O_3, suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). CO, SO_2, and some particulates are emitted directly into the atmosphere from emissions sources. Ozone, NO_2, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes.

Under the Clean Air Act (CAA), USEPA has established National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for these pollutants. NAAQS are classified as primary or secondary. Primary standards protect against adverse health effects; secondary standards protect against welfare effects, such as damage to farm crops and vegetation and damage to buildings. Some pollutants have long-term and short-term standards. Short-term standards are designed to protect against acute, or short-term, health effects, while long-term standards were established to protect against chronic health effects.

Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Areas that violate a federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment.

The CAA requires states to develop a general plan to attain and maintain the NAAQS in all areas of the country and a specific plan to attain the standards for each area designated nonattainment for a NAAQS. These plans, known as State Implementation Plans (SIPs), are developed by state and local air quality management agencies and submitted to USEPA for approval.

Table 3-1 lists applicable California and National air quality standards for the NBPL Pier 5000 North Side Outer Berth and Pier Approach Dredging.

Table 3-1. California and National Ambient Air Quality Standards

Pollutant	*Averaging Time*	*California Standards(1)*	*National Standards(2)*	
			Primary	*Secondary*
Ozone (O_3)	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	Same as Primary Standards
	1-hour	0.09 ppm (180 µg/m^3)	--	
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	---
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard
	1-hour	0.18 ppm (339 µg/m^3)	0.100 ppm	---
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	---	Annual Arithmetic Mean	---
	24-hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	---
	3-hour	---	---	0.5 ppm (1300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	---
PM_{10}	Annual Arithmetic Mean	20 µg/m^3	---	Same as Primary Standard
	24-hour	50 µg/m^3	150 µg/m^3	
$PM_{2.5}$	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3	Same as Primary Standard
	24-hour	No Separate Standard	35 µg/m^3	
Sulfates	24-hour	25 g/m^3	---	---
Lead (Pb)	30-day average	1.5 µg/m^3	---	---
	Calendar quarter	---	1.5 µg/m^3	Same as Primary Standard
	Rolling 3-month average	---	0.15 µg/m^3	---
Hydrogen Sulfide (H_2S)	1-hour	0.03 ppm (42 µg/m^3)	---	---
Vinyl Chloride (chloroethene)	24-hour	0.01 ppm (26 µg/m^3)	---	---

Notes: µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; ppm = parts per million
(1) CO, SO_2 (1- and 24-hour) NO_2, O_3, PM_{10}, and visibility reducing particles standards are not being exceeded. All other California Standards are not to be equaled or exceeded.

(2) Not to be exceeded more than once a year except for annual standards.
Source: California Air Resources Board (CARB) 2016.

3.1.1.2 Mobile Sources

Hazardous Air Pollutants (HAPs) emitted from mobile sources are called Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment that are known or suspected to cause cancer or other serious health and environmental effects. In 2001, USEPA issued its first MSAT Rule, which identified 201 compounds as being HAPs that require regulation. A subset of six of the MSAT compounds was identified as having the greatest influence on health and included benzene, butadiene, formaldehyde, acrolein, acetaldehyde, and diesel particulate matter. More recently, USEPA issued a second MSAT Rule in February 2007, which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact to health. The rule also identified several engine emission certification standards that must be implemented (40 CFR parts 59, 80, 85, and 86; Federal Register Volume 72, No. 37, pp. 8427–8570, 2007). Unlike the criteria pollutants, there are no NAAQS for benzene and other HAPs. The primary control methodologies for these pollutants for mobile sources involves reducing their content in fuel and altering the engine operating characteristics to reduce the volume of pollutant generated during combustion.

3.1.1.3 General Conformity

The USEPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year [tpy]) vary by pollutant and also depend on the severity of the nonattainment status for the air quality management area in question.

A conformity applicability analysis is the first step of a conformity evaluation and assesses if a federal action must be supported by a conformity determination. This is typically done by quantifying applicable direct and indirect emissions that are projected to result due to implementation of the federal action. Indirect emissions are those emissions caused by the federal action and originating in the region of interest, but which can occur at a later time or in a different location from the action itself and are reasonably foreseeable. The federal agency can control and will maintain control over the indirect action due to a continuing program responsibility of the federal agency. Reasonably foreseeable emissions are projected future direct and indirect emissions that are identified at the time the conformity evaluation is performed. The location of such emissions is known and the emissions are quantifiable, as described and documented by the federal agency based on its own information and after reviewing any information presented to the federal agency. If the results of the applicability analysis indicate that the total emissions would not exceed the *de minimis* emissions thresholds, then the conformity evaluation process is completed. *De minimis* threshold emissions are presented in Table 3-2.

Table 3-2. General Conformity *de minimis* Levels Pursuant to 40 CFR 93.153(b)(1)

Pollutant	*Area Type*	*Tons per year (tpy)*
Ozone (VOC or NO_x)	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NO_x)	Marginal and moderate nonattainment inside an ozone transport region	100
	Maintenance	100
Ozone (VOC)	Marginal and moderate nonattainment inside an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
Carbon monoxide, SO_2, and NO_2	All nonattainment and maintenance	100
PM_{10}	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
$PM_{2.5}$ Direct emissions, SO_2, NO_x (unless determined not to be a significant precursor), VOC or ammonia (if determined to be significant precursors)	All nonattainment and maintenance	100
Lead (Pb)	All nonattainment and maintenance	25

3.1.1.4 Permitting

New Source Review

New major stationary sources and major modifications at existing major stationary sources are required by the CAA to obtain an air pollution permit before commencing construction. This permitting process for major stationary sources is called New Source Review and is required whether the major source or major modification is planned for nonattainment areas or attainment and unclassifiable areas. In general, permits for sources in attainment areas and for other pollutants regulated under the major source program are referred to as Prevention of Significant Deterioration (PSD) permits, while permits for major sources emitting nonattainment pollutants and located in nonattainment areas are referred to as nonattainment new source review permits. In addition, a proposed project may have to meet the requirements of nonattainment new source review for the pollutants for which the area is designated as nonattainment and PSD for the pollutants for which the area is attainment. Additional PSD permitting thresholds apply to increases in stationary source greenhouse gas (GHG) emissions. PSD permitting can also apply to a new major stationary source (or any net emissions increase associated with a modification to an existing major stationary source) that is constructed within 6.2 miles of a Class I area, and which would increase the 24-hour average concentration of any regulated pollutant in the Class I area by 1 microgram per cubic meter ($\mu g/m^3$) or more. Navy installations shall comply with applicable permit requirements under the PSD program per 40 CFR section 51.166.

Title V (Operating Permit)

The Title V Operating Permit Program consolidates all CAA requirements applicable to the operation of a source, including requirements from the SIP, preconstruction permits, and the air toxics program. It applies to stationary sources of air pollution that exceed the major stationary source emission thresholds, as well as other non-major sources specified in a particular regulation. The program includes a requirement for payment of permit fees to finance the operating permit program whether implemented by USEPA or a state or local regulator. Navy installations subject to Title V permitting shall comply with the requirements of the Title V Operating Permit Program, which are detailed in 40 CFR Part 70 and all specific requirements contained in their individual permits.

3.1.1.5 State Regulations

The California Air Resources Board (CARB) enforces air pollution regulations and sets guidelines to attain and maintain the NAAQS and California Ambient Air Quality Standards (CAAQS) within the state of California. These guidelines are provided in the SIP.

The California CAA of 1988, as amended in 1992, outlines a program to attain the CAAQS for O_3, NO_2, SO_2, particulate matter, and CO by the earliest practical date. Because the CAAQS are more stringent than the NAAQS, emissions reductions beyond what would be required to show attainment for the NAAQS would be needed to show compliance with the CAAQS. CARB delegates the authority to regulate stationary source emissions to local air quality management districts. The CARB requires these agencies to develop their own strategies for achieving compliance with the NAAQS and CAAQS, but maintains regulatory authority over these strategies, as well as all mobile source emissions throughout the state. The SDAPCD is the local agency responsible for enforcement of air quality regulations in the project region.

3.1.1.6 Local Regulations

The SDAPCD is responsible for regulating stationary sources of air emissions in the SDAB. The SDAPCD Rules and Regulations (SDAPCD 2018) establish emission limitations and control requirements for stationary sources, based on their source type and magnitude. The SDAPCD and the San Diego Association of Governments are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB, which is the SDAB's input to the SIP. In addition, SDAPCD Conformity Rule 1501 provides general conformity guidance to ensure that federal actions are consistent with the efforts of the SDAPCD to achieve its NAAQS attainment goals.

In their capacity as the regulatory agency for stationary sources within the SDAB, the SDAPCD requires air quality permits for stationary source activities or equipment that emit air contaminants. The SDAPCD requires air permits before construction or installation and again before any operational activities begin. An "Authority to Construct" permit is used to authorize construction or installation activities. A "Permit to Operate" is used to authorize operation of specific equipment. All necessary construction or operationally related permits must be authorized by the SDAPCD before project implementation occurs.

3.1.2 Greenhouse Gases

GHGs are gas emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative economic and social consequences across the globe.

Revised draft guidance from CEQ, dated December 18, 2014, recommends that agencies consider both the potential effects of a proposed action on climate change, as indicated by its estimated greenhouse gas emissions, and the implications of climate change for the environmental effects of a proposed action. The guidance also emphasizes that agency analyses should be commensurate with projected greenhouse gas emissions and climate impacts and should employ appropriate quantitative or qualitative analytical methods to ensure useful information is available to inform the public and the decision-making process in distinguishing between alternatives and mitigations. It recommends that agencies consider 25,000 metric tons of carbon dioxide equivalent (CO_2e) emissions on an annual basis as a reference point below which a quantitative analysis of greenhouse gas is not recommended unless it is easily accomplished based on available tools and data.

USEPA issued the Final *Mandatory Reporting of Greenhouse Gases Rule* on September 22, 2009. GHGs covered under the Final *Mandatory Reporting of Greenhouse Gases Rule* are carbon dioxide (CO_2), methane, nitrogen oxide (NO_x), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers. Each GHG is assigned a global warming potential. The global warming potential is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential rating system is standardized to CO_2, which has a value of one. The equivalent CO_2 rate is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emissions rate representing all GHGs. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of mobile sources and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions as CO_2e are required to submit annual reports to USEPA.

GHG emissions are also regulated under PSD and Title V permitting programs, which was initiated by a USEPA rulemaking issued on June 3, 2010 known as the GHG Tailoring Rule (75 Federal Register 31514). GHG emissions thresholds for permitting of stationary sources are an increase of 75,000 tpy of CO_2e at existing major sources and facility-wide emissions of 100,000 tpy of CO_2e for a new source or a modification of an existing minor source. The 100,000 tpy of CO_2e threshold defines a major GHG source for both construction (PSD) and operating (Title V) permitting, respectively. However, on June 23, 2014, the U.S. Supreme Court issued its decision in Utility Air Regulatory Group v. USEPA (No. 12-1146). As a result of the decision USEPA will no longer apply or enforce federal regulatory provisions or the USEPA approved PSD SIP provisions that require a stationary source to obtain a PSD permit if GHGs are the only pollutant that the source emits or has the potential to emit above the major source thresholds, or for which there is a significant emissions increase and a significant net emissions increase from a modification (e.g., 40 CFR section 52.21 (b)(49)(v)). Nor does USEPA intend to continue applying regulations that would require that states include in their SIP a requirement that such sources obtain PSD permits.

Similarly, USEPA will no longer apply or enforce federal regulatory provisions or provisions of the USEPA approved Title V programs that require a stationary source to obtain a Title V permit solely because the source emits or has the potential to emit GHGs above the major source thresholds (e.g. the regulatory provision relating to GHG subject to regulation in 40 CFR section 71.2). USEPA also does not intend to

continue applying regulations that would require Title V programs submitted for approval by USEPA to require that such sources obtain Title V permits.

In an effort to reduce energy consumption, reduce GHGs, reduce dependence on petroleum, and increase the use of renewable energy resources the Navy has implemented a number of renewable energy projects. The Navy has established Fiscal Year 2020 GHG emissions reduction targets of 34 percent from a FY 2008 baseline for direct GHG emissions and 13.5 percent for indirect emissions. Examples of Navy-wide GHG reduction projects include energy efficient construction, thermal and photovoltaic solar systems, geothermal power plants, and the generation of electricity with wind energy. The Navy continues to promote and install new renewable energy projects.

3.1.3 Affected Environment

NBPL is in San Diego County, which is within the SDAB. SDAPCD is responsible for implementing and enforcing state and federal air quality regulations in San Diego County. San Diego has been determined by USEPA to be a *nonattainment* area for 8-hour ozone, with a classification of *marginal* under the 2008 standard and *maintenance* under the 1997 standard. The county is classified by USEPA as *unclassified/attainment* for all other criteria pollutants. Because San Diego County is in *nonattainment* for ozone, a General Conformity evaluation is required.

The most recent emissions inventory for San Diego County is shown in Table 3-3. VOC and NO_x emissions are used to represent O_3 generation because they are precursors of O_3.

Table 3-3. San Diego Air Basin Air Emissions Inventory (2011)

Location	*NO_x (tpy)*	*VOC (tpy)*	*CO (tpy)*	*SO_2 (tpy)*	*PM_{10} (tpy)*	*$PM_{2.5}$ (tpy)*
San Diego	42,485	156,407	270,195	1,100	31,251	10,918

Source: USEPA 2013
Notes: tpy = tons per year

Emission sources associated with the existing use of NBPL include civilian and military personal vehicles, commercial and military vehicles, marine vessel engines, tactical support equipment, small stationary sources, and ongoing construction activities. Recent annual criteria pollutants emissions for the closest proximity monitoring station to NBPL (San Diego-Beardsley Street Monitoring Station located just south of downtown San Diego near the intersection of Interstate 5 and the Coronado Bridge) are shown in Table 3-4.

Table 3-4. Representative Air Quality Data for NBPL (2012–2016) from San Diego Beardsley Street Monitoring Station

Air Quality Indicator	*2012*	*2013*	*2014*	2015	*2016*
Ozone (O_3)					
Days State 1-hour Standard Exceeded (0.09 ppm)	0	0	0	0	0
Days Federal 8-hour Standard Exceeded (0.075 ppm)[a]	0	0	0	0	0
Days State 8-hour Standard Exceeded (0.07 ppm)	0	0	2	0	0
Maximum 1-hour (ppm)	0.071	0.063	0.093	0.089	0.072
Maximum 8-hour (ppm)	0.065	0.053	0.072	0.067	0.061
Carbon monoxide (CO)[b]					
Days Federal 8-hour Standard Exceeded (35 ppm)	0	NA	NA	NA	NA
Days State 8-hour Standard Exceeded (20 ppm)	0	NA	NA	NA	NA
Maximum 1-hour (ppm)	2.6	3.0	2.7	2.6	2.2
Maximum 8-hour (ppm)	1.81	NA	NA	NA	NA
Nitrogen dioxide (NO_2)					
Days Federal 1-hour Standard Exceeded (0.10 ppm)	0	0	0	0	0
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0	0	0
Maximum 1-hour (ppm)	0.065	0.072	0.075	0.062	0.073
Annual Average (ppm)	0.013	0.014	0.013	0.014	NA
Sulfur dioxide (SO_2)[c]					
Days State 24-hour Standard Exceeded (0.04 ppm)	NA	NA	NA	NA	NA
Maximum 24-hour (ppm)	NA	NA	NA	NA	NA
Annual Average (ppm)	NA	NA	NA	NA	NA
Particulate matter less than or equal to 10 microns in diameter (PM_{10})					
Days State 24-hour Standard Exceeded (50 µg/m^3)	0	1	0	1	1
Days Federal 24-hour Standard Exceeded (150 µg/m^3)	0	0	0	0	0
Maximum Daily – Federal (µg/m^3)	45	90	40.0	53.0	49.0
Maximum Daily – State (µg/m^3)	47	92	41.0	54.0	51.0
Federal Annual Average (µg/m^3)	21.8	24.9	23.3	23.0	21.9
State Annual Average (µg/m^3)	22.2	25.4	23.8	23.2	NA
Particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$)					
Days Federal 24-hour Standard Exceeded (35 µg/m^3)	1	1	1	0	0
Maximum Daily – Federal (µg/m^3)	39.8	37.4	36.7	33.4	34.4
Maximum Daily – State (µg/m^3)	39.8	37.4	37.2	44.9	34.4
Federal Annual Average (µg/m^3)	11.0	10.3	10.1	9.3	NA
State Annual Average (µg/m^3)	NA	10.4	10.2	10.2	NA

Source: CARB 2018; SDAPCD 2016

Notes: NA = not available; ppm = parts per million; µg/m^3 = micrograms per cubic meter

[a] On 1 October 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[b] Eight-hour carbon monoxide averages are available at San Diego Beardsley Street Station between 2005 and 2012.

[c] The SO_2 monitor was decommissioned on 30 June 2011.

3.1.4 Environmental Consequences

Effects on air quality are based on estimated direct and indirect emissions associated with the action alternatives. The region of influence (ROI) for assessing air quality impacts is the air basin in which the project is located, the San Diego Air Basin.

Estimated emissions from a proposed federal action are typically compared with the relevant national and state standards to assess the potential for increases in pollutant concentrations. Emission thresholds associated with federal CAA conformity requirements are the primary means of assessing the significance of potential air quality impacts associated with implementation of an action under NEPA. A formal conformity determination is required for federal actions occurring in nonattainment or maintenance areas when the total direct and indirect stationary and mobile source emissions of nonattainment pollutants or their precursors exceed *de minimis* thresholds.

Significant air quality impacts would occur if implementation of any of the alternatives would directly or indirectly:

- Expose people to localized (as opposed to regional) air pollutant concentrations that violate state or federal ambient air quality standards;
- Cause a net increase in pollutant or pollutant precursor emissions that exceeds relevant emission significance thresholds (such as CAA conformity *de minimis* levels for nonattainment pollutants or the numerical threshold values; or
- Conflict with adopted air quality management plans, policies, or programs.

Criteria to determine the significance of air quality impacts are based on federal, state, and local air pollution standards and regulations. SDAPCD has not established criteria for assessing the significance of air quality impacts for NEPA purposes. However, SDAPCD Rule 20.3 defines a source as "major" if annual emissions exceed 100 tons of O_3, CO, SO_x, or PM_{10}. VOC and NO_x are precursors to these emissions. For purposes of this air quality analysis, project emissions within the NBPL region would be considered air quality impacts for NEPA purposes. However, SDAPCD Rule 20.3 defines a stationary source as "potentially significant if they exceed these thresholds." This is a conservative assessment, because the analysis compares emissions from both project-related stationary and mobile sources with these thresholds. Impacts would also be potentially significant with the NBPL region if project emissions exceed the thresholds that trigger a conformity determination under Section 176(c) of the 1990 CAA (i.e., 100 tons per year of VOC, NO_x, or CO).

3.1.4.1 Avoidance and Minimization Measures

Implementation of the project would not result in the need to employ avoidance and minimization measures.

3.1.4.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to baseline air quality. Therefore, no significant impacts to air quality or air resources would occur with implementation of the No Action Alternative.

3.1.4.3 Proposed Action Potential Impacts

Implementation of the Proposed Action would include dredging of underwater sediments at the Pier 5000 project site, loading of the dredge material onto barges, transport of dredged material to disposal locations via barge, and direct disposal at one of three offshore locations for beneficial reuse. If not deemed adequate for beneficial reuse, the material would be disposed of at the offshore LA-5 ODMDS. If not suitable for beneficial reuse or ocean disposal, the dredged material would be dried at the NBSD CDF and then transported via truck to a permitted upland disposal site at the Otay Landfill, located 12.2 miles

from the NBSD CDF. Air emissions from the proposed project would include operation of a motorized dredge and crane, barge, and tractor-trailer truck for dried sediment transport.

Assumptions

Air quality impacts from dredging, transportation, and sediment disposal activities would occur from combustion emissions from fossil-fuel-powered equipment. Because of the nature of the project, fugitive dust is not a concern. Dredging activities would not generate fugitive dust because marine sediments that would be dredged are wet; further, sediments used for beneficial reuse would be placed in offshore waters and not directly onto beaches or other dryland locations, and dried sediments transported via truck would be either wetted or covered for transportation to the Otay Landfill. A summary of equipment likely to be used in the air emissions calculations is included in Appendix B. It is assumed that all dredging and in-water disposal activities would be completed over a 90-day period; however, in the unlikely event that upland disposal is required, disposal may take an additional 2 to 3 months to allow for sediment drying.

Impacts

Table 3-5 presents estimated dredging and sediment disposal emissions with implementation of the Proposed Action. Estimated emissions would be below the *de minimis* threshold levels for CAA conformity. Therefore, implementation of the Proposed Action would not result in significant impacts to air quality.

General Conformity

The estimated dredging emissions associated with the Proposed Action would be below *de minimis* threshold levels for CAA conformity. Therefore, the Proposed Action would conform to the SDAB SIP and would not trigger a conformity determination under Section 176(c) of the CAA. The Navy has prepared a Record of Non-Applicability (RONA) for CAA conformity (refer to Appendix B) in accordance with Office of the Chief of Naval Operations (OPNAV) 5090.1D and the Navy guidance for compliance with the CAA General Conformity Rule, dated 21 December 2018. Because the emissions associated with implementation of the Proposed Action would not exceed the *de minimis* threshold levels, there would be no significant adverse impacts to air quality.

Greenhouse Gases

Implementation of the Preferred Alternative would contribute directly to emissions of GHGs from the combustion of fossil fuels. Dredging, transportation, and disposal activities would generate approximately between 1,209 and 1,578 metric tons of carbon dioxide equivalent (CO_2e) if the proposed activities occurred during 2019. Once the project is completed, no changes will occur to NBPL facility operations character or to GHG. These estimated annual GHG emissions fall below the CEQ threshold of 25,000 metric tons. This limited amount of emissions would not likely contribute to global warming to any discernible extent. Therefore, implementation of the Proposed Action would not result in significant impacts specific to GHG emissions.

Table 3-5. Proposed Action Emissions and Comparison to *de minimis* Thresholds

Construction Year	Emissions (tpy)					
	CO	***VOC***	***NO_x***	***SO_x***	***PM_{10}***	***$PM_{2.5}$***
Proposed Action – Nearshore Replenishment (Imperial Beach)[a]						
2019	9.27	1.59	16.51	0.01	0.70	070
de minimis Threshold/Major Source Threshold	100	100	100	100	100	100
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Proposed Action – Ocean Disposal Option						
2019	6.03	1.21	13.01	0.01	0.46	0.46
de minimis Threshold/Major Source Threshold	100	100	100	100	100	100
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Proposed Action – Upland Disposal Option						
2019	9.49	1.42	16.75	0.01	0.71	0.71
de minimis Threshold/Major Source Threshold	100	100	100	100	100	100
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: tpy = tons per year

[a] Imperial Beach was selected for analysis as the most distant nearshore replenishment site that provides a conservative base for analysis relative to the other offshore and upland disposal options.

3.1.4.4 Reduced Dredging Footprint Alternative Potential Impacts

Impacts associated with the Reduced Dredging Footprint Alternative would be similar to those for the Proposed Action, except that the dredging quantity would be approximately 102,637 cy, and the dredging duration would be decreased. As presented in Table 3-5, estimated emissions from the dredging and sediment disposal of the Reduced Dredging Alternative would not result in significant impacts to air quality.

3.2 Water Resources

This discussion of water resources includes marine waters and shorelines. This section also discusses the physical characteristics of marine waters, wetlands, etc. Marine wildlife and vegetation are addressed in Section 3.3 *Biological Resources*.

Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater is used for water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition. Sole source aquifer designation provides limited protection of groundwater resources which serve as drinking water supplies.

Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. A total maximum daily load (TMDL) is the maximum amount of a substance that can

be assimilated by a water body without causing impairment. A water body can be deemed impaired if water quality analyses conclude that exceedances of water quality standards occur.

Marine waters would typically include estuaries, waters seaward of the historic height of tidal influence, and offshore high salinity waters. Marine water quality would be described as the chemical and physical composition of the water as affected by natural conditions and human activities. Additionally, marine waters may include an area within a National Marine Sanctuary requiring an action proponent to avoid adverse water quality impacts in order to prevent damage to resources within the sanctuary.

Wetlands are jointly defined by USEPA and USACE as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands generally include "swamps, marshes, bogs, and similar areas."

Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse array of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body. Floodplain boundaries are most often defined in terms of frequency of inundation, that is, the 100-year and 500-year flood. Floodplain delineation maps are produced by the Federal Emergency Management Agency and provide a basis for comparing the locale of the Proposed Action to the floodplains.

Shorelines can be located along marine (oceans), brackish (estuaries), or fresh (lakes) bodies of water. Physical dynamics of shorelines include tidal influences, channel movement and hydrological systems, flooding or storm surge areas, erosion and sedimentation, water quality and temperature, presence of nutrients and pathogens, and sites with potential for protection or restoration. Shoreline ecosystems are vital habitat for multiple life states of many fish, birds, reptiles, amphibians, and invertebrates. Different shore zones provide different kinds and levels of habitat, and when aggregated, can significantly influence life. Organic matter that is washed onto the shore, or "wrack," is an important component of shoreline ecosystems, providing habitat for invertebrates, soil and organic matter, and nutrients to both the upland terrestrial communities and aquatic ecosystems.

3.2.1 Regulatory Setting

The Safe Drinking Water Act is the federal law that protects public drinking water supplies throughout the nation. Under the Safe Drinking Water Act, USEPA sets standards for drinking water quality. Groundwater quality and quantity are regulated under several statutes and regulations, including the Safe Drinking Water Act.

The CWA establishes federal limits, through the National Pollutant Discharge Elimination System (NPDES) program, on the amounts of specific pollutants that can be discharged into surface waters to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and nonpoint sources (i.e., stormwater) of water pollution.

The California NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more to obtain coverage under an NPDES Construction General Permit for stormwater discharges. Construction or demolition that necessitates an individual permit also requires preparation of a Notice of Intent to discharge stormwater and a Stormwater Pollution Prevention Plan that is implemented during construction. As part of the 2010 Final

Rule for the CWA, titled *Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category*, activities covered by this permit must implement non-numeric erosion and sediment controls and pollution prevention measures.

Wetlands are currently regulated by USACE under Section 404 of the CWA as a subset of all "Waters of the United States." Waters of the United States are defined as (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow perennially or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries under Section 404 of the CWA, as amended, and are regulated by USEPA and USACE. The CWA requires that California establish a Section 303(d) list to identify impaired waters and establish TMDLs for the sources causing the impairment.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into wetlands and other Waters of the United States. Any discharge of dredge or fill into Waters of the United States requires a permit from USACE.

Section 438 of the Energy Independence and Security Act establishes storm water design requirements for development and redevelopment projects. Under these requirements, federal facility project larger than 5,000 square ft must "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."

Section 10 of the Rivers and Harbors Act provides for USACE permit requirements for any in-water construction. USACE and some states require a permit for any in-water construction. Permits are required for construction of piers, wharfs, bulkheads, pilings, marinas, docks, ramps, floats, moorings, and like structures; construction of wires and cables over the water, and pipes, cables, or tunnels under the water; dredging and excavation; any obstruction or alteration of navigable waters; depositing fill and dredged material; filling of wetlands adjacent or contiguous to waters of the U.S.; construction of riprap, revetments, groins, breakwaters, and levees; and transportation of dredged material for dumping into ocean waters.

The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

The Coastal Zone Management Act of 1972 provides assistance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. Actions occurring within the coastal zone commonly have several resource areas that may be relevant to the CZMA.

Executive Order 11990, *Protection of Wetlands*, requires that federal agencies adopt a policy to avoid, to the extent possible, long- and short-term adverse impacts associated with destruction and modification of wetlands and to avoid the direct and indirect support of new construction in wetlands whenever there is a practicable alternative.

Executive Order 11988, *Floodplain Management*, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains

and to avoid direct and indirect support of floodplain development unless it is the only practicable alternative. Flood potential of a site is usually determined by the 100-year floodplain, which is defined as the area that has a one percent chance of inundation by a flood event in a given year.

Executive Order 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, amends EO 11988 and establishes the Federal Flood Risk Management Standard to improve the nation's resilience to current and future flood risks, which are anticipated to increase over time due to the effects of climate change and other threats.

3.2.2 Affected Environment

This section describes existing conditions for each category under Water Resources at NBPL. The proposed dredging comprises in-water / marine activities only; no coastal or upland ground-disturbing activities are proposed. Further, the Proposed Action will occur in areas characterized as open water habitat. No wetlands occur within the proposed dredge footprint. Therefore, there is no potential for direct or indirect impacts to occur related to groundwater or surface quality or wetlands; therefore, these water resources do not receive further consideration.

3.2.2.1 Bathymetry and Circulation

The northern and central portions of San Diego Bay have been shaped by historical dredging and filling to support large ship navigation and shoreline development (Merkel & Associates Inc. 2009a); only the far southern portion of the Bay retains its natural shallow bathymetry (Merkel & Associates Inc. 2009a). The bathymetry and bedform of the Bay are defined by a main navigation channel that steps up to shallower dredged depths toward the sides and bottom of the Bay (Merkel & Associates, Inc. 2009). USACE dredges the main navigation channel in the Bay to maintain a depth of -47 ft MLLW and provide for safe transit for private, commercial, and military vessels within the Bay (NOAA 2010). Outside the navigation channel, the Bay floor consists of platforms at depths that vary slightly (Merkel & Associates, Inc. 2009a). Within the North Bay, typical depths range from -36 to -38 ft MLLW to support large ship turning and anchorage (Merkel & Associates, Inc. 2009a). Small vessel marinas are typically dredged to depths of -15 MLLW (Merkel & Associates, Inc. 2009a).

Bathymetry at the project site has been altered by filling and dredging. Dredging projects conducted between 1935 and 1960 shows that the most dredging activities at NBPL occurred in 1940 to a depth of -36 ft MLLW (Peeling 1975). The most recent dredging activities at NBPL occurred in 2014 and achieved a bottom depth of -40 ft MLLW. The local sediments are associated with the Bay Point Formation composed of native material that was deposited in the San Diego area near the end of the last ice age (more than 10,000 years ago) (USACE 2009). Sediments in the dredge footprint vicinity generally consist of gravel, sand, silt, and clay and were found to have a mean grain size of medium sand (Sampling and Analysis Report for 2014 Naval Base Point Loma Piers 5000 and 5002 Dredging EA). The medium sand median grain size is partially attributed to the high velocity current that the dredge footprint is subject to scour the area of finer grained sediments. It is anticipated that sediment to be dredged under the Proposed Action will be similar to those encountered during previous dredge projects at Pier 5000.

Circulation within San Diego Bay is affected by the Bay's crescent shape and narrow bay mouth, tides, and seasonal salinity and temperature variations (Port of San Diego 2007). San Diego Bay can be divided into four regions based upon circulation characteristics. The North Bay – Marine Region extends from the Bay mouth to the area offshore downtown San Diego. Tidal action has the greatest influence on circulation in this area where bay water is exchanged with sea water over a period of two to three days (Port of San

Diego 2007). The North-Central Bay – Thermal Region runs from the North Bay to Glorietta Bay (south of Coronado Island). In the Thermal Region, currents are mainly driven by surface heating (Port of San Diego 2007). Incoming tides bring cold ocean water from deeper areas, which is then replaced with warm Bay surface water when the tide recedes. These tidal processes lead to strong vertical mixing (Port of San Diego 2007). The region between Glorietta Bay and Sweetwater Marsh is the South-Central Seasonally Hypersaline (i.e., higher salt content than seawater) Region. Here, variations in salinity due to warm-weather evaporation at the surface separate the water into upper and lower zones driven by density differences (Port of San Diego 2007).

San Diego Bay has mixed diurnal/semi-diurnal tides, with the semi-diurnal component being dominant (Largier 1995). The interaction between these two types of tides is such that the higher high tide occurs before the lower low tide, creating the strongest currents on the large ebb tide (Largier 1995). The tidal range (difference between mean lower low water [MLLW] and mean highest high water) is about 5.5 ft (Largier 1995). In general, tidal currents are strongest near the Bay mouth, with maximum velocities of 1.6 to 3.3 ft per second (Largier 1995). Tidal current direction generally follows the center of the Bay channel (Chadwick et al. 1999). Residence time for water in the Bay increases from approximately 5 to 20 days in mid-bay to over 40 days in the South Bay (Chadwick et al. 1999). During an average tidal cycle, about 13 percent of the water in the Bay mixes with ocean water and then moves back into the Bay (Port of San Diego 2007). The complete exchange of all the water in the Bay can take 10 to 100 days, depending on the amplitude of the tidal cycle (Port of San Diego 2007). Tidal flushing and mixing are important in maintaining water quality within the Bay. The tidally induced currents regulate salinity, moderate water temperature, and disperse pollutants (Port of San Diego 2007).

3.2.2.2 Marine Surface Waters

San Diego Bay is a narrow, crescent-shaped natural embayment, oriented northwest-southeast with an approximate length of 15 miles (Port of San Diego 2007). The width of the Bay ranges from 0.2 to 3.6 miles, and depths range from -74 ft MLLW near the tip of Ballast Point to less than 4 ft at the southern end (Merkel & Associates, Inc. 2009a). About half of the Bay is less than 15 ft deep and most of it is less than 50 ft deep (Merkel & Associates, Inc. 2009a).Before the 1960s, San Diego Bay was one of the most polluted harbors in the world because of more than 70 years of discharge of raw sewage and industrial waste as the population of San Diego increased and became a major harbor for the Navy and civilian commerce (Chadwick et. al. 1999). In 1963, the City of San Diego constructed its Wastewater Treatment Plant on the western side of the Point Loma peninsula to properly treat sanitary sewage before ocean discharge via an offshore pipeline. Use of the treatment plant and elimination of industrial discharges in the 1970s resulted in rapid water quality improvements in the Bay (Port of San Diego 2007).

Water temperature in San Diego Bay ranges from 15.1 to 26.1 degrees Celsius. This range can be attributed to thermoclines exhibited in deeper industrial/port waters, which are typical of this geographic region (Amec Foster Wheeler Environment & Infrastructure, Inc. [Amec Foster Wheeler][1] 2016). Measured pH values range from 6.80 to 8.03 throughout the Bay (low pH values noted but verified with calibrated field meters). Dissolved oxygen levels have an average of approximately 7.6 milligrams per liter (mg/L) and range from 0.80 to 8.50 mg/L. Light transmittance ranges from 22.5 to 79.5 percent. Levels of

[1] Amec Foster Wheeler is now known as Wood Environment & Infrastructure Solutions, Inc. (Wood).

dissolved oxygen and light transmittance tend to decrease with depth and known factors for a decline in measured values, including reduced flushing and natural stratification (Amec Foster Wheeler 2016).

Water quality is commonly assessed by measuring dissolved nutrients, dissolved oxygen, pH, turbidity, chlorophyll a, and coliform bacteria (Chadwick et al. 1999). Measured values for dissolved nutrients in San Diego Bay such as phosphate and silicates range from 0.9 to 4 parts per million (ppm) for silicon and 0.02 to 0.3 ppm phosphorus in the winter, to 0.3 to 1.3 ppm for silicates and 0.2 ppm phosphorus in the summer (Chadwick et al. 1999). This variation is the result of inflow of these nutrients with winter runoff, and uptake by phytoplankton growth in the summer (Chadwick et al. 1999). Dissolved oxygen levels range from about 4 (summer) to 8 (winter) milliliters per liter (mL/L) (Chadwick et al. 1999). These oxygen levels are typically at or near atmospheric equilibrium levels. The pH of seawater in San Diego Bay is relatively uniform, ranging from about 7.9 to 8.1 throughout the Bay and the year (Chadwick et al. 1999).

Surface water chemistry is analyzed by the Regional Harbor Monitoring Program (RHMP) using primary and secondary indicators, including total and dissolved levels of copper (primary), and total and dissolved zinc and nickel (secondary). Copper concentrations in the Bay show improvement in comparison with a historical baseline, and average copper concentrations do not exceed the California Toxics Rule (CTR) threshold of 5.8 micrograms per liter (µg/L) total and 4.8 µg/L dissolved. Less than 20 percent of measurements throughout the Bay still exceed the CTR threshold. Both total and dissolved zinc and nickel concentrations are well below CTR threshold values used for RHMP. All other dissolved and total metals have concentrations below their respective acute and chronic CTR thresholds (Amec Foster Wheeler 2016). Polycyclic aromatic hydrocarbon (PAH) concentrations are also below their respective CTR threshold values (Amec Foster Wheeler 2016).

Turbidity is a measure of water clarity or murkiness and can be caused by suspended sediments transported in runoff or increased algal/bacterial growth (Tierra Data Inc. 2010). Turbidity can also be created by natural and manmade resuspension of bottom sediments. Increased turbidity reduces the amount of light available for plant growth underwater, so it can affect the ability of the Bay to support living organisms (Tierra Data Inc. 2010). Turbidity in San Diego Bay varies, depending on the tides, seasons, and location within the Bay (Tierra Data Inc. 2010).

The monthly average for the northern portion of the Bay varies from 0.4 to 2.1 nephelometric turbidity units (NTU), with amounts up to 3 NTU during December rainfall and 7 NTU during the maximum tidal change (Tierra Data Inc. 2010). The Water Quality Control Plan for the San Diego Basin (Basin Plan) sets limits for allowable increases in turbidity over existing conditions (San Diego Regional Water Quality Control Board [RWQCB] 2016).

Chlorophyll *a* (a measure of the amount of phytoplankton present in the Bay) ranges from 0.2 to 25 µg/L (Chadwick et al. 1999). The highest values were measured in the South Bay in winter, when runoff carries high levels of nutrients into the South Bay. In summer, chlorophyll *a* levels return to background levels of 1 to 2 µg/L. These chlorophyll *a* levels are generally much higher than those found in the adjacent open ocean. Before 1964, when untreated sewage was still being discharged into San Diego Bay, bacterial counts (fecal coliform) were as high as 82 milliliters in the South Bay (Chadwick et al. 1999). Since these discharges ended, bacterial counts typically remain below 10 milliliters except during some winter storms. These levels are below federal limits for water contact, implying that the Bay is generally safe for recreational use (Chadwick et al. *1999*).

Current, general sources of pollution to the Bay include underground dewatering, industries on the Bay and upstream, marinas and anchorages, United States Naval activities, materials used for underwater hull

cleaning and vessel antifouling paints, and urban runoff (Chadwick et al. 1999). Additional specific pollution sources include creosote-treated wood pier pilings, which are a source of PAHs, stormwater runoff from land used for industrial, commercial, and transportation purposes, bilge water discharge, and oil spills (Chadwick et al. 1999). Changes in Navy procedures since the mid-1990s have included replacing approximately half of the pier pilings with plastic, concrete, or untreated wood and implementing the Bilge Oily Waste Treatment System for treatment of construction and repair wastewater.

Overall, the levels of contamination in the water and sediment in San Diego Bay appear to be lower now than in previous decades, including levels of some metals and PAHs (Port of San Diego 2007). However, copper concentrations remain routinely higher than federal and state limits for dissolved copper (Port of San Diego 2007).

3.2.3 Environmental Consequences

Evaluation of water quality impacts is based on the potential for a substantial increase in turbidity, discharge of suspended sediments, or discharge of contaminants at concentrations that exceed federal or state water quality standards or objectives. Impacts to water resources would occur if implementation of the Proposed Action would alter or obstruct patterns of circulation in San Diego Bay or substantially degrade surface water, groundwater, or marine water quality or cause impairment to beneficial use.

3.2.3.1 Avoidance and Minimization Measures

The following avoidance and minimization measures would be followed during the proposed dredging activities to limit potential impacts to water quality:

1. Dredge passes will start on the berth near the shoreline and move toward deeper water.
2. Vessel draft and movements will be continuously controlled by the contractor to limit potential for grounding.
3. Sediment will be controlled when on board to minimize spillage during transport.
4. Global Positioning System (GPS) locators will be used to ensure that sediment releases occur only within designated boundaries.
5. Dredge bucket depth of excavation, swing length, and fill amount will all be limited.
6. Spill control and response measures will be implemented during dredging, transport, and disposal.

3.2.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and there would be no change to baseline water resources. Therefore, no significant impacts to water resources would occur with implementation of the No Action Alternative.

3.2.3.3 Proposed Action Potential Impacts

The study area for the analysis of effects to water resources associated with the Proposed Action includes the Pier 5000 NSO berth and approach areas, along with the surrounding marine waters of the Bay and nearshore or offshore disposal locations and associated transit lanes.

Implementation of the Proposed Action, and the Reduced Dredging Footprint Alternative, would include dredging of underwater sediments of the Bay bottom at the Pier 5000 project site, loading of dredged material onto barge(s), transport of dredged material to disposal locations via barge, and direct

underwater disposal at one of the three nearshore locations for beneficial reuse. If not deemed adequate for beneficial reuse, dredged material would be disposed of at the offshore LA-5 ODMDS. If not deemed adequate for either beneficial reuse or offshore disposal, dredged material would be disposed of at the upland Otay Landfill. Additionally, currently unidentified underwater obstructions within the dredging area will be characterized by side scan sonar surveys and a work plan for their removal will be developed. This work plan will include removal methods and disposal locations, duration of work, and list of equipment necessary to complete the work while the Best Management Practices in Section 2.5 will be implemented during this work. In-water work, including dredging and underwater disposal of dredged material at the nearshore beneficial reuse site or at the offshore LA-5 ODMDS, would result in increased water turbidity associated with suspension of bottom sediments.

Bathymetry and Circulation

Dredging operations would temporarily increase water movement in the area where dredging is taking place, but the effect would be strictly limited to the duration of the dredging period and work area and would not affect overall water circulation within the Bay as a whole. Further, the minor changes in bathymetry resulting from dredge material removal would not be sufficient to affect circulation patterns in the Bay. Therefore, dredging associated with the Proposed Action would not have a significant impact to bathymetry and circulation.

Groundwater Quality

The Proposed Action proposes in-water marine dredging activities only; no coastal or upland ground-disturbing activities are proposed. Therefore, there is no potential for direct or indirect impacts to occur relative to groundwater supplies or groundwater quality.

Surface Water Quality

The Proposed Action includes in-water marine dredging and disposal activities. Potential impacts to marine water quality are discussed below. The Proposed Action would not result in impacts to surface water quality, other than those described under "Marine Water Quality" below. The Proposed Action would continue to comply with NPDES Permit requirements, with no proposed changes to surface water management or discharge practices. Therefore, implementation of the Proposed Action would not significantly impact upland surface water quality.

Marine Water Quality

A barge-mounted clamshell bucket dredge would likely be used during dredging activities. Potential sources of impacts to marine water quality associated with dredging activities include accidental release of vessel and equipment fuels or hydraulic fluids and increased turbidity as bottom sediments become resuspended in the water column during the dredging process.

Increased turbidity may result in temporary decreases in light penetration and levels of dissolved oxygen. Analysis of core samples taken from the proposed dredge footprint in the turning basin in February 2012 indicated that the dredge sediments are composed of gravel, sand, silt, and clay and were found to have a mean grain size of medium sand (NAVFAC SW 2014). Further, results from 2012 sediment sampling from the Pier 5000 North Side Outer Berth indicated that those sediments were suitable for unconfined ocean disposal following USEPA and USACE review. It is therefore anticipated that results from sampling conducted in 2019 will also be suitable for beneficial reuse. Sands tend to settle out quickly, and contaminants do not typically adhere to larger-grained material such as sand, so contaminants would not be anticipated in the dredged material (USACE 2009). Most sediments resuspended by dredging settle out

of the water column near the dredge within one hour, and only a small fraction take longer to resettle. The clamshell bucket dredge method would likely be used because it causes less turbidity than the cutter head/hopper dredge method. Increases in turbidity would be low because of the physical characteristics (mainly sand) of the dredge sediments and would be limited to the immediate vicinity of the operation. Decreases in levels of light penetration and dissolved oxygen would occur only within a few hundred feet of the dredging site and would end several hours after cessation of dredging activities, making a permanent decline in aquatic primary productivity unlikely. Because the material to be dredged is estimated to be mostly sand and silts and previous sampling conducted in the vicinity and at Pier 5000 did not indicate elevated levels of contaminants, it is unlikely that temporary turbidity associated with dredging would mobilize significant levels of dissolved-phase contaminants into the water column. Impacts to water quality due to increased turbidity, therefore, would not be significant.

Sediment samples from the dredge footprint were collected in January and February 2019 and testing will occur in accordance with regulations in Title 40 CFR Parts 220–228. The sediment characterization report will be provided to USEPA and USACE for review and comment on potential sediment disposal options. It is anticipated that the sediment characterization and chemistry test results will meet the allowable parameters for unconfined aquatic disposal due to the fact that the project area in particular, and the NBPL waterfront in general, has historically met these parameters and because of the area's high-velocity currents that scour the native bay floor surface and prevent sedimentation of fine particulates (silty fine material) that would otherwise contain and retain contaminants. USEPA and USACE have determined that sediments at NBPL have been suitable for unconfined aquatic disposal for either nearshore replenishment or ocean disposal at the LA-5 ODMDS site. Currently, the Navy is evaluating nearshore replenishment options, but ocean disposal remains a possibility.

Nearshore sediment disposal for beneficial reuse is an ongoing use for dredged sediments employed by the San Diego Association of Governments (SANDAG) and USACE to nourish beaches in San Diego County. Nearshore disposal sites, including Imperial Beach and Coronado Beach, have been considered and designated as appropriate offshore (in-water) sediment receiver sites within San Diego County (SANDAG 2008a). Dredged material would be transported into the littoral zone and dumped from scows or barges, resulting in short-term impacts to marine surface water quality in the immediate vicinity at the time of disposal. Nearshore currents would disperse the dredged material along the coast, supplying local beaches with additional sediment. Some San Diego sites, including Imperial Beach and Coronado Beach, are considered "feeder" beaches to the rest of the region, with sediments deposited at these locations transported downshore by prevailing currents and supplying a wider area with beneficial sediment (SANDAG 2009a).

The LA-5 ODMDS site is designated for disposal of dredged material that has been evaluated by the permitting criteria of USACE and USEPA (33 CFR 227 and 40 CFR 220–225; 227–228) and authorized for dumping under Section 103 of the Marine Protection, Research, and Sanctuaries Act (USEPA 1987). Ocean disposal of dredged sediments would cause short-term impacts to marine water quality in the immediate vicinity of LA-5 ODMDS at the time of disposal (USEPA 1987). Offshore currents would disperse the dredged material into a plume cloud with increased turbidity, and possibly decreased dissolved oxygen, but the plume would dilute to negligible concentration within two hours (USEPA 1987). Increased turbidity associated with ocean disposal of the project dredge sediments would be short-term and spatially restricted. Thus, impacts associated with dredging and disposal would not be significant.

In summary, procedures would be followed to reduce impacts to a level of insignificance. Impacts to marine surface water quality from sediment dredging and disposal would not be significant because of compliance with USACE, USEPA, and RWQCB permit requirements.

Summary

Implementation of the Preferred Alternative would not result in significant changes to circulation, groundwater, upland, or marine water quality, or wetlands. Therefore, implementation of the Preferred Alternative would not result in significant impacts to water resources.

3.2.3.4 Reduced Dredging Footprint Alternative Potential Impacts

The Reduced Dredging Footprint Alternative would have impacts similar to those of the Preferred Alternative, except that the dredging quantity would be approximately 102,637 cy and the dredging duration would be reduced to 84 days. As with the Preferred Alternative, dredging would not have significant impacts to bathymetry and circulation. Under this alternative, impacts to water resources would not be significant.

3.3 Marine Biological Resources

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are referred to generally as vegetation, and animal species are referred to generally as wildlife. Habitat can be defined as the resources and conditions present in an area that support a plant or animal.

Within this EA, biological resources are divided into four major categories: (1) terrestrial vegetation, (2) terrestrial wildlife, (3) marine vegetation, and (4) marine wildlife. Threatened, endangered, and other special status species are discussed in their respective categories.

3.3.1 Regulatory Setting

Special status species, for the purposes of this assessment, are those species listed as threatened or endangered under the Endangered Species Act (ESA) and species afforded federal protection under the Marine Mammal Protection Act (MMPA) or the Migratory Bird Treaty Act (MBTA) or have special designations under relevant State of California regulations, including the California Endangered Species Act.

The purpose of the ESA is to conserve the ecosystems upon which threatened and endangered species depend and to conserve and recover listed species. Section 7 of the ESA requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration (NOAA) Fisheries to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species or result in the destruction or adverse modification of designated critical habitat. Critical habitat cannot be designated on any areas owned, controlled, or designated for use by the Department of Defense (DoD) where an Integrated Natural Resources Management Plan has been developed that, as determined by the Department of Interior or Department of Commerce Secretary, provides a benefit to the species subject to critical habitat designation.

All marine mammals are protected under the provisions of the MMPA. The MMPA prohibits any person or vessel from “taking” marine mammals in the United States or the high seas without authorization. The

MMPA defines "take" to mean "to harass, hunt, capture, or kill or attempt to harass, hunt, capture, or kill any marine mammal."

Birds, both migratory and most native-resident bird species, are protected under the MBTA, and their conservation by federal agencies is mandated by EO 13186 (Migratory Bird Conservation). Under the MBTA it is unlawful by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess migratory birds or their nests or eggs at any time, unless permitted by regulation. The 2003 National Defense Authorization Act gave the Secretary of the Interior ability to prescribe regulations on the Armed Forces for the incidental taking of migratory birds during authorized military readiness activities. The final rule authorizing the DoD to take migratory birds in such cases includes a requirement that the Armed Forces must confer with the USFWS to develop and implement appropriate conservation measures to minimize or mitigate adverse effects of the proposed action if the action will have a significant negative effect on the sustainability of a population of a migratory bird species.

Bald and golden eagles are protected by the Bald and Golden Eagle Protection Act. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) provides for the conservation and management of the fisheries. Under the Act, essential fish habitat (EFH) consists of the waters and substrate needed by fish to spawn, breed, feed, or grow to maturity.

3.3.2 Affected Environment

This section describes the existing conditions for each of the categories under biological resources at NBPL. Threatened and endangered species are discussed in each respective section below, with a composite list applicable to the Proposed Action provided in Table 3-4.

The description of existing conditions is based on the following sources:

- San Diego Bay Integrated Natural Resources Management Plan (INRMP) (NAVFAC SW 2013);
- NBPL INRMP (NAVFAC SW 2012);
- 2014 San Diego Bay Eelgrass Inventory and Bathymetry Update (Merkel & Associates, Inc. 2014);
- 2010 Characterization of Essential Fish Habitat in San Diego Bay (NAVFAC SW 2010);
- Fish surveys conducted in San Diego Bay by Allen et al. (2002), Pondella and Williams (2009), and Williams et al. (2015);
- Silver Strand Training Complex Environmental Impact Statement (NAVFAC SW 2011);
- Incidental Harassment Authorization for the Navy's Fuel Pier Replacement Project at Naval Base Point Loma (NAVFAC SW 2014a); and
- Site reconnaissance and other sources as cited.

The proposed dredging includes in-water marine activities only; no upland terrestrial activities are proposed. Therefore, there is no potential for direct or indirect impacts to occur related to terrestrial vegetation or wildlife and these biological resources are not further analyzed here.

Marine vegetation and wildlife are described below. Special status vegetation and wildlife species are listed in Table 3-6 and are described in more detail in their appropriate sections. Species not expected to occur within or adjacent to the project footprint are not discussed further.

Table 3-6. Special Status Species Observed or with the Potential to Occur at NBPL on the Peninsula

Common Name	*Scientific Name*	*Federal Status*	*State Status*	*NBPL Presence*	*Presence Within or Adjacent to the Project Footprint[1]*
Plants					
Orcutt's Spineflower	*Chorizanthe orcuttiana*	FE	SE	Documented occurrences	Not expected to occur
Shaw's Agave	*Agave shawii*		S1.2	Documented occurrence	Not expected to occur
Cooper's Rein Orchid	*Piperia cooperi*		4.2	Documented occurrences	No expected to occur
Invertebrates					
Black Abalone	*Haliotis cracherodii*	FE		Low potential to occur	Not expected to occur
White Abalone	*Haliotis sorenseni*	FE		Documented occurrences	Not expected to occur
Pinto Abalone	*Haliotis kamtschatkana*	SC		Documented occurrences	Not expected to occur
Pink Abalone	*Haliotis corrugate*	SC		Documented occurrences	Not expected to occur
Green Abalone	*Haliotis fulgens*	SC		Documented occurrences	Not expected to occur
Birds					
Western Snowy Plover	*Charadrius alexandrinus nivosus*	FT	SSC	Occasional (non-breeder)	Not expected to occur
Coastal California Gnatcatcher	*Polioptila californica californica*	FT	SSC	Breeding	Not expected to occur
California Least Tern	*Sterna antillarum browni*	FE	SE	Forages in Bay	Expected occur within the project area
Least Bell's Vireo	*Vireo bellii pusillus*	FE	SE	Occasional migrant	Not expected to occur
Swainson's Hawk	*Buteo swainsonii*	BCC	ST	Migrant	Not expected to occur
California Black Rail	*Laterallus jamaicensis coturniculus*	BCC	ST	Occasional migrant	Not expected to occur
Bank Swallow	*Riparia riparia*		ST	Rare migrant	Not expected to occur
Bald Eagle	*Haliaeetus leucocephalus*		SE	Low potential to occur	Not expected to occur
Great Egret*	*Ardea alba*			Breeding	Not expected to occur
American Peregrine Falcon	*Falco peregrinus anatum*	BCC		Breeding	Not expected to occur
Osprey*	*Pandion haliaetus*			Breeding	Expected to occur within the project area
California Brown Pelican*	*Pelicanus occidentalis californicus*			Year-round foraging	Expected to occur within the project area
Amphibians and Reptiles					
Orange-Throated Whiptail	*Aspidoscelis hyperythra*		SSC	Stable population	Not expected to occur
Green Sea Turtle	*Chelonia mydas*	FT		Forages in bay	May occur in project area

Mammals					
Pacific pocket mouse	*Perognathus longimembris pacificus*	FE	SSC	Low potential to occur	Not expected to occur
Wester Mastiff Bat	*Eumops perotis californicus*		SSC	Documented Occurrences	Not expected to occur
Western Red Bat	*Lasiurus blossevillii*		SSC	Documented Occurrences	Not expected to occur
Pocket Free-Tailed Bat	*Nyctinomops femorosaccus*		SSC	Documented Occurrences	Not expected to occur
Big Free-Tailed Bat	*Nyctinomops macrotis*		SSC	Documented Occurrences	Not expected to occur

Notes: * Species actively managed for compliance with requirements such as MBTA
Selections for Listing Status Column include: FE = Federal Endangered, FT = Federal Threatened, SE = State Endangered, SSC = Species of Special Concern (state designation), ST = State Threatened, BCC = Birds of Conservation Concern Status.
1: Additional information on species occurrence is in Section 3.3.2.2.
Source: NAVFAC SW 2012

Birds

The MBTA of 1918 (16 United States Code (USC) 703 *et* seq.) and the Migratory Bird Conservation Act (16 USC 715 *et* seq.) of 1929 (45 Stat. 1222) are the primary legislation in the United States established to conserve migratory birds. These statutes implement the United States' commitment to four bilateral treaties, or conventions, with Canada, Mexico, Russia, and Japan for protection of shared migratory bird resources. The MBTA prohibits the taking, killing, or possessing of migratory birds, or the parts, nests, or eggs of such birds, unless permitted by regulation. The species of birds protected by the MBTA are listed in Title 50, Section 10.13, of 50 CFR 10.13 and represent almost all avian species found in North America (NAVFAC SW 2014a).

Migratory bird conservation relative to non-military readiness is addressed separately in a Memorandum of Understanding (MOU) developed in accordance with EO 13186, signed 10 January 2001, *Responsibilities of Federal Agencies to Protect Migratory Birds*. The MOU between the DoD and the USFWS was signed on July 31, 2006. DoD responsibilities discussed in the MOU include, but are not limited to (NAVFAC SW 2014a):

1. Obtaining permits for import and export, banding, scientific collection, taxidermy, special purposes, falconry, raptor propagation, and depredation activities;
2. Encouraging incorporation of comprehensive migratory bird management objectives in the planning of DoD planning documents;
3. Incorporating conservation measures addressed in Regional or State Bird Conservation Plans in Integrated Natural Resource Management Plans;
4. Managing military lands and activities other than military readiness in a manner that supports migratory bird conservation;
5. Avoiding or minimizing impacts to migratory birds, including incidental take and the pollution or detrimental alteration of the environments used by migratory birds; and/or
6. Developing, striving to implement, and periodically evaluating conservation measures for management actions to avoid or minimize incidental take of migratory birds, and if necessary, conferring with the service on revisions to these conservation measures.

The Bay is part of a major bird migratory pathway, the Pacific Flyway, and supports large populations of over-wintering birds traveling between northern breeding grounds and southern wintering sites (NAVFAC SW 2012 and 2013). Over 300 migratory and resident bird species have been documented to use the Bay (NAVFAC SW 2012 and 2013), including shore birds, gulls, and other waterfowl. The most common bird species in the Bay include surf scoter, eared grebe (*Podiceps nigricollis*), scaup (lesser [*Aythya affinis*] and greater [*Aythya marila*]), bufflehead (*Bucephala albeola*), black brant (*Branta bernicla nigricans*), Western grebe (*Aechmophorus occidentalis*), American wigeon (*Anas americana*), ruddy duck (*Oxyura jamaicensis*), mallard (*Anas platyrhynchos*), red-breasted merganser (*Mergus serrator*), Northern pintail (*Anas acuta*), Northern shoveler (*Spatula clypeata*), and American coot (*Fulica americana*). Several species, as noted below, are considered sensitive by the USFWS or California Department of Fish and Wildlife (CDFW).

Special status bird species with the potential to occur in the project area or near the project area include the western snowy plover (*Charadrius alexandrines nivosus*), coastal California gnatcatcher (*Polioptila californica californica*), California least tern (*Sterna antillarum browni*), least Bell's vireo (*Vireo bellii pusillus*), Swainson's hawk (*Buteo swainsonii*), California black rail (*Laterallus jamaicensis coturniculus*), and bank swallow (*Riparia riparia*). NBPL manages additional birds for compliance with the MBTA including but not limited to great egret (*Ardea alba*), American peregrine falcon (*Falco peregrinus*

anatum), osprey (*Pandion haliaetus*), and California brown pelican (*Pelicanus occidentalis californicus*) (NAVFAC SW 2012 and 2014a). Most of these species are considered sensitive only where breeding or nesting occurs. These birds use intertidal flats, shallow water habitat, or manmade structures for foraging or resting, similar to areas adjacent to the project area. No critical habitats for these species are identified in the vicinity of the project area.

Western snowy plover (*Charadrius alexandrinus nivosus*)

The western snowy plover is a federally threatened bird species that nests in colonies on sandy beaches along the west coast of the United States and into southern Baja California (USFWS 2007). The western snowy plover is also a California Species of Special Concern and it is on the United States Bird Conservation and Audubon Watch List. It inhabits sandy ocean beaches and the drying margins of lagoons. It also inhabits tidal mud flats during migration and in winter (United States Department of the Navy [DON] 2011a).

Adults and chicks feed on terrestrial and aquatic invertebrates such as amphipods, sand hoppers, and flies (NAVFAC SW 2013). Kelp wrack provides an abundant food source of the invertebrates that frequent these kelp piles. Critical habitat was designated for this species in December 1999. The decline in populations of the western snowy plover has been attributed to lower reproduction caused by human disturbance, predation, and loss of habitat through invasion by nonnative plants.

No breeding western snowy plovers have been reported on Point Loma, although breeding colonies have been reported from Naval Air Station North Island, Lindbergh Field, and the Coronado Cays. The western snowy plover is not expected to occur within the area to be dredged or in the offshore dredging and sediment disposal sites.

Coastal California gnatcatcher (*Polioptila californica californica*)

The coastal California gnatcatcher is a federally threatened species and a California SSC. The coastal California gnatcatcher is a small, slate-colored bird with a long, black tail that is edged and tipped with white, which it flicks erratically as it perches. The coastal California gnatcatcher is a non-migratory songbird found on the coastal slopes of Southern California.

The coastal California gnatcatcher is strongly associated with coastal sage scrub habitats below 250 meters (m) (820 ft) in coastal areas and between 250 and 500 m (820 and 1,640 ft) in inland areas and is not expected to be present within the dredge project area. A pair of coastal California gnatcatchers was observed in September 1995 in a large patch of coastal sage scrub on the southern end of Point Loma at CNM. In September 1998, a pair was also observed adjacent to Battery Humphrey. Since that time, at least one breeding pair has been observed annually at NBPL since 2015.

California least tern (*Sternula antillarum browni*)

The California least tern has been a federally and state-listed endangered species since 1970. It is also on the United States Bird Conservation Watch List. It is the smallest tern found in the United States, approximately 23 centimeters (cm) (9 inches [in]) long with a 51-cm (20-in) wingspan. Its coloring is primarily gray and white with black wingtips, a black cap, a white forehead, and a yellow beak tipped with black. Immature birds have darker plumage and a dark bill, with a distinctive white head and a dark eye stripe.

The California least tern breeds in the coastal sandy beach habitat of the California coast. Its habitat has been subject to significant human disturbance and alteration in the past, before the species was listed.

California least terns prefer to nest on open sandy or gravelly shores with light-colored substrates, little vegetation, and nearby fishing waters (NAVFAC SW 2013). California least tern nests are simple depressions in the substrate either lined or unlined with shell debris or pebbles and sometimes wood. Most initial nesting attempts are completed by mid-June. A second wave of nesting often occurs from mid-June to early August. These re-nests follow initial failures during a given season but may also represent second year birds nesting for the first time (NAVFAC SW 2013). California least terns will generally return each year to breeding sites that have been used successfully in the past. Least terns over-winter in Central America and breed mainly in Baja California and Southern California, but a few colonies exist in the San Francisco Bay area (NAVFAC SW 2013). During the nesting season, adult terns and their young feed almost entirely on small marine fish in the surface waters (top 6 feet) of the Bay, river mouths, and near-shore ocean waters (NAVFAC SW 2013). The peak of the topsmelt spawning season (April and May) occurs at the same time the least terns return from their southern wintering grounds (April) and begin nesting at Seal Beach (May). The large numbers of topsmelt (*Atherinops affinis*) overall and the seasonal abundance (May through November) of the deepbody anchovy (*Anchoa compressa*) provide a timely and adequate forage base for the California least tern.

The presence of eelgrass is important as habitat for several prey species of the least terns, such as northern anchovy (*Engraulis mordax*), topsmelt, and jacksmelt (*Atherinopsis californiensis*). However, California least terns do not demonstrate any preference for feeding in eelgrass areas (Baird 1997).

The decline of the California least tern is attributed to prolonged and widespread destruction and degradation of nesting and foraging habitats and increasing disturbance of breeding colonies throughout its range. Loss of nesting habitat has isolated colony sites that become extremely vulnerable to predation from native, feral, and exotic species, overwash by high tides, and vandalism and harassment.

In 1993, the Navy entered into a MOU between USFWS and NAVFAC SW concerning the endangered California least tern in the Bay. This MOU continued efforts in least tern conservation that started in October 1987 under a similar MOU. The purpose of this MOU is to establish standards and conditions for Navy in-water construction activities conducted in San Diego Bay to prevent adverse effects on the tern. The MOU defines areas and conditions in which in-water construction activities may and may not occur without formal Section 7 consultation. The California least tern forages in the Bay near NBPL (Figure 3-1).

Least Bell's vireo (*Vireo bellii pusillus*)

Listed as federally endangered, the least Bell's vireo is a small gray migratory songbird with generally gray plumage, rounded wings with pale white wing bars, and narrow white eye rings. It is a resident to California during the spring and summer, migrating south to Baja California, Mexico, for the fall and winter. Its preferred habitat is dense riparian vegetation dominated by willows (*Salix* spp.), with a lush understory (NAVFAC SW 2013) that is in the high-quality 5- to 10-year-old, early succession stage (Franzreb 1989). The least Bell's vireo is sensitive to changes in riparian vegetation. Populations are declining as a result of urban and agricultural development, alteration of the habitat, and parasitism of the brood by the brown-headed cowbird. Range-wide control of the brown-headed cowbird (trapping and nest monitoring) has resulted in a nearly 10-fold expansion in the population of the vireo over the last decade. Since its listing, habitat restoration and cowbird trapping programs have helped the vireo recover from near extinction. Nesting for the least Bell's vireo occurs from March 15 to September 30. These birds use non-riparian habitats occasionally and will travel an average of 15 m (50 ft) to forage.

A low, dense shrub layer is considered essential for nesting (Franzreb 1989), and a large degree of vertical stratification is preferred. Willow is most commonly used. Most nest sites are located near the edges of

thickets. Nest height on average is 1 m (3 ft) above the ground (Regional Environmental Consultants 1988). Males are tenacious about nesting sites and return to the same site in succeeding years. Regional Environmental Consultants (1988) reported an average territory of about 0.8 hectare (2 acres).

The least Bell's vireo has been reported as a summer migrant in several vegetation communities on Point Loma. Because appropriate riparian vegetation for breeding is absent on Point Loma, least Bell's vireo is unlikely to nest there. It is unlikely that the least Bell's vireo would rest at the project area.

Swainson's hawk (*Buteo swainsoni*)

Swainson's hawks and their nests are considered threatened by the State of California as well as being designated a federal Bird of Conservation Concern (BCC). Swainson's hawks are a medium-sized, transient hawk. Those birds occurring in California spend the winter in Mexico and South America. Swainson's hawks often nest peripherally to riparian systems of the valley as well as utilizing lone trees or groves of trees in agricultural fields. Swainson's hawks require large, open grasslands with abundant prey in association with suitable nest trees. The diet of the Swainson's hawk is varied with the California vole (*Microtus californicus*) being the staple in the Central Valley. A variety of bird and insect species are also taken.

Swainson's hawks were once found throughout lowland California and were absent only from the Sierra Nevada, north Coast Ranges and Klamath Mountains, and portions of the desert regions of the state. This species breeds throughout most of western North America. Swainson's hawks are highly migratory, breeding in North America and wintering in southern South America (Woodbridge 1998). In California, breeding populations of Swainson's hawks occur in grassland, desert, shrub steppe, and agricultural habitats. The majority of today's breeding Swainson's hawks are found in the Great Basin and California's Central Valley (Woodbridge 1998). Although this raptor was a fairly common breeder in San Diego County in the early 1900s, Swainson's hawks in Southern California are now rarely seen during spring and fall migration (Unitt 2004). Historically, Swainson's hawks may have maintained a population in excess of 17,000 pairs. Based on a study conducted in 1994, the statewide population is now estimated to be approximately 800 pairs (CDFW 2006).

Threats to the Swainson's hawk include the loss of suitable agricultural habitat, riverbank protection projects, illegal hunting, pesticide poisoning of prey animals within wintering grounds, competition from other raptors, and human disturbance at nest sites.

Swainson's hawks have been observed during migration on Point Loma. There are no reports of Swainson's hawks breeding in the vicinity. Swainson's hawks are unlikely to forage at or near Pier 5000 and are therefore unlikely to occur within the project area.

FIGURE 3-1

California Least Tern Nesting Sites and Foraging Areas
Pier 5000 North Side Outer Berth
and Pier Approach Dredging
Naval Base Point Loma, San Diego, CA

Notes: MLWW = Mean Lower Low Water, OD = Over Dredge

California black rail (*Laterallus jamaicensis coturniculus*)

The California black rail is a federal BCC as well as a state-threatened species. This bird gleans isopods, insects, and other arthropods from the surface of mud and vegetation in saltwater, brackish, and freshwater marshes. Freshwater marsh vegetation used by this species includes pickleweed (*Salicornia* spp.), sedges (*Carex* spp.), saltgrass (*Distichlis* spp.) in brackish marshes, bulrushes (*Scirpus* spp.) and cattails (*Typha* spp.) (Navy 2011).

California black rails occur year-round in San Francisco Bay and the Sacramento–San Joaquin delta in northern California, along the Colorado River, near the Salton Sea, and in other desert locales in southern California. The species has declined due to loss of coastal and inland marsh habitats, and marsh habitats along the Colorado River (Navy 2011).

Recent sightings of the California black rail have not been documented on Point Loma. They are considered a rare transient and migrant to San Diego County. Pacific Southwest Biological Services, Inc. reported California black rail as a year-round resident of intertidal flats on Point Loma and as a possible breeding population (NAVFAC SW 2012). This species was a former local resident in coastal wetlands from Santa Barbara to San Diego and still rarely winters in this range. A comprehensive record search of this species' presence in San Diego County indicates that the likelihood of this species establishing itself on Point Loma is very low; however, it may occasionally migrate through the area (NAVFAC SW 2012).

Bank swallow (*Riparia riparia*)

Nesting colonies of bank swallows are considered threatened by the State of California. Most breeding colonies are found along the banks of Central Valley streams, particularly along the Sacramento River. As a migratory bird, it is most commonly seen in the interior of California west of the deserts. Bank swallows are casual migrants to coastal Southern California in winter, arriving from South America in early April, with numbers peaking in early May. By mid-September most bank swallows have left the state. Bank swallows nest colonially in vertical sandy banks or cliffs near streams, rivers, ponds, lakes, or the ocean. During nesting season, bank swallows prey upon insects over riparian areas; during migration they feed upon insects over brushland, grassland, and agricultural fields (Navy 2011). The bank swallow's range is estimated to have been reduced by half since 1900. Loss of nesting habitat from channelization and stabilization of banks along rivers used for nesting is the primary reason for the decline of the species in California. Bank swallows are a rare migrant to San Diego County and are not expected to nest on Point Loma.

3.3.2.1 Marine Species

Habitats and Communities

The habitats of San Diego Bay are differentiated by elevation or depth, substrate, and manmade or natural biological features and include artificial shorelines, natural shorelines, shallow subtidal, vegetated shallows, moderately deep subtidal, and deep subtidal habitats. Habitats associated with the project area include the developed/artificial shoreline and substrates (e.g., pier pilings and decking) at Pier 5000; and marine benthic (bottom), water column, and open water habitats of the Deep Subtidal habitat (NAVFAC SW 2013). Depths at the project site vary from -36 to -40 ft below MLLW.

Artificial Shorelines in the Intertidal Zone (+7.8 to -2.2 ft MLLW)

The shoreline of the affected environment consists primarily of manmade features, including concrete bulkhead walls and riprap. A total of 74 percent (45.4 miles) of the Bay shoreline is armored by manmade

structures to protect developed sites (NAVFAC SW 2013). At Pier 5000, the entire shoreline is developed and consists of piers and pilings. In general, artificial shorelines and substrates within the Bay, such as the pilings for Pier 5000, support invertebrates and seaweeds. California spiny lobster (*Panulirus interruptus*) and a variety of crabs, worms, mussels, barnacles, echinoderms (sea stars and sea urchins), sponges, sea anemones, and tunicates (sea squirts) inhabit artificial structures. These structures provide microhabitats and support communities similar to those of natural rocky shores, which are lacking in the Bay. These areas may also provide refuge and feeding areas for juvenile and predatory fishes. Riprap niches are often filled with invertebrate fauna. Small mobile invertebrates, including nemertean worms (ribbon worms), amphipods, shrimp, decorator crabs, and gastropods, are common on piles (NAVFAC SW 2013).

Hardened shorelines can also provide elevated roosting sites for bay waterbirds, such as California brown pelicans, cormorants, and gulls, which allow them to conserve energy and avoid harsh weather conditions (NAVFAC SW 2013). The surface roughness and complexity of structure can affect its ability to provide refuge niches and allow water retention at low tides. Pier 5000 covers approximately 1.5 acre and is used for resting by waterbirds.

Deep Subtidal (deeper than -20 ft MLLW)

Deep subtidal habitat includes the overlying surface water, water column, and sediments for depths greater than 20 ft, which constitutes about 4,400 acres (34 percent) of the Bay surface area (NAVFAC SW 2013). Deep subtidal habitat is associated primarily with navigational channels, including the approach area. Most of the project area is deep subtidal, ranging from -30 ft MLLW near Pier 5000 to -50 ft MLLW where the approach area borders the main channel. Planktonic organisms such as phytoplankton or zooplankton spend their entire lives in the water column, while meroplankton consist of animals that only spend a portion of their lives in the water column. For the meroplankton, which includes many fish and invertebrates, an important function of the deep subtidal environment is transport into and out of the relatively warm, sheltered waters of the Bay, which provide nursery habitats (NAVFAC SW 2013). Common fish species found in deep subtidal habitat are round stingray, California halibut, and barred sand bass.

Diving birds, including California least tern, forage in the open water above deep subtidal habitat, especially along the Bay margins where schooling fish concentrate. Other common bird species include cormorant, grebe, surf scoter, elegant tern (*Sterna elegans*), and other tern species (NAVFAC SW 2013).

The entire Pier 5000 berth and approach areas proposed to be dredged is in deep subtidal water and includes areas that have and have not been previously dredged.

Nearshore Replenishment Sites

The nearshore soft-bottom benthos includes similar characteristics for a given water depth, sediment type, and wave energy. Thus, sandy nearshore communities off Naval Air Station North Island are similar to the nearshore communities off Imperial Beach and Silver Strand. The subtidal zone is classified into general regions, including the shallow subtidal to a depth of about -30 ft MLLW, an inner shelf zone from about -30 to -80 ft MLLW, a middle shelf from about -80 to -300 ft MLLW, and an outer shelf zone from about -300 to -600 ft MLLW. Thus, the project area encompasses the shallow zone and a small portion of the inner shelf zone (NAVFAC SW 2013).

The proposed replenishment sites fall within the inner shelf zone, which is influenced by oceanic swell. The abundance and diversity of benthic macroinvertebrates are lower in the inner shelf compared with the middle and outer shelf zones. Polychaete worms and/or small, mobile crustaceans dominate the inner to middle shelf infaunal community (NAVFAC SW 2013). The most abundant species collected in sediment

core samples at depths of -49 to -134 ft MLLW on the San Diego shelf include brittle stars, polychaete worms, and small crustaceans (Southern California Coastal Water Research Project [SCCWRP] 1994 and 2003). Common benthic macroinvertebrate species include blackspotted shrimp (*Crangon nigromaculata*), California sand star (*Astropecten verrilli*), sea pens, and white sea urchin (*Lytechinus anamesus*) (SCCWRP 2003).

Common fish species living on the inner shelf include English sole (*Parophrys vetulus*), Pacific sanddab (*Citharichthys sordidus*), pink seaperch (*Zalembius rosaceus*), speckled sanddab (*Citharichthys stigmaeus*), yellowchin sculpin (*Icelinus quadriseriatus*), and white croaker (*Genyonemus lineatus*) (SCCWRP 2003).

Marine Vegetation

Marine vegetation includes plants occurring in marine or estuarine waters. These may include mangroves algae, and various grasses.

Eelgrass (*Zostera sp.*) is a perennial flowering aquatic plant submerged in bays and shallow coastal zones. Eelgrass beds found extensively throughout the Bay appear to be very important in supporting juvenile and adult fish populations. Although eelgrass is not an endangered or threatened species, its presence in the waters adjacent to NBPL initiates management concerns regarding offshore activities because it is important to many species. Eelgrass beds were mapped south of the MSF degaussing facility and adjacent to the MSF deperming facility, SSC Pacific and Fleet Intelligence Training Center Pacific (FITCPAC), and around the perimeter of Fleet Anti-Submarine Warfare (ASW) Training Center. Eelgrass beds are vulnerable to human activities such as dredging. Transplantation projects have been widely used to mitigate impacts to this species. Long-term feasibility of transplantation projects has been reviewed in numerous studies and were adopted in 1991, and amended in 2014, under the Southern California Eelgrass Mitigation Policy by federal and state agencies that standardize the need, ratio, and techniques to be considered for compensatory projects.

In 2008, and updated in 2014, eelgrass inventories and bathymetry updates were conducted in the Bay. The 2014 update report found that eelgrass distribution within the Bay was approximately 1,955.7 acres (Merkel & Associates, Inc. 2014). The report compared eelgrass distribution between 1993 and 2014 and observed the following populations changes: an eelgrass expansion of 542 acres (50 percent) between 1993 and 1999, from 1,091.4 acres in 1993 to 1,633.7 acres in 1999. The expansion between 1999 and 2004 was 45.0 acres, a 27 percent expansion. From 2004 to 2008, eelgrass suffered a 47 percent decline, losing 769 acres and dropping from 2,083.7 acres to 1,325.1 acres. From 2008 to 2011, eelgrass experienced a 39 percent expansion from 1,315.1 acres to 1,830.4 acres. From 2011 to 2014, eelgrass experienced an expansion of almost 7 percent from 1,830.4 acres to 1,955.7 acres (Merkel & Associates, Inc. 2014).

In addition, the report states that the greatest extent of eelgrass is found within the shallow southern ecoregion of the Bay with more extensive eelgrass also being found on the shallower fringes of the western Bay shorelines (including NBPL). Fairly extensive eelgrass beds also exist at the mouth of San Diego Bay within the shallows outside of Ballast Point and along Zuniga Jetty on Naval Air Station North Island, where clear water supports a broad-leaved population of eelgrass between Point Loma and Zuniga Jetty (Merkel & Associates, Inc. 2014). However, the proposed project area would include deep subtidal areas, deeper than the -20 ft MLLW habitat limit for eelgrass and located approximately 1,000 feet from the nearest mapped eelgrass area from the 2017 update report (Figure 3-2) (Merkel & Associates, Inc. 2017).

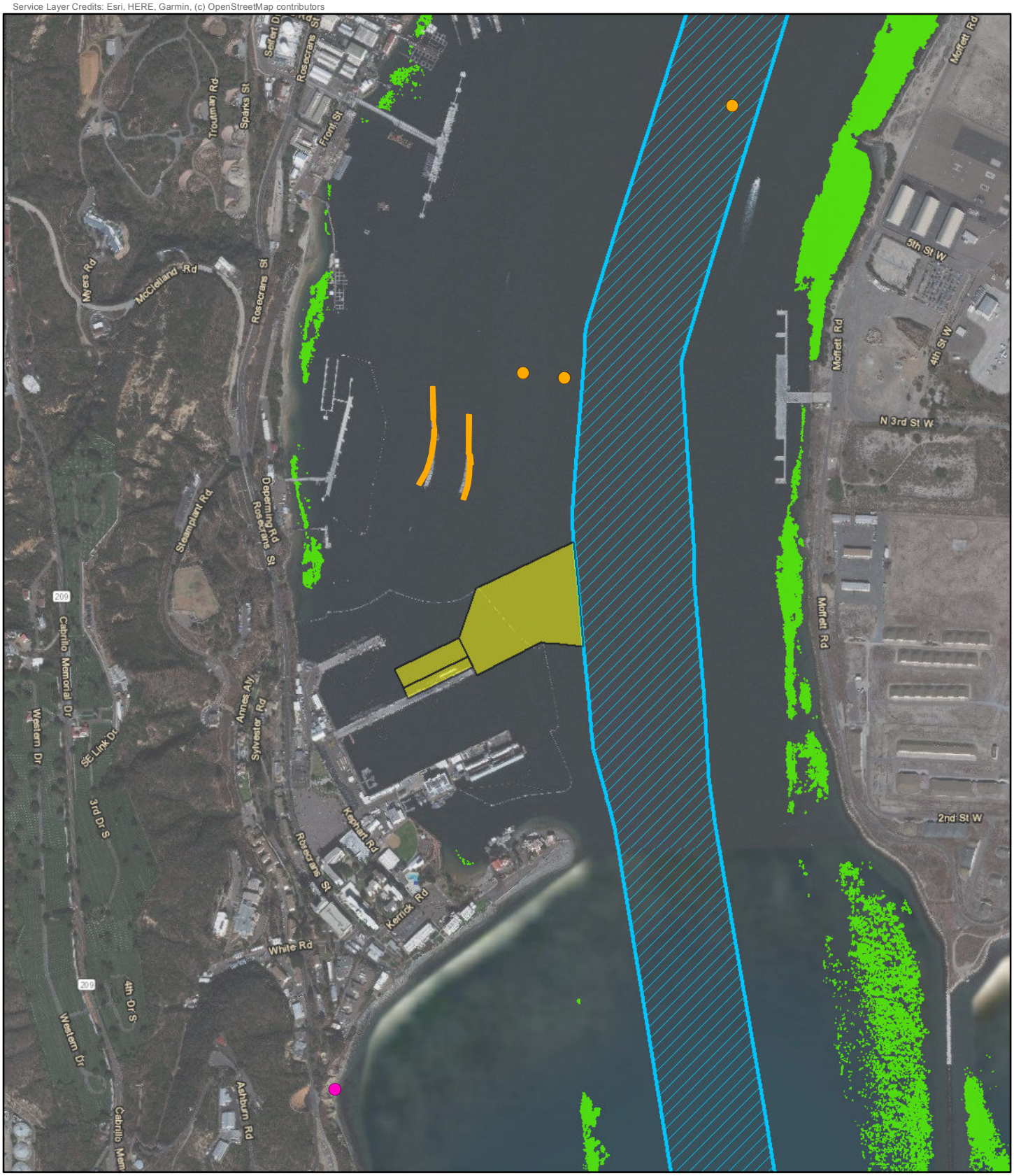
A large kelp forest extending for approximately 8 kilometers (5 miles) with a width of approximately 1.0 kilometers (0.62 mile) occurs off the western shore of Point Loma peninsula. The kelp forest provides habitat for numerous fish species, many of which are commercially important. A number of species associated with the kelp forest use the natural tide pools at NBPL as a nursery ground, and juveniles of these fish can be found in the intertidal area at low tide. Some species spend their entire lives in the tide pools at NBPL. However, the project area includes only deep subtidal areas and artificial shorelines and would not include any intertidal areas.

Marine Mammals

Jurisdiction over marine mammals is maintained by NOAA Fisheries and the USFWS. NOAA Fisheries maintains jurisdiction over whales, dolphins, porpoises, seals, and sea lions. The USFWS maintains jurisdiction for certain other marine mammal species, including walruses, polar bears, dugongs, sea otters, and manatees. Marine mammals are protected from "taking" under the MMPA of 1972. Taking is defined as "harass, hunt, capture, or kill or attempt to harass, hunt, capture, or kill any marine mammal." The term harassment is defined under the MMPA as any act of pursuit, torment, or annoyance with potential to do one or both of the following:

- Injure a marine mammal or marine mammal stock in the wild (Level A); and/or
- Disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B).

Buoys, a bait barge, and various docks are often used as haul-outs with the nearest haul-out location at a bait barge (recreational fishing vessels can collect bait fish prior to leaving for fishing excursions) which is 1,250 feet to the north of Pier 5000 (Figure 3-2). During marine mammal surveys conducted between 2007 and 2016, five marine mammal species, including harbor seals (*Phoca vitulina*), California sea lion (*Zalophus californianus*), bottlenose dolphin (*Tursiops truncatus*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and common dolphin (*Delphinus* sp.), were observed in the vicinity of NBPL, both within San Diego Bay and along the coast (NAVFAC 2016a). The waters off the Point Loma shore provide an important migration corridor for gray whales (*Eschrichtius robustus*), and they are often seen making their annual migration to sheltered lagoons in Baja California for calving. Occasionally whales have come closer to the shore near the statue of Cabrillo. Although not present in large numbers, bottlenose dolphins are frequently sighted within the Point Loma Naval Complex (NAVFAC SW 2012). Pacific harbor seals frequently enter the northern portion of the Bay, and gray whales are occasionally sighted near the mouth of the Bay during their winter migration (Merkel & Associates, Inc. 2009b; NAVFAC SW 2012). Recent monitoring efforts (2014 to 2018) for the NBPL Fuel Pier Replacement Project in northern San Diego Bay identified nine marine mammal species observed more than once in northern San Diego Bay (NAVFAC SW 2019). These species included California sea lions, harbor seal, coastal bottlenose dolphin, gray whale, common dolphin, Pacific white-sided dolphin, and northern elephant seal (*Mirounga angustirostris*). During the 395 days of monitoring effort, 21,643 marine mammals were observed during 10,826 sightings either in the water or hauled out on buoys, barges, or floating docks near the NBPL Fuel Pier. Most of the individuals observed in the water were California sea lions (88.2%), followed by coastal bottlenose dolphins (4.1 %), and harbor seals (4.0%). Extralimital species, Steller sea lion (*Eumetopias jubatus*) and short-finned pilot whale (*Globicephala macrorhynchus*), were observed once during the El Niño event in 2015 (NAVFAC SW 2019).



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- Harbor Seal Haul-Out Location
- Sea Lion Haul-Out Location (Navigational Buoy)
- Sea Lion Haul-Out Location (Bait Barge)
- Eelgrass (Merkel, 2017)
- Proposed Action Dredging Area
- Federal Navigation Channel (USACE)

1 inch = 1,000 feet
0 500 1,000 Feet

FIGURE 3-2

Eelgrass and Known Sea Lion Haul-Out Locations
Pier 5000 North Side Outer Berthing and Approach Area Dredging Project
Naval Base Point Loma, San Diego, CA

Sea Turtles

Of the six sea turtle species that are found in U.S. waters or that nest on U.S. beaches, all are designated as either threatened or endangered under the ESA. Sea turtles are highly migratory and utilize the waters of more than one country in their lifetimes. The USFWS and NOAA Fisheries share federal jurisdiction for sea turtles with the USFWS having lead responsibility on the nesting beaches and NOAA Fisheries, the marine environment.

Green sea turtles (*Chelonia mydas*) are known to forage in San Diego Bay and along the Pacific coast of Baja California. No green sea turtles have been documented to nest on the West Coast. They do not breed or nest in San Diego Bay because they need undisturbed beaches for nesting such as those found along the coast of Mexico (Eguchi et al. 2010).

The population of green sea turtles in San Diego Bay numbers approximately 30 to 60 individuals that represent a local resident foraging population (Eguchi et al. 2010). Recent observations, including during construction of the NBPL Fuel Pier, recorded one live turtle at the Fuel Pier site, one live turtle at the NBPL Harbor Drive Annex, and one dead turtle near Naval Air Station North Island (NAVFAC SW 2019). Female green sea turtles are believed to migrate from the Bay to nesting grounds in Mexico prior to nesting season while the remaining male adults and subadults continue to be present within San Diego Bay. Habitat usage by green sea turtles in the Bay based on capture surveys demonstrates that turtles largely utilize eelgrass areas in the South Bay with a historical link to the former warm water effluent channel of the decommissioned power plant (MacDonald et al. 2012). Turtles observed in the cooler North Bay are suggested to be transient individuals transiting between the Pacific Ocean and the warmer South Bay.

Potential habitat for green sea turtles within the Bay may be utilized during foraging but is not considered suitable for nesting. Foraging by green sea turtles is likely concentrated to eelgrass beds and to a lesser extent invertebrate communities in South and South Central Bay, considering the concentration of most of such habitat is within those areas of the Bay. Potential foraging areas are located outside the Bay associated with kelp beds offshore of Point Loma or eelgrass located adjacent to the mouth of the Bay (Zuniga Jetty) and north Naval Air Station North Island (Eguchi et al. 2010).

Fish and Essential Fish Habitat

Fish are vital components of the marine ecosystem. They have great ecological and economic aspects. To protect this resource, NOAA Fisheries works with the regional fishery management council (i.e., Pacific Fishery Management Council [PFMC]) to identify the essential habitat for every life stage for each federally managed species using the best available scientific information. Essential fish habitat includes all types of aquatic habitat including wetlands, coral reefs, seagrasses, and rivers; all locations where fish spawn, breed, feed, or grow to maturity.

The Bay, which includes approximately 12,000 acres of marine habitat, is the largest bay between San Francisco Bay and Scammon's Lagoon in central Baja California. The bay provides a unique habitat to support diverse assemblages of coastal marine fish and supports fish nurseries and large numbers of juvenile fish. A four-year study, initiated in 1994, identified 79 species of fish captured over 16 sampling dates between July 1994 and April 1998 (Allen 1999).

More recently, among the most comprehensive studies were surveys by Williams *et al*. (2016). These and other works related to fish and EFH were characterized by Merkel & Associates, Inc. (2014). Survey results indicate over 90 species of fish in the Bay. In the North Bay, there is a greater variety of fish species than in the South Bay. The greatest fish diversity can be found at artificial reefs; sandy floors and eelgrass have

approximately two-thirds the species diversity of artificial reefs. Piers and rock riprap have approximately one-half the fish diversity of artificial reefs. Marinas, launch ramps, and muddy bottoms have the least diversity of all areas in the North Bay. The 10 most common fish species sampled in the North Bay are the following:

- Topsmelt (*Atherinops affinis*),
- Northern anchovy (*Engraulis mordax*),
- Slough anchovy (*Anchoa delicatissima*),
- Giant Kelpfish (*Heterostichus rostratus*),
- Dwarf Perch (*Micrometrus minimus*),
- Kelp Pipefish (*Syngnathus californensis*),
- Round Stingray (*Urobatis halleri*),
- California Grunion (*Leuresthes tenuis*),
- Shiner Perch (*Cymatogaster aggregata*), and
- Rock Wrasse (*Halichoeres semicinctus*).

The topsmelt (31 percent), northern anchovy (23 percent), and slouch anchovy (21 percent) were the most abundant species. Additional fish species, accounting for 3.9 percent of the total sample, include:

- California halibut (*Paralichthys californicus*),
- Spotted sand bass (*Paralabrax maculatofasciatus*),
- Bay blenny (*Hypsoblennius gentilis*),
- Kelp bass (*Paralabrax clathratus*),
- Barred sand bass (*Paralabrax nebulifer*),
- Black surfperch (*Embiotoca jacksoni*),
- Pacific Barracuda (*Sphyraena argentea*),
- Spotted Kelpfish (*Gibbonsia elegans*),
- Jacksmelt (*Atherinopsis californiensis*), and
- Specklefin Midshipman (*Porichthys myriaster*).

Nearshore water depths near Pier 5000 vary from -4 ft MLLW near the shore to -42 ft MLLW near the outer berths. Existing depths across the dredge footprints vary from -36 ft MLLW to -50 ft MLLW. The nearshore habitat along the pier is expected to contain marine algae, invertebrates, and fish species typically associated with shoreline to deep subtidal habitats. Based on Allen et al. (2002), areas extending out from the pier deeper than -18 ft MLLW are likely to contain:

- Pacific rock crab (*Cancer antennarius*),
- Red tube worm (*Serpula vermicularis*), and
- Giant green anemone (*Anthopleura xanthogrammica*).

Fish associated with deep subtidal habitats include California horn shark (*Heterodontus francisi*), shovelnose guitarfish (*Rhinobatos productus*), bat ray (*Myliobatis californica*), round stingray, Pacific sardine, northern anchovy, slough anchovy, jacksmelt, topsmelt, pipefish, basses, croakers, surfperches, Pacific mackerel (*Scomber japonicus*), and turbots (NAVFAC SW 2013).

Essential Fish Habitat

The 1996 amendments to the MSFCMA set forth the EFH provisions to identify and protect important habitats of federally managed marine and anadromous fish species. Section 305(b)(2) of the amended Magnuson-Stevens Act directs each Federal Agency to consult with the NMFS with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any EFH identified under the MSFCMA. Implementing regulations for this requirement are outlined in 50 CFR 600.

The PFMC delineated EFH for two Fishery Management Plans (FMPs): Coastal Pelagic Species (PFMC 2018) and Pacific Coast Groundfish (PFMC 2016) in the vicinity of the project. The FMP for Coastal Pelagic Species includes five species, four of which are likely to occur in the project area (PFMC 2016). The Pacific Coast Groundfish FMP manages at least 89 species, seven of which are likely to occur within the project area (including disposal sites) (PFMC 2016; Allen et al. 2002; Williams *et al*. 2016). These species are listed in Table 3-7 and are discussed in more detail below. Because the project may adversely affect EFH, the NMFS must be consulted. The Navy and NMFS signed an agreement in 2001 to allow the Navy's NEPA and Fish and Wildlife Coordination Act process to satisfy EFH analysis requirements. Therefore, the NMFS would be notified in writing as early as practicable regarding actions that may adversely affect EFH. Notification would facilitate discussion of measures to conserve EFH. A written assessment of the effects of the project on EFH would be provided to NMFS. The level of detail required in the assessment is commensurate with the magnitude of potential adverse effects, so an action resulting in minor effects would only require a brief assessment. Mandatory contents of the assessment are outlined in 50 CFR 600.920.e.3. In conformance with the Navy Policy Regarding Essential Fish Habitat Assessments and Consultations (DON 2011b), a separate EFH Assessment is provided in Appendix C.

Table 3-7. Fish Species with EFH Likely to Occur in the Proposed Project Area

Common Name	*Scientific Name*
Coastal Pelagics	
Jack mackerel	*Trachurus symmetricus*
Northern anchovy	*Engraulis mordax*
Pacific (chub) mackerel	*Scomber japonicus*
Pacific sardine	*Sardinops sagax*
Groundfish	
Curlfin sole	*Pleuronichthys decurrens*
California scorpionfish	*Scorpaena guttata*
English sole	*Pleuronichthys vetulus*
Grass rockfish	*Sebastes rastrelliger*
Leopard shark	*Triakis semifasciata*
Soupfin shark	*Galeorhinus zyopterus*
Spiny dogfish	*Squalus acanthus*

EFH considered to be particularly important to the long-term productivity of populations of one or more managed species, or to be particularly vulnerable to degradation, may also be identified by NMFS as Habitat Areas of Particular Concern (HAPC). For types or areas of EFH to be considered HAPC, at least one of the following must be demonstrated:

- The importance of the ecological function provided by the habitat;
- The extent to which the habitat is sensitive to human-induce environmental damage;

- Whether, and to what extent, development activities are, or would be, negatively impacting the habitat type; and/or
- The rarity of the habitat.

The two groups of managed species with EFH, including HAPC, in the project area are discussed below.

Coastal Pelagic Species

Coastal pelagic fish are fish living in the water column rather than groundfish species living near the sea floor (PFMC 2018). Pelagic species can generally be found anywhere from the surface to 3,300 ft deep. In depth descriptions and life histories for each of the coastal pelagic species with EFH in the vicinity of the project are provided in Appendix C – Essential Fish Habitat.

Groundfish Species

Although groundfish are considered demersal (living on or near the seabed), they occupy diverse habitats at all stages in their life histories (PFMC 2005). EFH areas may be large because a species' pelagic eggs and larvae are widely dispersed; however, EFH areas can be comparatively small, as is the case with the adults of many nearshore rockfishes with strong affinities for a particular location or type of substrate. In depth descriptions and life histories for each of the coastal pelagic species with EFH in the vicinity of the project are provided in Appendix C– Essential Fish Habitat.

As the project region is located within an area designated as EFH by the Pacific Coast Groundfish and Coastal Pelagic Species, the species covered by these plans are considered in this EA.

Habitat Areas of Particular Concern

HAPCs may include high-value intertidal and estuarine habitats, offshore areas of high habitat value or vertical relief, and habitats used for migration, spawning and rearing of fish and shellfish. The Pacific Coast Groundfish FMP identifies several HAPCs including one for seagrass associated with eelgrass beds in the Bay (PFMC 2016).

Special Aquatic Sites

In addition to EFH and HAPC, USEPA defined Special Aquatic Sites as geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values (40 CFR Part 230 Section 404(b)(1)). Special Aquatic Sites are recognized as those significantly influencing or positively contributing to the overall environmental health or vitality of the entire ecosystem or a region. Special Aquatic Sites include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. Eelgrass in the Bay qualifies as vegetated shallows. As of 2014, historical data indicate the proposed project area has never supported eelgrass (Merkel & Associates, Inc. 2014), although eelgrass beds occur approximately 500 ft northwest of the proposed project site.

Benthic Invertebrates

Animals that live on the sea floor are called benthos. Most of these animals lack a backbone and are called invertebrates. Typical benthic, invertebrates include sea anemones, sponges, corals, sea stars, sea urchins, worms, bivalves, crabs, and many more.

The Bay is a highly productive habitat with at least 650 species of marine, estuarine, and salt marsh invertebrates. Infaunal benthic invertebrates are the most abundant invertebrates found in the soft-bottom sediment of the Bay. The species diversity, abundance, and biomass of infaunal invertebrates in

the North Bay region are significantly higher than those of the South Bay region. Abundance in the North Bay is particularly high in rock riprap (NAVFAC SW 2010). During the Bight 1998 survey (Bay et al. 2000), 1,172 megabenthic invertebrates, representing 43 taxa, were collected in the Bay. The nonindigenous bivalve, Asian data mussel (*Musculista senhousia*), was present in more than 70 percent of the samples, making it the most widely distributed trawl-caught invertebrate in the Bay. Other common invertebrates present in at least one-third of the samples included two undescribed species of sponge, the ascidian tunicate *Microcosmus squamiger*, the bivalve *Argopecten ventricosus*, and the gastropod *Crepidula onyx*. *Musculista senhousia*, together with another nonindigenous species, *Microcosmus squamiger*, accounted for over 50 percent of the total catch (Bay et al. 2000).

NBPL also supports efforts to recover abalone species in southern California. The CDFW developed a recovery and management plan for abalone species in 2005 (CDFW 2005). Abalone species identified within the plan include red abalone (*Haliotis rufescens*), green abalone (*H. fulgens*), pink abalone (*H. corrugate*), white abalone (*H. sorenseni*), pinto abalone (*H. kamtschatkana*), black abalone (*H. cracherodii*), and flat abalone (*H. walallensis*) (CDFW 2005). NBPL partners with Cabrillo National Monument staff for a combined abalone monitoring program along the Point Loma peninsula. Key locations identified in the 2005 plan for recovery of red, green, pink, black, pinto, and flat abalone species at NBPL include:

- La Jolla (Point La Jolla to Bird Rock)
- Point Loma (Mission Bay to Ratkay Point)
- Point Loma (Ratkay Point to Ballast Point)

3.3.3 Environmental Consequences

This analysis focuses on wildlife or vegetation types that are important to the function of the ecosystem or are protected under federal or state law or statute.

3.3.3.1 Avoidance and Minimization Measures

The following avoidance and minimization measures would be followed during the proposed dredging and sediment disposal activities. In addition, the project surface area would be visually monitored for the presence of marine mammals and sea turtles prior to commencement of in-water dredging and sediment disposal activities:

1. All work included under the proposed Maintenance and Construction Program work will occur during daylight hours that allow for sighting of protected species within all project areas and defined monitoring zones, within 20 meters (m) of the dredging site.
2. All work would be scheduled to avoid the nesting season of the endangered California least tern (April 1 to September 15).
3. A pre-dredging survey for *Caulerpa*, an invasive alga, would be conducted at the dredging site consistent with NMFS and CDFW requirements. If *Caulerpa* is found in the study area during this survey, NMFS-approved *Caulerpa* Control Protocols would be followed.
4. The dredging contractor will designate Green Sea Turtle and Marine Mammal monitors during all operations and work will be temporarily halted if green sea turtles or marine mammals are observed within 20 meters either in transit of or occupying the dredging or disposal site.

5. The Navy shall contact NMFS Stranding Coordinator, Justin Viezbicke, (562) 980-3230, immediately in the event of a collision between any watercraft or equipment used during a project and a marine mammal or sea turtle.
6. The Navy and its contractors shall instruct all personnel associated with the project of the potential presence of protected species and the need to maintain a 20 m buffer and avoid collisions with sea turtles and marine mammals. All construction personnel are responsible for observing water-related activities for the presence of these species.
7. All stoppages and sightings of protected species within monitoring zones must be reported to the Navy Region Southwest Regional Environmental Coordinator's Office for inclusion in the annual report on the Maintenance and Construction Program.
8. If a sea turtle or marine mammal is seen within the vicinity of active project activities, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 20 m of a sea turtle or marine mammal. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or marine mammal is seen within a 20 m radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition, or has not been sighted for 15 minutes.
9. A standard monitoring distance of 100 m will be implemented through dedicated monitoring before and during all maintenance dredging activity, and after a break in dredging of more than 30 minutes.
10. Monitoring will commence at least 15 minutes before dredging activity commences. If a sea turtle or marine mammal is seen in the project area out to a distance 100 m prior to or during maintenance dredging, the activity will not commence or continue until the animal has moved out of the area or at least 15 minutes has passed since the last sighting.
11. For transiting vessels, monitoring for marine mammals and sea turtles shall ensure that within 100 m of the barge and disposal equipment species are not present. Adequate lighting shall be used after daylight to light the area of minimum monitoring distance from the barge and equipment to allow for species detection. This applies to vessels and equipment in transit to and from disposal activity.
12. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four ft clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) wherever possible.
13. No pre-Proposed Action California grunion monitoring is required. However, discharge of dredged material at the Silver Strand Boat Lanes site shall be limited to daylight hours and two hours before and after each scheduled run only in March to avoid potential effects on grunion runs.

3.3.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to biological resources. Therefore, no significant impacts to biological resources would occur with implementation of the No Action Alternative.

3.3.3.3 Proposed Action Potential Impacts

The study area for the analysis of effects to biological resources associated with the Preferred Alternative includes the Pier 5000 NSO berth and approach areas as well as transit routes to and from either nearshore replenishment sites or a designated ocean disposal site.

Impacts to biological resources associated with the Proposed Action would be from dredging and sediment transport and disposal. The proposed dredge footprint parallels the northeastern side of the pier in the Pier 5000 NSO berth and the approach areas. Currently unidentified underwater obstructions within the dredging area will be characterized by side scan sonar surveys and a work plan for their removal will be developed. This work plan will include removal methods and disposal locations, duration of work, and list of equipment necessary to complete the work while the Best Management Practices in Section 2.5 will be implemented during this work. Activities described below with potential to impact biological resources include turbidity noise, and vessel / equipment strikes associated with dredging activities. Because the project would involve dredging activities, a CWA Section 401 Water Quality Certification from the RWQCB and a CWA Section 404 and Rivers and Harbors Act Section 10 permit from USACE would be obtained before implementation of the Proposed Action. No take of marine mammals is anticipated under the Proposed Action.

Terrestrial Vegetation

No terrestrial upland and shoreline habitat occurs directly within the project area. Further, all project activities would occur within the near- or offshore marine environment. Therefore, no effects to terrestrial upland or shoreline habitat would occur with implementation of the Proposed Action.

Terrestrial Wildlife

As stated above, no terrestrial or shoreline habitat would be impacted by the Proposed Action. Temporary project-related impacts to terrestrial wildlife species could occur from noise or lighting changes associated with dredging and offshore sediment disposal activities. Increases in noise levels from dredging activities to the ambient noise environment as perceived from shore by terrestrial species would be buffered by distance from the project site to upland habitats. Further, no terrestrial-restricted species, including orange-throated whiptail or Pacific pocket mouse, would occur within the in-water project area and would not be impacted by the Proposed Action. Therefore, project-related impacts to terrestrial reptiles and mammals would be less than significant.

Birds

Project activities would result in increases in noise and human activity and decreases in water quality in the project area during dredging and sediment transport and disposal. These activities would disturb marine birds, and non-marine birds that may forage in the project area, covered under the MBTA, including, but not limited to, California least tern, osprey, and California brown pelican. Dredging activities would occur within a 15.60-acre area, approximately one-tenth of 1 percent of the Bay, and would last a maximum of 90 days. Birds would likely avoid the project area during these activities. Dredging and sediment disposal would also result in small-scale alterations in foraging conditions and/or prey availability in the immediate vicinity of project activities. The project area is routinely subject to elevated noise and activity of workers and equipment associated with common industrial practices. Because the project area is developed, and similar resting and foraging habitats occur nearby, common shorebirds and waterbirds would move to other nearby, similar habitats if disturbed and then return when the project is complete. No dredging activities would occur during the California least tern breeding season without

prior consultation with the USFWS. Furthermore, sediment disposal at nearshore replenishment sites would occur offshore and would not affect western snowy plover habitats along the coast, including those at Naval Air Station North Island. Therefore, implementation of the Proposed Action would not have a significant adverse effect under the MBTA and there would be no significant impacts to other non-migratory marine bird habitat or populations.

Marine Habitats and Vegetation

Dredging activities for the Proposed Action would cause minor and short-term impacts to existing unvegetated soft-bottom benthic communities within the Pier 5000 NSO berth and approach areas. Organisms occurring in the immediate area would be lost or displaced during dredging activities, either directly by equipment and noise associated with these activities or indirectly by exposure to short-term changes in suspended sediments, turbidity, dissolved oxygen, or light diffusion. Elevated turbidity levels and associated resuspended sediments would decrease to background levels within a period of one hour after dredging activities cease. Potential impacts to plankton communities could include a localized decrease in primary productivity due to reduced photosynthesis. However, sediment resuspension, increased turbidity, or chemical changes would be limited to the areas of bottom disturbance and would persist for the duration of dredging activities. Turbidity would vary spatially based on currents and sediment grain size. Turbidity plumes from dredging are expected to persist for less than one hour following disturbance. Therefore, the increased turbidity would not significantly impact benthic or water column habitats in the project area.

The proposed dredge area in the Pier 5000 NSO berth and approach areas is, and would remain, deep subtidal habitat at depths greater than -20 ft. As such, no permanent change in habitat would result from the Proposed Action. Any benthic flora within the immediate project area would be eliminated by the dredging activities because of site excavation and substrate removal. However, given the depths of dredging and substrate type, no vegetation is expected to occur within the dredging footprint. Invertebrates within the dredge footprint would either be lost or relocated with the sediment and are expected to recover from the disturbance upon completion of the dredging activities. Any fish in the area would be capable of avoiding project equipment. Any impacts to marine algae and meioflora are localized, minimal, and not significant. Dredged material would be moved to a previously permitted disposal site. Therefore, dredging may have some adverse, but less than significant, impacts to marine life.

A survey for *Caulerpa* consistent with NMFS and CDFW requirements would be conducted before initiating in-water project activities (NMFS 2008). If *Caulerpa* is found in the project area during this survey, NMFS--approved *Caulerpa* Control Protocols would be followed including additional surveys and eradication (mechanical or chemical removal) if necessary. Therefore, implementation of the Proposed Action would not result in significant impacts to special aquatic sites associated with the spread of *Caulerpa*.

Eelgrass is the only special aquatic site found in the vicinity of the project area. Eelgrass is present approximately 1,000 ft north of the project area (Merkel & Associates, Inc. 2014). Although no direct impacts are anticipated from dredging activities, potential indirect impacts such as increased turbidity and sedimentation may occur. In conjunction with the *Caulerpa* survey, a pre-dredging eelgrass survey would be conducted. Further, a post-dredging eelgrass survey would be conducted and results would be compared with both historical data and results from the pre-dredging survey to determine potential project-related impacts. If impacts are identified for eelgrass, the NMFS-approved Southern California Eelgrass Mitigation Policy (NMFS 2014) would be followed including potential in-kind mitigation or

contributions to mitigation banks or in-lieu fee programs that would protect existing eelgrass or replace eelgrass habitat off-site. Therefore, dredging activities would not result in significant impacts to marine plants or special aquatic sites.

Marine Wildlife

Marine Mammals

As defined above, the MMPA defines ''harassment'' as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [(Level A harassment)]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering ([Level B harassment)] (50 CFR, Part 216, Subpart A, Section 216.3-Definitions). NMFS (2018) specified underwater and airborne acoustic threshold criteria for both Level A and Level B harassment (An action that results in a change in behavior attributable to human activity may be considered a "take by harassment," depending on the circumstances. Table 3-8), with characterization of Level A impacts based on duration of exposure (cumulative Sound Exposure Level [SEL_{cum}]) or peak sound pressure levels, as well as by and functional hearing groups. The functional hearing groups take into account hearing frequencies of marine mammals when assessing impacts of underwater noise. The Level B threshold criteria identified in Table 3-8 are based on an assessment of noise relative to decibels in Root Mean Square (RMS), which is the square root of the mean of the squared pressure level(s) as measured over a specified time-period. Table 3-8 provides the noise thresholds at which marine mammals are considered harassed or are likely to be injured by noises generated by marine construction. These thresholds are applicable to any noise-generating marine activity, regardless of the source of the sound production. Based on both underwater and airborne source levels associated with dredging activities; noise levels during dredging are not expected to reach underwater Level A (injury) or airborne Level B (behavioral) thresholds identified in Table 3-8.

Table 3-8. Marine Mammal Injury and Disturbance Thresholds for Noise Generated by Marine Construction

Functional Hearing Group Low-frequency Cetaceans	***Airborne Noise Thresholds***	***Underwater Noise Thresholds (Non-Impulsive, Continuous Noise Sources)***	
	Sound Pressure Level (RMS *re: 20 µPa)*	***Disturbance Threshold (RMS re: 1 µPa)***	***Injury Threshold (PTS) SEL_{cum} (24-hr) (re: 1 µPa²-s)***
	Level B Harassment	***Level B Harassment***	***Level A Harassment***
Low-frequency Cetaceans	Not Applicable	120 dB	199 dB
Mid-frequency Cetaceans		120 dB	198 dB
High-frequency Cetaceans		120 dB	173 dB
Phocid Pinnipeds (e.g., Harbor Seals)	90 dB RMS (unweighted)	120 dB	201 dB
Otariid Pinnipeds (e.g., Sea Lions)	100 dB RMS (unweighted)	120 dB	219 dB

Note: dB = decibels; RMS = root-mean square; RMS re: 1 µPA = root-mean square referenced to one micro-Pascal; PTS = permanent threshold shift
Source: NMFS 2018; Southall et al. 2007; 71 FR 3260 Jan. 20, 2006.

Several species of marine mammals are known to occur in northern San Diego Bay, with the three primary species being California sea lions, harbor seals, and bottlenose dolphin. However, marine mammal observations in the specific Project Area are rare (NAVFAC 2015; 2016b and c; 2017a and b; 2018). There are known California sea lion haul-out locations near the project area (with the closest being approximately 1,250 ft north of Pier 5000) and a known haul-out location for harbor seals to the west of the project area on Point Loma. Potential impacts to marine mammal species would primarily be from noise generated during dredging activities or vessel movement during sediment transportation. Dredging operations would result in the generation of noise that may include dredge engine and exhaust noise; crane engine and exhaust noise; rope noise and bucket water splash; and various noises associated with the boom and grab, the bucket hitting the bottom during dredge, and the bucket closing and opening during construction. Based on a previous study conducted in soft substrate in Cook Inlet, Alaska, the maximum underwater noise associated with dredging operations maximum noise levels were measured at 124 decibels (dB) at 150 m (Dickerson et al. 2001). While this is louder than the established non-impulsive Level B threshold criteria (NMFS 2018) identified in Table 3-8 (120 dB), it is quieter than ambient levels as measured in northern San Diego Bay (NAVFAC SW 2014b, 2016b) and underwater Level B (behavioral) harassment from dredging activities are not expected. Furthermore, based on the best management practices identified in Section 2.5, marine species monitoring will be implemented to reduce the likelihood of any marine mammal being exposed to noise levels that may cause a behavioral disturbance.

As discussed under Transportation in Section 3.5, minimal increase in marine vessel traffic will result from implementation of the Proposed Action. Further, vessels will follow speed limits and BMPs to include visual checks for marine mammals to avoid vessel strikes.

All avoidance and minimization measures described in Section 3.3.3.1 would be implemented to avoid or minimize potential impacts to marine mammals. In addition, the project surface area would be visually scanned for the presence of marine mammals 15 minutes prior to commencement of in-water dredging activities.

Disruptions to pre-dredge foraging or movement behaviors would be temporary, restricted to the 90-day dredging activity duration, and not significant, with wildlife activities returning to normal patterns upon dredging completion. Given the low levels of disturbance, and the avoidance and minimization measures, project activities are not expected to adversely affect marine mammals. Furthermore, the project area would represent a small percentage of the available resources, project activities are considered localized, and impacts would cease upon completion of dredging activities. Therefore, there would be no effect to marine mammals due to the proposed action and there would be no reasonably foreseeable “take” of marine mammals as defined by the MMPA.

Sea Turtles

Green sea turtles in the Bay are more common in the South Bay where larger areas of eelgrass are present but transient turtles occur in the North Bay as they move in and out of the Bay and may forage in eelgrass beds northwest of Pier 5000 (NAVFAC SW 2015, 2017). Dredging activities have the potential to disturb sea turtles in the immediate vicinity because of vessel movement, construction-related noise, and water quality degradation. Vessel movement is associated with all stages of dredging, including transit to and

from the project area, transit to and from the deposition site, and operation of the dredger. Collision with vessels is a known cause of injury and mortality to sea turtles. However, given the slow speed of dredgers, this collision is unlikely. Further, other support vessels (such as barges) are limited in number, will be required to maintain established speeds, and are consistent with baseline conditions. Direct injury from the use of a clam shell dredge is also a concern for sea turtles resting on the bottom; however, clam shell dredgers have been found to be loud enough that sea turtles are alerted to their presence and can move to avoid the dredge (NOAA 2010). Although no noise thresholds have been established for sea turtles, NMFS often adopts thresholds established for other marine mammals.

As stated above, sound pressure levels of dredging operations (124 dB re 1 µPa-m at 150 meters) would be less than or equal to observed background noise in San Diego Bay (129.6 dB rms) (NAVFAC SW 2019). Further dredging activities would occur within a 15.60-acre area in the Bay and would last 90 days; therefore, these impacts would be temporary and limited in their geographic scope and would be less than significant. Additionally, visual monitoring for sea turtle and a prohibition on employing hydraulic dredging methods would be incorporated as BMPs, as described in Section 2.5, to ensure no significant impacts to turtles.

Fisheries

Impacts to fish communities in the project vicinity would be primarily associated with noise and with disturbance of bottom sediments and unvegetated soft bottom habitat during dredging activities. Sediment resuspension and increased turbidity would be limited to the areas of bottom disturbance and would persist for less than one hour following the disturbance. Fish present during project activities are capable of avoiding project equipment and areas affected by increased turbidity and increased noise from dredging. Greater potential for impacts would exist if there were substantial amounts of fine sediments and organisms in the potential dredging areas. However, previous sediment testing indicated grain sizes are predominantly sandy in this area. This material settles quickly rather than remaining suspended in the water column. Dredging activities are sometimes beneficial in terms of suspending infauna and epifauna, which may temporarily enhance fish feeding activities. Subject to the terms and conditions identified in the project-specific CWA Section 404 and Rivers and Harbors Act Section 10 permits issued by USACE, precautionary measures would be implemented to minimize turbidity associated with dredging activities. Precautionary measures may include operational controls implemented by the dredger, such as reducing bucket speed. A turbidity threshold may be adopted or alternative measures identified during the project-specific USACE permitting process would be implemented. Impacts to fish species would be temporary and limited in nature because of the focused duration of dredging activities and the quantity of sediment (approximately 110,619 cy) dredged in a 15.60-acre area of the Bay. Therefore, implementation of the Proposed Action would not result in significant impacts to fish communities.

Fish species occurring in the immediate area would be displaced during project activities, either directly by equipment and noise associated with these activities or indirectly by short-term changes in suspended sediments, turbidity, dissolved oxygen, and light diffusion. Based on a previous study conducted in both coarse sand/gravel and unconsolidated sediment, the noise associated with bucket/clamshell dredging operations is anticipated to range from 99 decibels (dB) for the bucket closing to 124 dB for the bucket contacting the bottom (Jones et al. 2015). Injury noise levels are defined by NOAA-Fisheries as those noise levels above 206 peak dB (dB_{PEAK}) and 187 sound exposure level dB (dB_{SEL}) for fish over 2 grams and noise levels above 206 dB_{PEAK} and 183 dB_{SEL} for fish under 2 grams. Behavioral disturbance is defined by noise levels above 150 root mean square dB (dB_{RMS}) (California Department of Transportation [Caltrans] 2015). Noise levels therefore are under both behavior and injury guidelines. Dredging activities would occur over

a period of 90 days within a 15.60-acre portion of the Bay. Thus, impacts to fish from underwater noise would not be significant under NEPA because of their limited geographic and temporal scale, and fish species would return to the project area following the completion of dredging activities. Impacts to EFH under the Magnuson-Stevens Act are discussed below.

Essential Fish Habitat

Four managed coastal pelagic fish species (jack mackerel, northern anchovy, Pacific mackerel, and Pacific sardine) and seven managed groundfish species (curlfin sole, California scorpionfish, English sole, grass rockfish, leopard shark, soupfin shark, and spring dogfish) are likely to occur in the project area (NAVFAC SW 2000; Allen et al. 2002; Pondella and Williams 2009, and Williams *et at*. 2016). Northern anchovy and Pacific sardine can be found throughout the Bay. Jack mackerel were found only at the North Bay survey area and Pacific mackerel were found at all locations except South Bay (Allen et al. 2002). All of these species are highly transient, are not tied to artificial substrates, and routinely experience turbid and noisy conditions from natural processes and ship traffic within the Bay. Impacts from dredging activities of either project alternative would be the same as described for other fish communities in the "Fisheries" subsection above. Namely, noise associated with dredging activities would temporarily displace EFH species within a limited scope, although no fish would be injured. Other effects would occur from increased suspended sediments and turbidity and increased underwater noise levels from dredging activities. These impacts would result in minimal adverse effects per the Magnuson-Stevens Act and are not considered significant under NEPA.

As discussed previously, turbidity plumes would be expected to persist for less than one hour following disturbance. Subject to the terms and conditions in the project-specific USACE Section 404 and Section 10 permits, avoidance and minimization measures would be implemented to alleviate turbidity associated with dredging activities. Avoidance and minimization measures may include turbidity monitoring or other alternative measures developed during the USACE permitting process. A turbidity threshold would be adopted or alternative measures identified during the project-specific USACE permitting process would be implemented. With implementation of these measures, no direct or indirect impacts from turbidity or sedimentation are anticipated on eelgrass beds located approximately 1,000 ft north of the project area.

Although the outer edges of piers support increased fish biomass, abundance, and species richness, EFH species expected to occur in the project area are highly mobile are not closely tied to artificial substrates. If present, such species would likely leave the immediate project area during dredging and return when completed.

An indirect effect of the temporary reduction in invertebrate populations would be a reduction in forage base for fish and other organisms feeding on invertebrates. Nevertheless, colonization of the sands would begin almost immediately and the development of the invertebrate prey base would proceed naturally. The Proposed Action would result in the disposal of approximately 110,619 cy of sediment at a nearshore replenishment site. Replenishment would occur at three potential sites along an approximately 12-mile stretch of beach. Therefore, because of the relatively rapid recovery rates of sandy subtidal invertebrates, direct and indirect impacts to marine organisms within the replenishment site are expected to be less than significant. Further, nearshore replenishment provides beneficial beach nourishment, which is ultimately positive for marine organisms and coastal ecology. The three nearshore replenishment sites and LA-5 ODMDS have been previously reviewed and permitted for replenishment activities (SANDAG 2008a) and dredged sediment disposal (USEPA 1987). During that process, evaluations for these sites as receiving locations for dredge deposit had been performed for impacts to habitat, and BMPs/mitigation

measures have been identified for implementation during dredge deposition. Implementation of the Proposed Action would follow all required protocols established at replenishment/disposal sites. Hence, there would be minimal, short-term adverse effects on EFH from dredging per the Magnuson-Stevens Act, which would not be significant under NEPA. Impacts to EFH under the Magnuson-Stevens Act are discussed in more detail in Appendix C.

Benthic Invertebrates

Disposal of sediment at the nearshore replenishment site would result in direct burial impacts to marine biota. The loss of benthic organisms within the replenishment site footprint is an expected and unavoidable impact of beach replenishment projects. Most invertebrates within the replenishment site footprint are not expected to survive, but some mobile animals would be able to burrow out from the outer or leading edges of the beach fills. Sediment disposal would result in a temporary reduction in benthic invertebrate biomass and alteration of the benthos species composition at the replenishment site. Although full recovery of the benthic community after a disturbance may take a few years (Merkel & Associates, Inc. 2010), the forage base would begin to establish almost immediately after cessation of the disturbance. Recovery may occur by migration of invertebrates from unaffected surrounding areas as well as settlement from the plankton.

In summary, the Proposed Action would result in minor and short-term impacts to existing unvegetated soft-bottom benthic communities within the project area; however, sediment resuspension, increased turbidity, or chemical changes would be limited to the areas of bottom disturbance and would persist for less than one hour following disturbance. The proposed dredge area is, and would remain, deep subtidal habitat. As such, no permanent change would result from dredging. Dredging activities would not result in significant impacts to marine plants or special aquatic sites. A survey for *Caulerpa* would be conducted before initiating in-water project activities, consistent with NMFS and CDFW requirements. Impacts to marine biota from sediment disposal would be temporary and less than significant. Therefore, implementation of the Proposed Action would not result in significant impacts to habitats and communities and no significant effects to marine communities or special aquatic sites would occur.

In summary and across each biological resource, implementation of the Proposed Action would not result in significant impacts.

3.3.3.4 Reduced Dredging Footprint Alternative

The Reduced Dredging Footprint Alternative would dredge approximately 102,637 cy, or 92.8 percent, of the volume of the Proposed Action, thereby reducing the duration and scale of the activity. This alternative would have the same avoidance and minimization measures and the same minimal and temporary impacts as the Proposed Action. Therefore, there would be no significant impacts to marine biological resources as a result of the Reduced Dredging Footprint Alternative.

3.3.3.5 Mitigation Measures

Because potential impacts to marine biological resources would be localized, would cease upon completion of dredging activities, and would not be significant under the Proposed Action or the Reduced Dredging Footprint Alternative, no mitigation measures are proposed. However, BMPs detailed in Section 2.5 for the treatment of biological resources would act as a failsafe to prevent adverse impacts. These measures include visual monitoring for green sea turtles or marine mammals during dredging and sediment disposal and avoidance of California least tern nesting season.

3.4 Noise

This discussion of noise includes the types or sources of noise and the associated sensitive receptors in the human environment. Noise in relation to biological resources and wildlife species is discussed in the Biological Resources section.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Sound is all around us. The perception and evaluation of sound involves three basic physical characteristics:

- Intensity – the acoustic energy, which is expressed in terms of sound pressure, in decibels (dB)
- Frequency – the number of cycles per second the air vibrates, in Hertz (Hz)
- Duration – the length of time the sound can be detected

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although continuous and extended exposure to high noise levels (e.g., through occupational exposure) can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the individual. While aircraft are not the only sources of noise in an urban or suburban environment, they are readily identified by their noise output and are given special attention in this EA.

3.4.1 Basics of Sound and A-Weighted Sound Level

The loudest sounds that can be detected comfortably by the human ear have intensities that are a trillion times higher than those of sounds that can barely be detected. This vast range means that using a linear scale to represent sound intensity is not feasible. The dB is a logarithmic unit used to represent the intensity of a sound, also referred to as the sound level. All sounds have a spectral content, which means their magnitude or level changes with frequency, where frequency is measured in cycles per second or Hz. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements are usually on an "A-weighted" scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is common to add the "A" to the measurement unit in order to identify that the measurement has been made with this filtering process (dBA). In this document, the dB unit refers to A-weighted sound levels. Table 3-9 provides a comparison of how the human ear perceives changes in loudness on the logarithmic scale.

Table 3-9. Subjective Responses to Changes in A-Weighted Decibels

Change	*Change in Perceived Loudness*
3 dB	Barely perceptible
5 dB	Quite noticeable
10 dB	Dramatic – twice or half as loud
20 dB	Striking – fourfold change

Figure 3-1 (Cowan 1994) provides a chart of A-weighted sound levels from typical noise sources. Some noise sources (e.g., air conditioner, vacuum cleaner) are continuous sounds that maintain a constant sound level for some period of time. Other sources (e.g., automobile, heavy truck) are the maximum sound produced during an event like a vehicle pass-by. Other sounds (e.g., urban daytime, urban

nighttime) are averages taken over extended periods of time. A variety of noise metrics have been developed to describe noise over different time periods, as discussed below.

Noise levels from aircraft operations that exceed background noise levels at an airfield typically occur beneath main approach and departure corridors, in local air traffic patterns around the airfield, and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft in flight gain altitude, their noise contributions drop to lower levels, often becoming indistinguishable from the background noise.

3.4.2 Noise Metrics

A metric is a system for measuring or quantifying a particular characteristic of a subject. Since noise is a complex physical phenomenon, different noise metrics help to quantify the noise environment. While the Day-Night Average Sound Level (DNL) and Community Noise Equivalent Level (CNEL) noise metrics are the most commonly used tools for analyzing noise generated at an airfield, the Department of Defense (DoD) has been developing additional metrics (and analysis techniques). These supplemental metrics and analysis tools provide more detailed noise exposure information for the decision process and improve the discussion regarding noise exposure.

3.4.2.1 Day-Night Average Sound Level

The DNL metric is the energy-averaged sound level measured over a 24-hour period, with a 10-dB penalty assigned to noise events occurring between 10 p.m. and 7 a.m. (acoustic night). DNL values are average quantities, mathematically representing the continuous sound level that would be present if all of the variations in sound level that occur over a 24-hour period were averaged to have the same total sound energy. The DNL metric quantifies the total sound energy received and is therefore a cumulative measure, but it does not provide specific information on the number of noise events or the individual sound levels that occur during the 24-hour day. DNL is the standard noise metric used by the US Department of Housing and Urban Development, Federal Aviation Agency (FAA), USEPA, and DoD. Studies of community annoyance in response to numerous types of environmental noise show that DNL correlates well with impact assessments; there is a consistent relationship between DNL and the level of annoyance (refer to Appendix F, *Pier 5000 Dredging Noise Assessment*). Most people are exposed to sound levels of 50 to 55 DNL or higher on a daily basis.

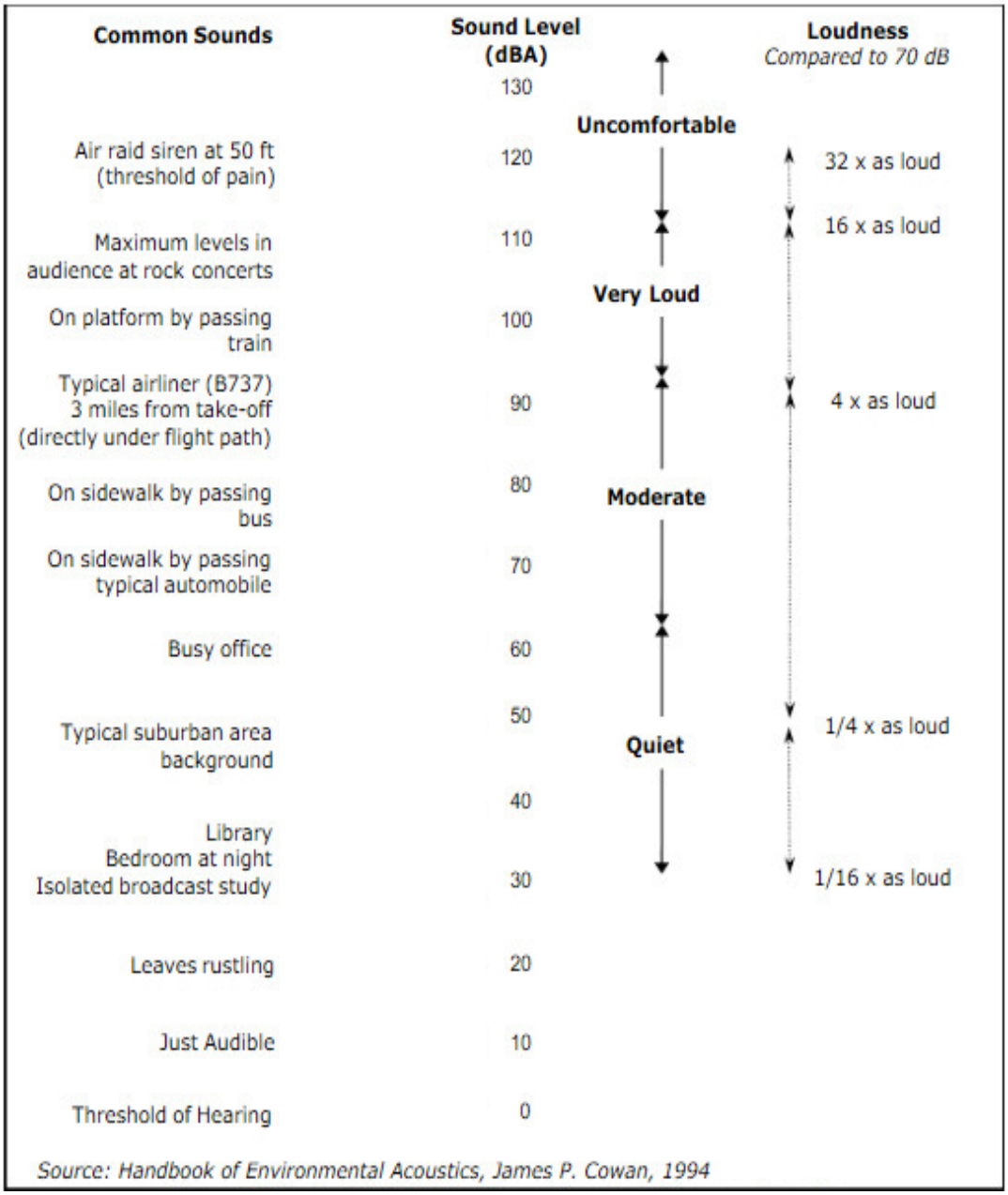
Research has indicated that about 87 percent of the population is not highly annoyed by outdoor sound levels below 65 dB DNL (Federal Interagency Committee on Urban Noise [FICUN] 1980). Therefore, the 65-dB DNL noise contour is used to help determine compatibility of military aircraft operations with local land use, particularly for land use associated with airfields.

3.4.2.2 Community Noise Equivalent Level

CNEL is a noise metric adopted as a standard by the state of California. The CNEL metric is similar to the DNL metric and is also an energy-averaged sound level measurement. DNL and CNEL provide average noise levels taking into consideration and applying penalties for annoyance from intrusive events that occur during evening and nighttime hours. Both DNL and CNEL are measures of cumulative noise exposure over a 24-hour period, with adjustments to reflect the added intrusiveness of noise during certain times of the day. However, while DNL considers one adjustment period, CNEL reflects two adjustment periods. DNL includes a single adjustment period for night, in which each aircraft noise event at night (defined as 10 p.m. to 7 a.m.) is counted 10 times. CNEL adds a second adjustment period where each aircraft noise event in the evening (defined as 7 p.m. to 10 p.m.) is counted three times. The nighttime adjustment is

equivalent to increasing the noise levels during that time interval by 10 dB. Similarly, the evening adjustment increases the noise levels by approximately 5 dB.

Figure 3-3. A-Weighted Sound Levels from Typical Sources



3.4.2.3 Equivalent Sound Level

A cumulative noise metric useful in describing noise is the Equivalent Sound Level (L_{EQ}). L_{EQ} is the continuous sound level that would be present if all of the variations in sound level occurring over a specified time period were smoothed out as to contain the same total sound energy. The same calculation for a daily average time period such as DNL or CNEL but without the penalties is a 24-hour equivalent sound level, abbreviated $L_{EQ}(24)$. Other typical time periods for L_{EQ} are 1 hour and 8 hours.

3.4.2.4 Sound Exposure Level

The Sound Exposure Level (SEL) metric is a composite metric that represent both the intensity of a sound and its duration. Individual time-varying noise events (e.g., aircraft overflights) have two main characteristics: a sound level that changes throughout the event and a period of time during which the event is heard. SEL provides a measure of total sound energy of the entire acoustic flyover, SEL captures the total sound energy from the beginning of the acoustic event to the point when the received no longer hears the sound. It then condenses that energy into a 1-second period of time and the metric represents exposure of transient sounds, such as aircraft overflights, and is the recommended metric for sleep disturbance analysis (DoD Noise Working Group 2009). In this EA, SEL is used in aircraft comparison and sleep disturbance analyses.

3.4.2.5 Maximum Sound Level

The highest A-weighted sound level measured during a single event where the sound level changes value with time (e.g., an aircraft overflight) is called the maximum A-weighted sound level or Lmax. During an aircraft overflight, the noise level starts at the ambient or background noise level, rises to the maximum level as the aircraft flies closest to the observer, and returns to the background level as the aircraft recedes into the distance. L_{MAX} defines the maximum sound level occurring for a fraction of a second. For aircraft noise, the "fraction of a second" over which the maximum level is defined is generally 1/8 second (American National Standards Institute [ANSI] 1998). For sound from aircraft overflights, the SEL is usually greater than the L_{MAX} because an individual overflight takes seconds and the L_{MAX} occurs instantaneously. In this EA, L_{MAX} is used in the analysis of aircraft comparison and speech interference.

3.4.2.6 Number of Events Above a Threshold Level

The "Number of Events Above a Threshold Level" metric provides the total number of noise events that exceed a selected noise level threshold during a specified period of time (DoD Noise Working Group 2009). Combined with the selected noise metric, L_{MAX} or SEL, the Number of Events Above metric is symbolized as NAXXmetric (NA = number of events above, XX = dB level, metric = L_{MAX} or SEL). For example, the L_{MAX} and SEL Number of Events Above metrics are symbolized as NA75L_{MAX} and NA75SEL, respectively, with 75 dB as the example dB level. In this EA, a L_{MAX} threshold is selected to analyze speech interference and an SEL threshold is selected for analysis of sleep disturbance.

3.4.3 Noise Effects

An extensive amount of research has been conducted regarding noise effects including annoyance, speech interference, sleep disturbance, noise-induced hearing impairment, nonauditory health effects, performance effects, noise effects on children, effects on domestic animals and wildlife, property values, structures, terrain, and archaeological sites. These effects are summarized below.

3.4.3.1 Annoyance

As previously noted, the primary effect of aircraft noise on exposed communities is long-term annoyance, defined by USEPA as any negative subjective reaction on the part of an individual or group. The scientific community has adopted the use of long-term annoyance as a primary indicator of community response and there is a consistent relationship between DNL/CNEL and the level of community annoyance (Federal Interagency Committee on Noise 1992).

3.4.3.2 Potential Hearing Loss

People living in high noise environments for an extended period of time (40 years) can be at risk for hearing loss called Noise Induced Permanent Threshold Shift (NIPTS). The NIPTS defines a permanent change in hearing level, or threshold, caused by exposure to noise (USEPA 1982). According to USEPA (1974), changes in hearing level of less than 5 dB are generally not considered noticeable. There is no known evidence that an NIPTS of less than 5 dB is perceptible or has any practical significance for the individual affected. Furthermore, the variability in audiometric testing is generally assumed to be plus or minus 5 dB. The preponderance of available information on hearing loss risk is from the workplace with continuous exposure throughout the day for many years.

Based on a report by Ludlow and Sixsmith (1999), there were no major differences in audiometric test results between military personnel, who as children, had lived in or near installations where fast jet operations were based, and a similar group who had no such exposure as children. Hence, for the purposes of this EA, the limited data are considered applicable to the general population, including children, and are used to provide a conservative estimate of the risk of potential hearing loss.

DoD policy directive requires that hearing loss risk be estimated for the at-risk population, defined as the population exposed to DNL greater than or equal to 80 dB (DoD 2009). To assess the potential for NIPTS, the Navy generally uses the 80 dB DNL noise contour (or in California 80 dB CNEL) as a threshold to identify the exposed population who may be at the most risk of possible hearing loss from aircraft noise (USEPA 1982; DoD Noise Working Group 2009). However, it should be recognized that characterizing noise exposure in terms of DNL and CNEL overestimates hearing loss risk but suffices when nighttime operations are 5 percent or less than the total operations. When nighttime operations are greater than 5 percent, $L_{EQ}(24)$ is recommended for calculating potential hearing loss since hearing loss is a physical phenomenon due to the sound level and independent of annoyance. Thus, the additional penalties applied by CNEL for evening and nighttime operations do not accurately portray the NIPTS. This EA calculates potential hearing loss using $L_{EQ}(24)$ to get the accuracy necessary for the larger amount of nighttime and evening operations.

3.4.3.3 Speech Interference

Speech interference associated with aircraft noise is a primary cause of annoyance for communities. Speech interference can cause disruption of routine activities, such as enjoyment of radio or television programs, telephone use, or family conversation, giving rise to frustration or irritation. In extreme cases, speech interference may cause fatigue and vocal strain to individuals who try to communicate over the noise. In this EA, speech interference is measured by the number of daily indoor events (from 7 a.m. to 10 p.m.) that exceed 50 dB L_{MAX} at selected locations. This metric also accounts for noise level reduction provided by buildings with windows open or closed.

3.4.3.4 Classroom Criteria and Noise Effects on Children

Research suggests that environments with sustained high background noise can have variable effects, including effects on learning and cognitive abilities and various noise-related physiological changes. Research on the impacts of aircraft noise, and noise in general, on the cognitive abilities of school-aged children has received more attention in recent years. Several studies suggest that aircraft noise can affect the academic performance of school children. Physiological effects in children exposed to aircraft noise and the potential for health effects have been the focus of limited investigation (DoD Noise Working Group 2009).

Analyses for school-aged children are similar to speech interference by using the indoor number of events exceeding 50 dB L_{MAX}, but also has the added restriction of using an outdoor equivalent noise level of 60 dB L_{EQ}(9 hour). This represents a level that a person with normal hearing can clearly hear a speaker (teacher) speaking at a level of 50 dB indoors in a classroom setting.

3.4.3.5 Sleep Disturbance

The disturbance of sleep is a major concern for communities exposed to nighttime aircraft noise. In this EA, sleep disturbance uses the SEL noise metric and calculates the probability of awakening from single aircraft overflights. These are based upon the particular type of aircraft, flight profile, power setting, speed, and altitude relative to the receptor. The results are then presented as a percent probability of people awakening (USEPA 1974).

3.4.3.6 Workplace Noise

In 1972, the National Institute for Occupational Safety and Health (NIOSH) published a criteria document with a recommended exposure limit of 85 dBA as an 8-hour time-weighted average. This exposure limit was reevaluated in 1998 when NIOSH made recommendations that went beyond conserving hearing by focusing on the prevention of occupational hearing loss. Following the reevaluation using a new risk assessment technique, NIOSH published another criteria document in 1998, which reaffirmed the 85 dB recommended exposure limit (NIOSH 1998).

3.4.4 Nonauditory Health Effects

Studies have been conducted to examine the nonauditory health effects of aircraft noise exposure, focusing primarily on stress response, blood pressure, birth weight, mortality rates, and cardiovascular health. Exposure to noise levels higher than those normally produced by aircraft in the community can elevate blood pressure and also stress hormone levels. However, the response to such loud noise is typically short in duration: after the noise goes away, the physiological effects reverse and levels return to normal. In the case of repeated exposure to aircraft noise, the connection is not as clear. The results of most cited studies are inconclusive, and it cannot be conclusively stated that a causal link exists between aircraft noise exposure and the various type of nonauditory health effects that were studied (DoD Noise Working Group 2009).

3.4.4.1 Noise Effects on Children

A review of the scientific literature indicated that there has not been a tremendous amount of research in the area of aircraft noise effects on children. The research reviewed does suggest that environments with sustained high background noise can have variable effects, including effects on learning and cognitive abilities and various noise-related physiological changes. Research on the impacts of aircraft noise, and noise in general, on the cognitive abilities of school-aged children has received more attention in recent years. Several studies suggest that aircraft noise can affect the academic performance of schoolchildren. Physiological effects in children exposed to aircraft noise and the potential for health effects have been the focus of limited investigation (DoD Noise Working Group 2009).

3.4.4.2 Noise Effects on the Elderly

Based upon a study by the Harvard School of Public Health, older people exposed to aircraft noise, especially at higher levels, may experience an increased risk of hospitalization for cardiovascular disease

(BMJ 2013). This study concluded a statistically significant association between exposure to aircraft noise and risk of hospitalization for cardiovascular diseases among older people living near airports.

3.4.5 Noise Modeling

Computer modeling provides a tool to assess potential noise impacts. DNL/CNEL noise contours are generated by a computer model that draws from a library of actual aircraft noise measurements. Noise contours produced by the model allow a comparison of existing conditions and proposed changes or alternative actions, even when the aircraft studied are not currently operating from the installation. For these reasons, on-site noise monitoring is seldom used at military air installations, especially when the aircraft mix and operational tempo are not uniform.

The noise environment for this EA was modeled using NOISEMAP. NOISEMAP analyzes all the operational data (types of aircraft, number of operations, flight tracks, altitude, speed of aircraft, engine power settings, and engine maintenance run-ups), environmental data (average humidity and temperature), and surface hardness and terrain. The result of the modeling is noise contours; lines connecting points of equal value (e.g., 65 dB CNEL and 70 dB CNEL). Noise zones cover an area between two noise contours and are usually shown in 5-dB increments (e.g., 65 to 69 dB CNEL, 70 to 74 dB CNEL, and 75 to 79 dB CNEL).

3.4.6 Regulatory Setting

Under the Noise Control Act of 1972, the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits.

The joint instruction, OPNAV Instruction 11010.36C and Marine Corps Order 11010.16, *Air Installations Compatible Use Zones (AICUZ) Program,* provides guidance administering the AICUZ program which recommends land uses that are compatible with aircraft noise levels. Office of the Chief of Naval Operations Instruction (OPNAVINST) 3550.1A and Marine Corps Order 3550.11 provide guidance for a similar program, RAICUZ. This program includes range safety and noise analyses and provides land use recommendations which will be compatible with Range Compatibility Zones and noise levels associated with military range operations. Per OPNAVINST 11010.36C, NOISEMAP is to be used for developing noise contours and is the best noise modeling science available today for fixed-wing aircraft until the new Advanced Acoustic Model is approved for use.

3.4.7 Affected Environment

Many components of the Proposed Action may generate noise and warrant analysis as contributors to the total noise impact. The federal government supports conditions free from noise that threaten human health and welfare and the environment. Response to noise varies, depending on the type and characteristics of the noise, distance between the noise source and whoever hears it (the receptor), receptor sensitivity, and time of day. A noise-sensitive receptor is defined as a land use where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Such locations or facilities often include residential dwellings, hospitals, nursing homes, educational facilities, and libraries. Sensitive receptors may also include noise-sensitive cultural practices, some

domestic animals, or certain wildlife species. Potentially noise-sensitive wildlife species are discussed in Section 3.3.

3.4.7.1 Installation Noise Environment

Airborne Noise

Land use compatibility with differing noise levels is regulated at the local level, although the federal government has established suggested land use compatibility criteria for different noise zones (FICUN 1980). Based on the Land Use Guidelines contained in the FICUN (1980; Table 2), residential areas and schools are considered compatible where the DNL is up to 65 dBA; outdoor recreational activities such as fishing and golfing are compatible with noise levels up to 70 dBA; and parks are compatible with noise levels up to 75 dBA (FICUN 1980).

The Noise Element of the City of San Diego General Plan provides land use and noise compatibility guidelines and amendments to noise elements of the City of San Diego's Plan were approved in 2015 (City of San Diego 2008 and 2015). The City of San Diego has an exterior noise level standard of 65 dB CNEL for noise-sensitive land uses (e.g., residential areas, hospitals, child care facilities). This standard protects sensitive land uses such as these from high noise levels and guides the city's future planning decisions (City of San Diego 2007). The City of San Diego construction noise ordinance places a restriction of an average sound level (L_{EQ}) of 75 dBA or less during the 12-hour period from 7 a.m. to 7 p.m. (City of San Diego 2010a). The ordinance also limits construction activity outside of these hours and during certain days (i.e., Sundays and major holidays) where it may create an excessive impact to neighboring sites (City of San Diego 2010a).

For listeners with normal hearing and fluency in the language, complete sentence intelligibility can be achieved when the signal-to-noise ratio (i.e., the difference between the speech level and the level of the interfering noise) is in the range of 15 to 18 dB (Lazarus 1990). The American National Standard Institute (ANSI) recommends at least a 15-dB signal-to-noise ratio in classrooms, to ensure that children with hearing impairments and language disabilities are able to enjoy high speech intelligibility (ANSI 2002). As such, provided that the average adult male or female voice registers a minimum of 50 dB L_{MAX} in the rear of the classroom, the ANSI standard requires that the continuous background noise level indoors must not exceed a L_{EQ} of 35 dB (assumed to apply for the duration of school hours).

The City of San Diego noise ordinances specify separate noise limits for ambient noise and construction noise levels (City of San Diego 2010). Therefore, in this EA, the proposed project construction noise is analyzed independently of ambient noise levels at the project site and the surrounding area.

NBPL lies outside the 65-dBA noise contours generated by aircraft activity at San Diego International Airport and Naval Air Station North Island (City of San Diego 2007). Primary noise sources at the project site are pumps and equipment associated with industrial and naval operations. Nearby ambient sources include vessel traffic in the channel, vehicular traffic, and air traffic associated with Naval Air Station North Island, the U.S. Coast Guard Air Station, and San Diego International Airport.

The NBPL waterfront area is an industrial area, where ambient (i.e. background) noise levels are typically higher than in residential areas. Common daytime outdoor ambient sound levels for industrial areas range up to 67 dBA (Engineering Toolbox.com 2010). Although the project site is on Navy property and is not subject to municipal requirements, for comparison, the City of San Diego allows ambient noise levels up to 75 dBA in industrial areas (City of San Diego 2007).

Sensitive receptors within NBPL boundaries include the NBPL child development center (daycare facility for military personnel) located at Building 377 on Myers Road, about 0.4 mile (2,112 ft) northwest of Pier 5000, and cluster of dormitories for NBPL submarine base personnel on Kerrick Road near Ballast Point about 0.3 mile (1,584 ft) south of Pier 5000.

The nearest sensitive receptor outside the NBPL boundary is the suburban residential neighborhood (La Playa) that borders NBPL approximately 1.25 mile to the north northwest of Pier 5000. Typical ambient noise levels range from 40 dBA (quiet residential area) to 84 dBA (diesel truck traveling at 40 miles per hour at a 50-ft distance) in urban areas (City of San Diego 2015). Vehicle traffic on roadways that provide the main access to the Point Loma peninsula (Rosecrans Street and Catalina Boulevard) is the main source of ambient noise in the residential neighborhood (Navy 2007). When there is no major construction activity occurring at NBPL Pier 5000, noise is not intrusive or loud (Navy 2007). Also audible are periodic aircraft from San Diego International Airport, and military aircraft on Naval Air Station North Island. Noise from trucks, along with periodic construction in the area, also contributes to the ambient sound levels. Noise from these sources and NBPL Pier 5000 operational activities are typical and not significant (Navy 2007). The City of San Diego exterior and construction noise ordinances apply at the NBPL property boundary, which is approximately 1.5 mile north of the piers. The project dredge footprint is removed from the shoreline and extends to the federal channel where barges and other ships routinely transit around the clock. The project site is also in the environment of a military waterfront where barges, military ships, ship and facility maintenance operations occur around the clock with some frequency. As such, the proposal to dredge 24 hours per day is consistent with current dredging standards in San Diego Bay and area military land uses. Noise generation associated with the Proposed Action would cease upon completion of dredging activities; therefore, sensitive receptors would not experience any nighttime noise beyond the dredging period of the project.

Underwater Noise

Ambient underwater noise is created from both natural and manmade sources and varies greatly in both frequency and sound pressure level. Natural underwater noise can come from precipitation (up to 80 dB re 1 µPA [decibels referenced to 1 µPa, or underwater dB] for heavy rainfall), wind on the water surface creating a wave action (ranging from 20 dB to 80 dB are 1 µPa for sea states of 0.5 to 6, respectively), and biological sources such as whales (125-175 dB re 1 µPa for bottlenose dolphin whistles) and snapping shrimp (183-189 dB re 1 µPa) (Discovery of Sound in the Sea [DOSITS] 2011).

Boats and other vessels are sources of underwater noise as well. Commercial shipping is the major manmade contributor to ocean noise sources. Distant ships contribute to the background noise over large geographic areas (Hildebrand 2004). The amount of noise vessels generate very by size, speed, engine type, and hull materials but can range from 157 to 182 dB re 1 µPa at 3 ft (Kipple and Gabriele 2007). Small vessels such as those used for eco-tourism, pleasure boating, and recreational fishing can also generate loud underwater sounds with peak source levels approaching 200 dB 1 µPa during gear shifts (Jensen et al. 2009). Underwater noise observations of vessel traffic during monitoring activities for the NBPL Fuel Pier project recorded a typical ambient underwater noise level in San Diego Bay of 129.6 dB rms (NAVFAC SW 2019). Other sources of underwater noise include use of sonar and echo sounders and seismic exploration (Hildebrand 2004). Terrestrial sources of underwater noise at industrial waterfronts include cranes, generators, and other types of mechanized equipment on wharves or the adjacent shoreline.

Two common metrics used to measure underwater sound are the peak sound pressure level (Peak) and the RMS SPL. The former is the instantaneous maximum positive or negative pressure observed during the impulse; the latter represents the mean square pressure level of the pulse and is the metric used by the NMFS as a criterion for judging noise impacts to marine mammals. Ambient noise levels in northern San Diego Bay were measured at from 128 dB (NAVFAC 2014b) to 136.4 dB (NAVFACS SW 2016a). Underwater noise levels associated with dredging are expected to be similar to marine mammal thresholds for Level B (behavior) but would not rise above ambient levels in northern San Diego Bay. All underwater noise associated with the Proposed Action would be lower than Level A (injury) thresholds for all functional hearing groups (see Table 3-8). After the proposed dredging and disposal operations are completed, background noise levels would return to levels presently found in the area. No long-term noise effects would occur as a result of the proposed project.

3.4.8 Environmental Consequences

Analysis of potential noise impacts includes estimating likely noise levels from the Proposed Action and determining potential effects to sensitive receptor sites.

The primary factor considered in determining the significance of noise effects is the extent or degree to which implementation of the alternatives would affect baseline noise environments. The primary issue of concern with regard to noise is the potential for impacts to humans and wildlife. Significant noise impacts would occur if implementation of the alternatives would directly or indirectly do one or both of the following:

- Increase ambient outdoor CNEL levels at noise-sensitive land uses beyond the 65-dB CNEL land compatibility standard for residential, education, and health care land uses; or
- Establish noise-sensitive land use (residential, education, and health care uses) in areas exposed to outdoor ambient noise levels that are higher than the 65-dB land use compatibility standard.

Less stringent guidelines are applied to temporary noise sources that are restricted to daytime hours (such as most construction and demolition activities) unless they affect noise-sensitive land uses and result in CNEL levels more than 10 dB above the respective land use compatibility criteria.

The significance of noise impacts to marine biological resources is considered in Section 3.3. Noise levels generated by the project are not expected to reach the harassment thresholds for which marine mammals are considered harassed or are likely to be injured by noise generated during marine construction.

3.4.8.1 Avoidance and Minimization Measures

Noise associated with the project would be generally consistent with the industrial waterfront area and would not significantly alter the overall airborne or underwater noise environment. Noise from grab dredging is relatively quiet in comparison to the Bay's ambient sound levels and the duration of the activity would be short-term. Therefore, implementation of the project would not result in the need to implement avoidance and minimization measures to reduce noise.

3.4.8.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to baseline noise levels. Industrial activities currently being conducted in the area would continue, and the area's acoustical environment would remain unchanged. Therefore, no significant impacts due to the noise environment would occur with implementation of the No Action Alternative.

3.4.8.3 Proposed Action Potential Impacts

Airborne Noise

Project activities would involve mechanical dredging. Dredging activities would produce noise from the dredging equipment, tugboats and barges, and associated human activity. Dominant noise sources associated with dredging may include dredge engine and exhaust noise; crane engine and exhaust noise; rope noise and bucket water splash; and various noises associated with the boom and grab, the bucket hitting the bottom during dredge, and the bucket closing and opening during construction. No blasting would take place. Dredging operations would take place 24 hours per day for a duration of approximately 90 days.

Noise emissions from mechanical dredging have several different temporal variants that result in short, sudden noise peaks. Often this noise is caused by the occasional scraping of a dredge bucket (e.g., clamshell shovel) along a deck or a sudden impulse sound level as the dredge bucket is opened and emptied onto the barge. Quantitative data for airborne noise levels associated with mechanical dredging are not readily available. Therefore, as a conservative measure in assessing potential project noise from dredging activities, data were obtained from the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) program and were based on the use of a backhoe and clamshell shovel. The FHWA RCNM identified noise levels from an operating backhoe would be 73.6 dBA L_{EQ} at 50 feet and 43.5 dBA L_{EQ} at 1,600 ft (United States Department of Transportation [USDOT] 2006). With the occasional occurrence of a clamshell shovel dropping, the noise levels increased to 80.3 dBA L_{EQ} at 50 ft and 51.0 dBA L_{EQ} at 1,600 ft (USDOT 2006). Additionally, as dredging is likely to occur throughout a 24-hour period when ambient noise levels associated with landside and marine vessel traffic subside.

The nearest sensitive receptors to the Pier 5000 dredge site include the NBPL child development center located at Building 377 on Myers Road, about 0.4 mile (2,112 ft) from Pier 5000, and a cluster of dormitories for NBPL personnel on Kerrick Road near Ballast Point about 0.3 mile (1,584 ft) to the south of Pier 5000. As stated above, the La Playa neighborhood is located just north of NBPL about 1.25 mile north northwest of Pier 5000. At 1,584 ft from Pier 5000, the NBPL dormitories are the nearest noise-sensitive receptors to Pier 5000 and would be most likely to experience intermittent, exterior noise levels up to 51.0 dBA L_{EQ} associated with a clamshell shovel dropping. The distance degradation of dredging noise to 51.0 dBA L_{EQ} would then be further reduced by intervening vegetation and structures, further reducing interior noise levels. Therefore, dredging operations, including overnight work, would not increase ambient outdoor noise levels to greater than 65 dBA and noise-related impacts would be less than significant.

Barges transporting dredged material to a nearshore replenishment site (or LA-5 ODMDS) would also be a source of noise associated with the dredging operations. The sediment transport barges would join with existing vessel traffic in the San Diego Harbor Channel and noise levels would be comparable to ambient noise levels. These barge trips would be consistent with existing airborne noise generation and would not create a noticeable increase in the number of ships or the sound levels associated with current vessel movements in the Bay. Further, any noise resulting from the sediment transport barges would be short-term, so impacts from transporting the dredge material to a nearshore replenishment site or LA-5 ODMDS would not be significant. Sediment disposal at nearshore replenishment sites would occur offshore of coastal areas used for recreation; however, the noise generation associated with operation of the sediment transportation would be functionally similar to operation of private fishing and recreational vessels that is typical in these areas. Sediment disposal at LA-5 ODMDS would occur offshore and out of range of perception of noise-sensitive receptors. Therefore, sediment disposal at nearshore

replenishment sites or LA-5 ODMDS would not generate significant noise to impact sensitive receptors along the transportation route or at the selected disposal site.

Under the Upland Disposal Option, dredged material would be transported to the CDF at NBSD, allowed to dry, and then transported via truck to the Otay Landfill approximately 12.2 miles from NBSD via the San Diego regional road network. The most likely route from NBSD would include Harbor Drive, Interstate 5, State Highway 54, and Interstate 805. Each of these roadways is used by personal and commercial/industrial traffic and transportation of dredged material via truck to the Otay Landfill would be consistent with existing roadway airborne noise generation and would not create a noticeable increase in the number of vehicles (see Section 3.5 *Transportation and Traffic*) or the sound levels associated with traffic on the regional road network. Further, the Otay Landfill is an existing permitted waste disposal facility and is not considered a noise-sensitive receptor. Therefore, upland sediment disposal would not generate significant noise to impact sensitive receptors along the transportation route or at the Otay Landfill.

Underwater Noise

The Proposed Action would generate underwater noise during dredging at Pier 5000 when the dredge enters and exits the water, impacts the bottom, and scrapes sediment off the bottom. Additional underwater noise generation would occur during transportation (engine noise) and in-water disposal of dredged material (sediment entering the water from the barge). Underwater noise transmission is highly variable and site-specific, because it is strongly influenced by the acoustic properties of the bottom and surface as well as by variation in sound speed within the water column. Maintenance dredging already occurs in the vicinity of the project area, and dredging for the project would produce similar minor, temporary noise impacts. Background noise within industrial harbor areas similar to the project location have been recorded at an average level of 129.6 dB RMS (NAVFAC SW 2019). The expected SPL from dredging activities would be 124 dB re 1 µPa-m at 150 meters (Dickerson et al. 2001).

Summary

In conclusion, noise associated with the Proposed Action would be generally consistent with the industrial waterfront area where dredging would occur, sediment disposal transportation routes, or sediment disposal sites and would not significantly alter the overall airborne or underwater noise environment. Noise from dredging, sediment transportation, and sediment disposal would be short-term. Therefore, implementation of the Proposed Action would not result in significant short or long-term impacts with respect to noise.

3.4.8.4 Reduced Dredging Footprint Alternative Potential Impacts

Under the Reduced Dredging Footprint Alternative, the dredging activities would occur over a reduced area compared with the Proposed Action and would therefore occur over shorter period. However, the minimum distance of dredging activities from sensitive receptors would not change because reductions would not occur in the portion of the project area nearest sensitive receptors. Impacts under the Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action because there would be no difference other than duration of dredging activities and number of barge trips under the Reduced Dredging Footprint Alternative. Vehicles transporting dredged material to nearshore replenishment sites or LA-5 ODMDS would follow the same routes as used in the Proposed Action and would not travel in close proximity to any noise-sensitive receptors. Therefore, implementation of this action alternative would not result in significant impacts to the noise environment.

3.5 Transportation and Traffic

This discussion of transportation includes all of the land, and sea routes with the means of moving passengers and goods. A transportation system can consist of any or all of the following: roadways, railways, and waterways, and can be looked at on a local or regional scale. The primary source of project associated traffic would be the result of vessel transportation between the project site and sediment disposal sites.

Marine vessel circulation in San Diego Bay is regulated by the USCG navigation standards and other general navigational standards, which are enforced by the San Diego Harbor Police. Compliance with the International Rules of the Road for lighting and day markers is also required. However, these are general standards and do not comprise a formal marine traffic system for large vessels.

Land traffic is commonly measured through average daily traffic and design capacity. These two measures are used to assign a roadway with a corresponding level of service (LOS). The LOS designation is a professional industry standard used to describe the operating conditions of a roadway segment or intersection. The LOS is defined on a scale of A to F that describes the range of operating conditions on a particular type of roadway facility. LOS A through LOS B indicates free flow travel. LOS C indicates stable traffic flow. LOS D indicates the beginning of traffic congestion. LOS E indicates the nearing of traffic breakdown conditions. LOS F indicates stop-and-go traffic conditions and represents unacceptable congestion and delay.

No upland construction is proposed as a part of this project; however, if crews and equipment do not arrive and depart at the dredge site via the waterside, equipment and personal transportation will occur on the landside of NBPL and Pier 5000. Further, under the Upland Disposal Option, dredged sediments would be removed from the dredge site to the CDF at NBSD, allowed to dry, and then transported via truck to the Otay Landfill via the regional roadway network.

3.5.1 Regulatory Setting

Executive Order 13693 encourages government entities to improve building efficiency, performance, and management by including in the planning for new buildings or leases, cost-effective strategies to optimize sustainable space usage and consideration of existing community transportation planning and infrastructure, including access to public transit. This EO encourages the coordination of federal real property discussions with local communities in an effort to encourage planned transportation investments that aim to support public transit access.

3.5.2 Affected Environment

Naval Base Point Loma is primarily located on the Point Loma peninsula at the western side of the entrance to San Diego Bay in metropolitan San Diego. The peninsula is approximately 4 miles west of downtown San Diego. Principal highways in the vicinity include Interstates 5 and 8 (NAVFAC SW 2012). Landside access to the NBPL Main Base complex is provided by Rosecrans Street, a major two-lane public road connecting the installation as it extends along the western side of the Bay. Between Interstate 5 and Kellogg Street (near the NBPL entrance gate), Rosecrans Street has 34,105 average daily trips (ADT) and generally performs better (higher LOS ratings) nearer to NBPL (City of San Diego 2010b). Within NBPL, Rosecrans Street also serves as the main roadway along the Bay, while Cabrillo Memorial Drive extends along the uplands of the peninsula and is connected to Rosecrans Street via McClelland Road. Landside access to Pier 5000 is provided via Kephart Road off of Rosecrans Street. Parking for personal vehicles and

military equipment is available along the waterfront and parking lots between Rosecrans Street and Kephart Road.

The Bay is actively used by commercial, recreational, and military vessels. There are multiple facilities in the Bay to serve boaters, including 18 public marinas, four private yacht clubs, 55 boat yards, over 8,280 recreational boat slips, four naval complexes (NBPL, Naval Air Station North Island, Naval Amphibious Base Coronado, and NBSD) with multiple piers, a cruise ship terminal, and ferry service.

Access to the major piers and berthing areas in the Bay is via the main channel, which is clearly buoyed and charted. While there is relatively little major commercial shipping traffic (approximately 40 cargo and cruise ships entering monthly; no more than about five per day), there is a large amount of recreational boat traffic. There is no formal control of the channel by the Port of San Diego; however, a harbor common radio channel is voluntarily used by large ships and the Navy. The Navy has a traffic monitor at NBSD. This monitor is used by all Navy ships while in the harbor, providing location data and proposed vessel navigational routes. Navy ships are berthed at NBSD, Naval Amphibious Base Coronado, NBPL, and Naval Air Station North Island.

Key elements of the water navigation system include the open Bay, marine terminal, ship navigation corridor, main ship channel, Navy ship berthing/anchorage, restricted areas, boat navigation corridor, recreational craft berthing, commercial fishing berthing, and small craft anchorage and mooring. A ship navigation corridor extends from the mouth of the Bay to the National City limit. The purpose of the ship navigation channel is to provide adequate draft for ship maneuverability, safe transit, and access to marine terminals, marine related industrial areas, and military bases. Pursuant to the Harbor Safety Plan (amended in 2005), ship corridors are maintained at adequate depths and widths to eliminate hazardous conflicts in the harbor among ships, small craft, and structures. Further, aquatic activities incompatible with vessel traffic in marked ship and boat channels and restricted area are prohibited.

The main ship channel, which is maintained by USACE, provides a depth of -47 ft MLLW and width that ranges from 600 to 2,000 ft from the Bay entrance to berthing areas on Naval Air Station North Island; a -47 ft MLLW depth and varying widths from 600 to 1,900 ft to the Tenth Avenue Marine Terminal; and a -37 ft MLLW depth and a width varying from 600 to 1,350 ft down to the Bay to the Nation City Marine Terminal (Port of San Diego 2009). Naval vessels, including cruisers and amphibious assault ships, can travel as far south as NBSD.

Boat navigation corridors are those water areas delineated by navigational channel markers or by conventional waterborne traffic movements and are designated by their predominant traffic and general physical characteristics. Boat navigation corridors range from 6 to 21 ft in depth and provide access to the more remote areas of the Bay. These channels are generally too shallow and too narrow to accommodate larger ships.

The remaining open waters of the Bay are quite shallow, ranging in depth from 2 to 17 ft, and comprise a large portion of the Bay. Shallow draft sailboats and power boats use areas for recreation and travel.

Uncontrolled boat anchorage is allowed in the open area of the Bay except where prohibited by other uses. Ship anchorage areas for ocean-going ships are located primarily in the area north of the “B” Street Pier, but include all of the navigable water of the harbor except designated channels, cable and pipeline areas, special anchorages, and Naval Restricted areas. Vessels anchoring in portions of the harbor, other than the areas discussed above, leave a free passage for other craft and are prohibited from unreasonably obstructing vessel approaches to the wharves in the harbor.

The major ships using the channel, other than merchantmen (approximately 40 per month), are Navy amphibious assault ships that are homeported at NBSD (these ships are assisted by tugs between their berths and the San Diego-Coronado Bay Bridge and have steerage under pilot when they reach the berthing areas) and cruise ships that make port in San Diego Bay about 2 to 3 times weekly.

Beyond the Pier 5000 dredging site and Bay mouth, the affected environment would vary for each dredged material disposal option.

Nearshore Replenishment – Beneficial Reuse Option

Nearshore replenishment would involve removal of dredged sediment and relocation to a nearshore site. The Nearshore Replenishment Option involves loading the dredged sediment into barges and transporting it to a nearshore replenishment site for beneficial reuse. The nearshore replenishment site would be located at one of the following sites: Imperial Beach, located greater than 9 miles from the project site; Naval Air Station North Island beach, located approximately 1.5 mile from the project site; Silver Strand Boat Lanes (Naval Base Coronado Silver Strand Training Complex beach), located more than 6 miles from the project site; or another suitable location identified during the permitting process.

Ocean Disposal Option

The Ocean Disposal Option would involve loading dredged sediment into barges and transporting it using a single tug to LA-5 ODMDS rather than to one of three identified nearshore replenishment sites to the south of the Bay, as discussed above. LA-5 ODMDS is a designated offshore open-water disposal site located on the ridged slope of the continental shelf at a depth of approximately 100 fathoms (600 ft), 5.4 nautical miles from Point Loma, off the San Diego Coast.

Upland Disposal Option

Truck transportation between NBSD and the Otay Landfill would most likely proceed south along Harbor Drive to Interstate 5, to Highway 54, to Interstate 805, and finally to Main Street. Of this route, the portion of Interstate 5 between Harbor Drive and Highway 54 and a portion of Interstate 805 between Highway 54 and Telegraph Canyon Road is operating at LOS F, while all other portions of the route are operating at LOS A-D (SANDAG 2008b). The Caltrans 2017 Traffic Census for the State Highway System reports 128,066 Average Daily Trips (ADT) for the section of Interstate 5 operating at LOS F and 252,667 ADT for the section of Interstate 805 operating at LOS F (Caltrans 2018).

3.5.3 Environmental Consequences

Impacts to marine traffic and transportation are analyzed by considering the possible changes to existing traffic conditions and the capacity of area road and waterways from proposed increases in project vehicle and vessel traffic.

For the purpose of this analysis, a significant impact to landside vehicle transportation would reduce the LOS of a given roadway to an F rating or permanently add vehicle trips to a roadway currently assigned to LOS F that would demonstrate exacerbation of traffic congestion. A significant impact to vessel transportation would occur if implementation of the alternatives would result in substantial reduction in current safety levels in terms of vessel maneuvering, vessel congestion, recreational boat access, or commercial fishing activity.

3.5.3.1 Avoidance and Minimization Measures

Implementation of the Nearshore Replenishment Option, Ocean Disposal Option, and Upland Disposal Option would not require any avoidance or minimization measures.

3.5.3.2 No Action Alternative

Under the No Action Alternative, existing conditions would remain unchanged. No dredging would occur at NBPL Pier 5000 and the sediment surface would be maintained at its current depth. Roadway and vessel traffic conditions would remain unchanged. Therefore, no significant impacts to transportation and circulation would occur.

3.5.3.3 Proposed Action Potential Impacts

Project-related landside traffic on NBPL would include work crews or equipment deliveries that do not arrive via work boat on the water-side in the project dredge area. Construction workers would arrive via vanpool, car pool, or personal vehicle at the Rosecrans Street entrance gate and proceed via Rosecrans Street and Kephart Road to parking adjacent to Pier 5000. An estimated 20 construction workers arriving singly via personal vehicle (a conservative estimate to assess greatest potential impact) would temporarily add 20 ADT to Rosecrans Street or less than 1 percent of the existing ADT along that roadway during dredging activities. Landside construction equipment would be stored onsite adjacent to Pier 5000 for the duration of the project to limit transit demand. Given the small number of construction worker and equipment transport trips needed for landside access to the project area relative to existing traffic demand along Rosecrans Street, project-related landside traffic impacts would be negligible.

Under the Proposed Action, one or a combination of the following disposal options would occur.

Nearshore Replenishment – Beneficial Reuse Option

The principal difference between the individual replenishment sites is the distance of transit from the Bay mouth to selected disposal site.

The primary source of traffic-related impacts under the Nearshore Replenishment Option would be vessel transportation within the Bay and Pacific Ocean. Under this option, the Proposed Action involves loading the 110,619 cy of dredged sediment into barges and transporting the material to a nearshore replenishment site for beneficial reuse. The maximum daily dredging production rate is expected to be 800 cy. The nearshore replenishment site would be located Imperial Beach, located approximately 9 miles from the Proposed Action; Naval Air Station North Island, located approximately 1.5 mile from the Proposed Action; Silver Strand Boat Lanes (Naval Base Coronado Silver Strand Training Complex beach), located approximately 6 miles from the Proposed Action; or another suitable location identified during the permitting process.

The round-trip durations from the dredging site to the beneficial replenishment site would vary depending on the site selected (20 to 24 hours for Imperial Beach, 5 to 6 hours for Naval Air Station North Island, and 10 to 12 hours for Silver Strand Boat Lanes). Reloading each trip would take another 6 to 8 hours. Barges would be equipped with electronic tracking devices to document that material releases occurred within the disposal site boundaries, as specified in the proposed dredging permit. Approximately 70 barge trips over the approximately 90-day project duration, averaging less than one barge round trip per day, would be necessary to transport the dredged sediment from Pier 5000 to the selected replenishment site (assuming that the contractor uses two 800-cy-capacity barges). Project barge tug/barge traffic levels of less than one barge round trip per day in San Diego Bay and the Pacific Ocean would be temporary and

negligible in comparison to the approximately 40 cruise and cargo ship trips per month as well as military vessel, commercial fishing, and personal recreational vessel traffic. Further, project tug/barge traffic would abide by existing charts and buoyed navigation channels. Therefore, there would be no significant impacts to vessel transportation as a result of the Proposed Action.

Ocean Disposal Option

The primary source of traffic-related impacts under the Ocean Disposal Option would be vessel transportation within the Bay and Pacific Ocean. The Ocean Disposal Option would involve loading the 110,619 cy of dredged sediment into a barge and transporting it to LA-5 ODMDS. For estimation purposes, the maximum daily dredging production rate is expected to be 1,600 cy, which includes two single tugs each towing a 1,000-cy barge, loaded with approximately 800 cy of sediment per day for approximately 90 days, with one tug and barge loading at the dredge site while the other is in transit to and from LA-5 ODMDS.

Round trip from the Pier 5000 project site to LA-5 ODMDS is expected to take about 10 to 12 hours and reloading each trip would take another 6 to 8 hours. The barges would be equipped with electronic tracking devices to document that material releases occur within the disposal site boundaries. Approximately 138 round trips over the 90-day project duration, averaging two barge round trips per day, would be necessary to transport the dredged sediment from Pier 5000 to LA-5 ODMDS. Project barge tug/barge traffic levels of less than two barge round trips per day in San Diego Bay and Pacific Ocean would be temporary and negligible in comparison to the approximately 40 cruise and cargo ship trips per month as well as military vessel, commercial fishing, and personal recreational vessel traffic. Further, project tug/barge traffic would abide by existing charts and buoyed navigation channels. There would be no significant impacts to vessel transportation as a result of the Proposed Action.

Upland Disposal

The primary source for traffic-related impacts under the Upland Disposal Option would be the temporary addition of truck trips between NBSD and upland disposal site at the Otay Landfill. The Upland Disposal Option would involve loading the 110,619 cy of dredged sediment into 12-cy-capacity trucks and transporting the material to a designated site such as the Otay Landfill, located approximately 11.6 miles (round trip) from NBSD, the nearest upland confined drying facility. Transporting sediment from the upland CDF to the Otay Landfill would require approximately 9,218 truck trips over the duration of the Proposed Action, as governed by the rate of drying of sediment to a point where it is suitable for transport and disposal. Impacts to the local road network would be temporary. Therefore, there would be no significant impacts to vehicle traffic as a result of the proposed action.

The total estimated number of truck trips for the Proposed Action under the Upland Disposal Option (9,218 trips) is approximately 8.4 percent of the ADT for the section of Interstate 5 operating at LOS F and 3.4 percent of the ADT for the section of Interstate 805 operating at LOS F between the NBSD and the Otay Landfill. However, the 9,218 truck trips would be spread across a number of days or weeks. If 120 daily truck trips were spread evenly across 77 days of project work, the percentage of ADT for each of the LOS F sections would be reduced to 0.11 and 0.4 percent of the ADT of the poorly performing road sections, respectively. Therefore, there would be no significant impacts to traffic as a result of the Proposed Action.

3.5.3.4 Reduced Dredging Footprint Alternative

Under the Reduced Dredging Footprint Alternative, the project components would be the same as those under the Proposed Action, except that dredging quantity would be less and subsequently the duration of disposal transporting activities would be less. Under implementation of this alternative, impacts would be similar to those associated with the Proposed Action; therefore, no significant impacts to transportation and circulation would occur.

3.6 Hazardous Materials and Wastes

This section discusses hazardous materials, hazardous waste, toxic substances, and contaminated sites.

3.6.1 Regulatory Setting

Hazardous materials are defined by 49 CFR section 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table, and materials that meet the defining criteria for hazard classes and divisions in 49 CFR part 173." Transportation of hazardous materials is regulated by USDOT regulations.

Hazardous wastes are defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA [42 19 U.S.C. Section 6901 *et seq*., as amended by the Hazardous and Solid Waste Amendments, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed." Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR part 273. Four types of waste are currently covered under the universal wastes regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps, such as fluorescent light bulbs.

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include asbestos-containing material (ACM), polychlorinated biphenyls (PCBs), and lead-based paint (LBP). USEPA is given authority to regulate special hazard substances by the Toxic Substances Control Act (TSCA). Asbestos is also regulated by USEPA under the Clean Air Act, and the Comprehensive Environmental Response, Compensation, and Liability Act.

Hazardous materials and wastes are also controlled under the California Code of Regulations (CCR) and these regulations are implemented by the California Department of Toxic Substances Control and the local Certified Unified Program Agency. The San Diego County Department of Environmental Health (DEH) acts as the Certified Unified Program Agent under authorization from the California Environmental Protection Agency to implement state environmental requirements. The Navy is required to comply with these acts and all DoD requirements, as well as management plans specific to NBPL.

The Emergency Planning Community Right-to-Know Act (EPCRA [42 U.S.C. Section 11001 *et seq*.]) includes four major provisions:

1. Emergency planning (Sections 301–303)

2. Emergency release notification (Section 304)
3. Hazardous chemical storage reporting requirements (Sections 311–312)
4. Toxic chemical release inventory (Section 313)

Section 311 requires facilities to have Material Safety Data Sheets (MSDSs) for chemicals held above certain quantities to submit either copies of their MSDS or a list of MSDS chemicals to the Local Emergency Planning Committee and local fire department. Facilities that need to report EPCRA Section 311 must also submit an annual inventory report (Tier I or Tier II form) for the same chemicals. This inventory report must be submitted to the State Emergency Response Commission and local fire department by March 1 of each year. The information submitted under Sections 311 and 312 are available to the public from the Local Emergency Planning Committees and State Emergency Response Commissions. Any hazardous materials and wastes generated dredging activities would be subject to installation-wide EPCRA reporting.

3.6.2 Affected Environment

The Navy has implemented a strict Hazardous Material Control and Management Program and a Hazardous Waste Minimization Program for all activities. These programs are governed Navy-wide by applicable OPNAV instructions and at the installation by specific instructions issued by the Base Commander. The Navy continuously monitors its operations to find ways to minimize the use of hazardous materials and to reduce the generation of hazardous wastes.

3.6.2.1 Hazardous Materials

Daily activities at NBPL require a variety of hazardous materials, including pesticides, herbicides, fungicides, cleaning agents, oils, fuels, solvents, and paints (DON 2012).

3.6.2.2 Hazardous Waste

Hazardous wastes are taken to the 90-day storage facility located behind Building 75. NBPL is a USEPA large-quantity hazardous waste generator (DON 2013).

3.6.2.3 Defense Environmental Restoration Program

There are currently 37 identified Defense Environmental Restoration Program (DERP) sites on NBPL. Of these sites, 17 have received regulatory closure and require no further action, 19 are active, and one is being managed under the USEPA Brownfields program. Active DERP sites on NBPL include:

- SUBASE Site 14: Ball Field (Old Refuse Disposal Area)
- SUBASE Site 15: Building 527 Weapons Storage (Submarine Base Rubble Disposal Area)
- SUBASE Site 18: Torpedo Shop
- SUBASE UST 105: Deperming Building 2 Underground Storage Tank
- SPAWAR Site 5: North Coast Rubble Disposal Area
- SPAWAR Site 6: Building A-86 Rubble Disposal Area
- SPAWAR Site 7: Building A-44 Rubble Disposal Area
- SPAWAR Site 8: Building A-34 Rubble Disposal Area
- SPAWAR Site 9: Building A-34 Plating Waste Disposal Area (PWC B-34 Plating)
- SPAWAR Site 10: Sewage Sludge Spreading Area
- SPAWAR Site 11: South Coast Rubble Disposal Area

- SPAWAR Site 20: Old ICSTF Radar Complex Station (Central Coast Rubble Disposal Area)
- SPAWAR Site 23: Abrasive Blast Grit Disposal Area
- NTC UST 3: Navy Exchange Gas Station
- OTC Site 1: Railroad Spur
- OTC Site 10: Bldg 33 Liquid/Sludge
- OTC Site 11: Bldg 3 Sewer Line Break
- OTC Site 100: Taylor Street Complex
- FCTC Site 1: Rubble Disposal Area (DON 2012)

3.6.3 Environmental Consequences

The hazardous materials and wastes analysis in the respective sections addresses issues related to the use and management of hazardous materials and wastes as well as the presence and management of specific cleanup sites at NBPL.

Impacts from hazardous materials and hazardous wastes would occur if implementation of the Proposed Action would increase human health risks or environmental exposure as a result of the storage, use, transportation, or disposal of these substances. The significance of impacts associated with hazardous materials and wastes is based on the toxicity of the substance, the quantity of the substance involved, the risk of exposure, and the method of disposal.

3.6.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change associated with hazardous materials and wastes. Therefore, no significant impacts would occur with implementation of the No Action Alternative.

3.6.3.2 Proposed Action Potential Impacts

The project area for hazardous materials and hazardous wastes for the Proposed Action is NBPL and the Bay. The Proposed Action would involve dredging to a depth of -42.5 ft MLLW plus an additional 2 feet of overdredge allowance. The total estimated volume of dredged sediment would be 110,619 cy.

Sediment samples from the Pier 5000 dredging footprint were collected in January 2019 and tested in accordance with regulations contained in 40 CFR Parts 220–228.. The sediment characterization report will be provided to USEPA and USACE for review and comment on potential sediment disposal options. The sediment characterization and chemistry tests will include analyses to assess whether the sediment meets the allowable parameters for unconfined ocean disposal. Sediments are expected to be consistent across the entire dredge footprint and are expected to exhibit the same characteristics and be found suitable for unconfined aquatic disposal through Tier III ITM/Green Book testing results to be verified by USEPA and USACE. However, if sediment testing results show that hazardous substances are present in the dredged sediment, an Accident Prevention Plan would be required. Additionally, all dredged sediment disposal operations performed for the Proposed Action would comply with CWQ Section 404 and be in accordance with a dredging permit issued by USACE, and a CWA Section 401 water quality certification from the RWQCB. If hazardous substances are present in the dredged sediment, avoidance and minimization measures would be taken to prevent adverse impacts from hazardous materials or substances.

Implementation of the Proposed Action would result in no change to the storage, use, transportation, or disposal of hazardous substances or wastes. Further, it is anticipated that sediments will be relatively free of contaminants and will meet the requirements for beneficial reuse. If testing determines that sediments do not meet the beneficial reuse standards, they will be disposed at LA-5 ODMDS, and if they do not meet the standards for ocean disposal, they will be disposed of at a designated upland disposal site, the Otay Landfill. Therefore, implementation of the Preferred Alternative would not result in increased human health risk or environmental exposure. The Preferred Alternative would not result in significant impacts from hazardous materials and wastes.

3.6.3.3 Reduced Dredging Footprint Alternative Potential Impacts

The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, exception that the dredging quantity would be only approximately 102,637 cy and the duration of dredging would be reduced. Therefore, the Reduced Dredging Footprint Alternative would result in no significant impacts from hazardous materials and waste.

3.7 Summary of Potential Impacts to Resources and Impact Avoidance and Minimization

The potential impacts associated with each of the action alternatives and the No Action Alternative and impact avoidance and minimization measures are presented in Table 3-10.

Table 3-10. Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Air Quality	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet the submarine operational depth requirements. Therefore, there would be no significant impacts to air quality. **Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	Air quality impacts from dredging and sediment disposal activities would largely be combustion emissions originating from the use of fossil-fuel-powered equipment. Because of the nature of the Proposed Action, earthmoving and grading would not be required; dredging activities would not generate fugitive dust because the marine sediments that would be dredged are wet. Dredging operations would take place 24 hours per day for approximately 90 days. Estimated emissions would be below the *de minimis* threshold levels for Clean Air Act conformity. Therefore, implementation of the Proposed Action would not result in significant impacts to air quality. **Avoidance and Minimization Measures** Under the Proposed Action, avoidance and minimization measures would not be required.	Under the Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity would be approximately 102,637 cy and dredging duration would be 84 days. Therefore, under the Reduced Dredging Footprint Alternative, there would be no significant impacts to air quality. **Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would not be necessary.
Water Resources	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet submarine operational depth requirements. Existing conditions would remain unchanged. Therefore, no impacts to water resources would occur under the No Action Alternative.	Dredging operations would temporarily increase water movement in the area where dredging would occur, but the effect would be strictly limited to the duration of the dredging period and work area. The minor changes to bathymetry would not be sufficient to affect circulation patterns in the Bay. Therefore, dredging associated with the Proposed Action would not have a significant impact to bathymetry and circulation.	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and dredging duration would be reduced. Therefore, the Reduced Dredging Footprint Alternative would not result in significant impacts to water resources.

Table 3-10. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Water Resources (continued)	**Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	Sediment samples from the Pier 5000 dredging area were collected during January and February 2019 and tested in accordance with regulations in Title 40 CFR Parts 220–228. The sediment characterization report was provided to USEPA and USACE for review and comment on potential sediment disposal options. The sediment characterization and chemistry test results met the allowable parameters for unconfined ocean disposal. The results from the Pier 5000 dredging area are believed to be representative of the project footprint because the entire NBPL waterfront experiences high-velocity currents that scour the native bay floor surface and prevent sedimentation of fine particulates (silty fine material) that would otherwise contain and retain contaminants. Sediments across the proposed project footprint are expected to exhibit the same characteristics and to be found suitable for unconfined aquatic disposal through Tier III ITM/Green Book testing results, as verified by USEPA and USACE. Increases in turbidity would be minimal due to the physical characteristics of the dredged sediments within the project footprint (which previous studies have shown to be predominantly sand and shell hash) and would be limited to the immediate vicinity of the operation. Decreases in levels of light penetration and dissolved oxygen would occur only within a few hundred feet of the dredging site and would end several hours after the cessation of dredging activities, making a	**Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would be identical to those associated with the Proposed Action.

Table 3-10. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Water Resources (continued)		permanent decline in aquatic primary productivity unlikely. The material to be dredged is believed to be mostly sand. Therefore, it is believed that elevated levels of contaminants are unlikely to occur onsite or to potentially cause dredging-induced mobilization of significant levels of dissolved-phase contaminants into the water column. Impacts to water quality due to increased turbidity, therefore, would not be significant. Therefore, impacts to water quality would not be significant. **Avoidance and Minimization Measures** Implementation of the Proposed Action or the Reduced Dredging Footprint Alternative would not result in significant impacts from hazardous materials and wastes. Therefore, implementation of the Proposed Action would not result in the need to implement avoidance and minimization measures. Normal best management practices (BMPs) would be followed during dredging, such as requiring the dredging contractor to have and deploy, as needed, spill kits and cleanup supplies.	
Biological Resources	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet the submarine operational depth requirements. Existing conditions would remain unchanged. Therefore, there would be no impacts to	Implementation of the Proposed Action would result in temporary habitat disturbance from an increase in turbidity and underwater noise generated during dredging activities, which be expected to last 90 days. Physical disturbance would result in the loss of marine benthic organisms. Turbidity would persist throughout dredging activities; however, it would vary spatially based on	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and dredging duration would be reduced.. Therefore, there would be no significant effect on marine benthic organisms, marine birds, fish, marine mammals, green sea turtles, and California least tern populations or

Table 3-10. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Biological Resources (continued)	marine biological resources under the No Action Alternative. **Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	currents and sediment grain size. Turbidity plumes from dredging are expected to persist for several hours following dredging activities. Additionally, fish are expected to temporarily leave the project area. These impacts are not considered significant because affected areas would be recolonized by affected benthic and fish communities within 12 months. Dredging activities would result in the temporary displacement of marine birds and minimal alterations to foraging conditions and/or prey availability. These impacts would not be significant because of their limited scale and duration. Underwater noise generated during dredging activities would disturb fish and marine mammals within the vicinity. As a result, fish and marine mammals may leave the project area during the duration of dredging activities. Implementation of avoidance and minimization measures would prevent impacts to fish and marine mammals. Additionally, increased underwater noise and activity would not vary substantially from normal levels of activity in the immediate area and would cease when dredging activities ended. Project activities are not expected to adversely affect highly mobile marine mammals. Therefore, there would be no reasonably foreseeable harassment of marine mammals due to the Proposed Action. Under NEPA, no significant impacts to marine mammals would result from the Proposed Project.	habitats as a result of the Reduced Dredging Footprint Alternative. **Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would be identical to those associated with the Proposed Action.

Table 3-10. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Biological Resources (continued)		In summary, implementation of the Proposed Action would result in no significant impacts to marine biological resources. **Avoidance and Minimization Measures** The following avoidance and minimization measures would be taken during the proposed dredging activities. In addition, the project's surface area would be visually scanned for the presence of marine mammals and sea turtles prior to commencement of in-water dredging activities. Dredging activities would occur outside of the California least tern breeding season (April 1 – September 15). A pre-dredging survey for *Caulerpa* (*Caulerpa taxifolia*), an invasive alga, would be conducted consistent with National Marine Fisheries Service and California Department of Fish and Wildlife requirements. If *Caulerpa* is found in the project area during this survey, National Marine Fisheries Service-approved *Caulerpa* Control Protocols would be followed. During project implementation, dredging activities would be regularly monitored to ensure no deviations from the project as described herein.	
Noise	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually	Under the Proposed Action, airborne noise would be produced from dredging equipment, tugboats and barges, and associated human activity. Noise from grab dredging is relatively	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and dredging

Table 3-10. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
	altered to meet the submarine operational depth requirements. Existing conditions would remain unchanged. Therefore, the No Action Alternative would have no significant impacts with respect to noise. **Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	quiet in comparison to the Bay's ambient sound levels and duration of the activity would be short-term. Dredging operations would take place 24 hours per day for approximately 90 days. Underwater noise associated with dredging activities would temporarily disturb fish and, if present, marine mammals and sea turtles in the vicinity of the project site. However, impacts would be limited in scale and would be temporary. Therefore, impacts would not be significant. Noise associated with implementation of the Proposed Action would be generally consistent with the industrial waterfront area and would not significantly alter the overall airborne or underwater noise environment. Activities associated with the Proposed Action are temporary; therefore, noise generated from dredging would similarly be short-term. As such, implementation of the Proposed Action would not have a significant short- or long-term impact with respect to noise. Therefore, impacts would not be significant. **Avoidance and Minimization Measures** Under the Proposed Action, avoidance and minimization measures would be necessary.	duration would be reduced. Dredging noise generated under this alternative would be generally consistent with the industrial waterfront nature of NBPL and would not permanently alter the overall noise environment. Therefore, implementation of the Reduced Dredging Footprint Alternative would have no significant impacts with respect to noise. **Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would not be necessary.
Transportation and Traffic	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet the submarine	Under the Proposed Action, one or a combination of the following disposal options would occur. The primary traffic-related impacts would be to vessel transportation in	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and dredging duration would be reduced.. Fewer barge

Table 3-10. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
Transportation and Traffic (continued)	operational depth requirements. Therefore, there would be no significant impacts to transportation and/or traffic. **Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	the Bay and Pacific Ocean or between the confined drying facility and Otay Landfill. <u>Nearshore Replenishment – Beneficial Reuse Option</u> The primary traffic-related impacts under implementation of the Nearshore Replenishment Option would be to vessel transportation within the Bay and Pacific Ocean. Approximately 69 round trips would be necessary to transport dredged sediment from the dredge site to the disposal site. There would be less than significant impacts to vessel transportation as a result of implementation of the Nearshore Replenishment Option of the Proposed Action. <u>Ocean Disposal Option</u> The primary traffic-related impacts under implementation of the Ocean Disposal Option would be to vessel transportation within the Bay and Pacific Ocean. Approximately, 138 round trips, at two trips per day, would be necessary to transport the dredged sediment from the dredge sites to the Ocean Dredged Material Disposal Site (ODMDS) LA-5. There would be temporary and less than significant impacts to vessel transportation as a result of implementation of the Ocean Disposal Option of the Proposed Action. <u>Upland Disposal Option</u> The primary traffic-related impacts under implementation of the Upland Disposal Option would be to truck trips between the designated confined drying facility and the Otay Landfill.	or truck trips associated with sediment disposal would be necessary. Therefore, under the Reduced Dredging Footprint Alternative, there would be no significant impacts to vessel or ground transportation. **Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would be identical to those associated with the Proposed Action.

Table 3-10. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
		Approximately 9,218 truck trips would be necessary to transport the dredged sediment from the confined drying facility to the Otay Landfill disposal site. There would be temporary and less than significant impacts to level of service on the local road network as a result of implementation of the Upland Disposal Option of the Proposed Action. **Avoidance and Minimization Measures** Implementation of the Nearshore Replenishment Option, Ocean Disposal Option, or Upland Disposal Option would not require any avoidance or minimization measures.	
Hazardous Materials and Wastes Hazardous Materials and Wastes (continued)	Under the No Action Alternative, no dredging would occur and the current sediment surface depths would not be manually altered to meet the submarine operational depth requirements. Existing conditions would remain unchanged. Therefore, no impacts from hazardous materials or substances would occur under the No Action Alternative. **Avoidance and Minimization Measures** Under the No Action Alternative, avoidance and minimization measures would not be necessary.	Sediment testing and characterization will be completed for the sediment samples from the Pier 5000 dredging area. All dredged sediment disposal operations performed under the Proposed Action would comply with CWA Section 404 and be in accordance with a dredging permit issued by USACE, and CWA Section 401 Water Quality Certification from the San Diego Regional Water Quality Control Board. Implementation of the Proposed Action would result in a less than significant impact from hazardous materials and wastes. **Avoidance and Minimization Measures** Implementation of the Proposed Action or the Reduced Dredging Footprint Alternative would not result in significant impacts from hazardous materials and wastes. Therefore, implementation of the Proposed Action would not result in the need to implement avoidance and minimization measures. Typical BMPs	The Reduced Dredging Footprint Alternative would have impacts similar to those of the Proposed Action, except that the dredging quantity and dredging duration would be reduced.. Therefore, the Reduced Dredging Footprint Alternative would have a less than significant impact. **Avoidance and Minimization Measures** Under the Reduced Dredging Footprint Alternative, avoidance and minimization measures would not be necessary.

Table 3-10. Summary of Potential Impacts to Resource Areas (Continued)

Resource Area	*No Action Alternative*	*Proposed Action*	*Reduced Dredging Footprint Alternative*
		would be followed during dredging, such as requiring the contractor to have and deploy, as needed, spill kits and cleanup supplies.	

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4 Cumulative Impacts

This section (1) defines cumulative impacts, (2) describes past, present, and reasonably foreseeable future actions relevant to cumulative impacts, (3) analyzes the incremental interaction the proposed action may have with other actions, and (4) evaluates cumulative impacts potentially resulting from these interactions.

4.1 Definition of Cumulative Impacts

The approach taken in the analysis of cumulative impacts follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative impacts are defined in Title 40 Code of Federal Regulations (CFR) section 1508.7 as "the impact to the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

To determine the scope of environmental impact analyses, agencies shall consider cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact analysis document.

In addition, CEQ and United States Environmental Protection Agency (USEPA) have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ 2005) and Consideration of Cumulative Impacts in EPA Review of NEPA Documents (USEPA 1999). CEQ guidance entitled Considering Cumulative Impacts Under NEPA (CEQ 1997) states that cumulative impact analyses should

"…determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts…[and]…focus on truly meaningful impacts."

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

- Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

4.2 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the study area delimits the geographic extent of the cumulative impact analysis. In general, the study area will include those areas previously identified in Section 3 for the respective resource areas. The time frame for cumulative impacts centers on the timing of the proposed action.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and time frame for the actions interrelate to the proposed action, the analysis employs the measure of "reasonably foreseeable" to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for Environmental Assessments (EAs), management plans, land use plans, and other planning related studies.

4.3 Past, Present, and Reasonably Foreseeable Actions

This section will focus on past, present, and reasonably foreseeable future projects at and near the Proposed Action locale. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 4.1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. Projects included in this cumulative impacts analysis are listed in Table 4-1 and briefly described in the following subsections.

4.3.1 Past Actions

Table 4-1. Past Cumulative Action Evaluation

Past Action	*Level of NEPA Analysis Completed*	*Timing*
U.S. Coast Guard (USCG) Mooring Ballast Point Maintenance Dredging	EA	2019
NBPL Piers 5000, 5002 and Pier 5002 Approach Channel Dredging	EA	2014
NBPL Pier 5000 North Side Outer Berth Dredging	EA	2013

4.3.1.1 USCG Mooring Ballast Point Maintenance Dredging

This project includes scheduled maintenance dredging to meet existing, and future, navigational requirements at USCG Ballast Point including dredging of 28,000 cy of clean sand. It is anticipated that dredged clean sand would be employed as beneficial reuse as part of the neighboring Smugglers Cove Fish, Eelgrass, Intertidal, Subtidal Habitat Reef and Enhancement.

4.3.1.2 Piers 5000 and 5002 and Pier 5002 Approach Channel Dredge at NBPL

This project involved dredging of sediment at Pier 5000 and Pier 5002 sites and the approach area, off-site aquatic sediment disposal, and fender relocation to increase depth to accommodate Ohio- and Seawolf-class submarines. Total dredge volumes included approximately 61,433 cy of sediment (across a dredge footprint of approximately 438,805 sq ft), including 21,704 cy at Pier 5000, 8,078 cy at Pier 5002, and 32,281 cy at the Pier 5002 approach area. An EA was completed for this project in 2014.

4.3.1.3 Pier 5000 North Side Outer Berth Dredging at NBPL

This project dredged approximately 6,000 cy of sediment from the NBPL Pier 5000 NSO Berth to maximize installation waterfront usability and allow for deeper dredge submarine berthing. The dredged sediment was beneficially reused nearshore of Naval Air Station North Island. An EA was completed for the project in 2013, and dredging was completed the same year.

4.3.2 Present and Reasonably Foreseeable Actions

A variety of in-water projects within the San Diego Bay are anticipated to occur within the next two years and include maintenance dredging, pier repairs, construction of new static and floating docks, and habitat enhancement projects.

Table 4-2. Present and Reasonably Foreseeably Cumulative Actions

Action	*Estimated Timing*
NBSD Mole Pier Floating Dry Dock	Fiscal Year (FY) 19/20
NBSD Graving Dock Approach Maintenance Dredge	FY 19/20
NBPL Smuggler's Cove Fish - Eelgrass, Intertidal, Subtidal Habitat Reef and Enhancement	Fall 2019
Naval Amphibious Base Coronado (NABC) Pier 4 Floating Docks	FY 19/20
NBPL Floating Dry Dock (ARCO) Dredging	FY 19/20
Fleet Logistics Center Fuel Pier Dredging	FY 19/20
NABC Pier 6 Maintenance	FY 19/20
NABC Pier 14 New Docks New Piles	FY 19/20
NABC Pier 17 Minor Repairs	FY 19/20
NABC Mammal Pier-Replacement in Kind	FY 19/20

4.3.2.1 NBSD Mole Pier Floating Dry Dock

This project includes the construction and installation of an all steel floating dry dock capable of lifting a 18,000 long ton vessel. In order to implement this project, partial demolition of the existing wharf to create space for mooring piles and a "gripper" system at each end of the berth. Project-related dredging is anticipated to include approximately 65,000 cy to create a turning basing and approach channel between -40 and -53 ft MLLW.

4.3.2.2 NBSD Graving Dock Approach Maintenance Dredging

Maintenance dredging in the approach area of the NBSD Graving Dock would ensure appropriate operational depths in the project vicinity. This would support the continued use of the site by ensuring appropriate depths for transit and maneuvering of NBSD vessels.

4.3.2.3 Smuggler's Cove Fish, Eelgrass, Intertidal, Subtidal Habitat Reef and Enhancement

The goal of this project is to restore intertidal and subtidal beach and habitat at Smugglers Cove at NBPL. An artificial reef would be created using broken concrete and piles salvaged from the P-1306 Fuel Pier Replacement to create a berm to hold sand and create new shallow beach and eelgrass habitat. Clean sand dredged as part of the USCG Ballast Point Maintenance Dredge would provide sand material for this project.

4.3.2.4 NBPL Floating Dry Dock (ARCO) Dredging

Dredging in the vicinity of the ARCO floating dry dock would ensure appropriate operational depths for the dry dock and client vessels in the project vicinity. This would support the continued use of the site by ensuring appropriate depths for transit and maneuvering of NBPL vessels.

4.3.2.5 Fleet Logistics Center Fuel Pier Dredging

The goal of this project is to maintain access to one of the Navy's busiest maritime fueling facilities in the Southwest region by dredging within the fuel pier vicinity. This would support the continued use of the site by ensuring appropriate depths for fueling operations and client vessels.

4.3.2.6 NAB Coronado Upgrades, Maintenance, and Repair Projects

A number of in-water projects at NABC are planned to occur through FY 19/20 including: installation of floating docks at Pier 4, maintenance activities at Pier 6, installation of new docks and piles at Pier 14, minor repairs to Pier 17, and replacement of the existing Mammal Pier with a similar structure.

4.4 Cumulative Impact Analysis

Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental effects for future actions has not been completed, assumptions were made regarding cumulative impacts related to this EA where possible. The analytical methodology presented in Section 3, which was used to determine potential impacts to the various resources analyzed in this document, was also used to determine cumulative impacts.

4.4.1 Air Quality/Climate Change

4.4.1.1 Description of Geographic Study Area

The Region of Influence (ROI) for assessing cumulative air quality impacts of criteria pollutants and greenhouse gases is primarily the San Diego Air Basin (SDAB), and more specifically, in proximity to NBPL. This region is in attainment of all criteria pollutants regulated under the National Ambient Air Quality Standards (NAAQS) except ozone. The main impacts to air quality from the Proposed Action that could contribute to cumulative impacts would be from emissions associated with dredging activities. Operational emissions would be unchanged from existing conditions and would not result in long-term increases in emissions.

4.4.1.2 Relevant Past, Present, and Future Actions

The past, present, or reasonably foreseeable actions that have the potential to interact with the Proposed Action and cumulatively impact air quality primarily include projects that would establish new or increase existing emissions in the ROI. Past, present, or reasonably foreseeable dredging projects would add to

cumulative air emissions because they are short-term projects and their impacts would be limited to periods of active dredging.

4.4.1.3 Cumulative Impact Analysis

Proposed Action

Cumulative impacts resulting from the Proposed Action, in conjunction with impacts from other projects listed above, would potentially occur during dredging activities at NBPL. Proposed dredging activities would produce emissions (from tug and dredge equipment operation) that would remain below applicable NEPA and conformity emissions significant thresholds. Any concurrent emissions-generating action that occurs near the Proposed Action area would potentially contribute to the ambient impacts of these emissions. Because proposed dredging activities would produce a nominal amount of emissions, the combination of proposed construction along with future project air quality impacts would not contribute to an exceedance of an ambient air quality standard. As a result, proposed dredging activities would produce less than cumulatively considerable air quality impacts.

Reduced Dredging Footprint Alternative

Under the Reduced Dredging Footprint Alternative, impacts to biological resource would be similar to those of the Proposed Action. Implementation of the Reduced Dredging Footprint Alternative would result in temporary and short-term impacts to biological resources. The duration of dredging activities under the Reduced Dredging Footprint Alternative is not anticipated to be longer than 84 days.

No Action Alternative

Under the No Action Alternative, existing conditions would remain unchanged. No dredging would occur at the Pier 5000 site and the current sediment surface depth would not be manually altered to meet the submarine operational depth requirements. Therefore, the No Action Alternative would not result in any significant direct or cumulative impacts to air quality and greenhouse gases.

4.4.2 Water Resources

4.4.2.1 Description of Geographic Study Area

The ROI for assessing cumulative impacts for water resources is the North Bay in the vicinity of NBPL.

4.4.2.2 Relevant Past, Present, and Future Actions

Past dredging projects within the ROI, including those at Piers 5000 and 5002, had temporary impacts to water resources that occurred for the duration of the respective projects, but would not overlap with impacts associated with the Proposed Action. Future in-water projects, including the NBSD Mole Pier Floating Drydock project and maintenance dredging activities within San Diego Harbor and at other San Diego naval facilities, could occur in close temporal and geographic proximity to the Proposed Action, but dredging sites have not been selected and dredge dates are unknown. Even if dredging activities for some, or all, projects occur concurrently with the Proposed Action, the cumulative impacts would be minimal. The duration of dredging activities under the Proposed Action is not anticipated to exceed 90 days. For that reason, any potential overlap between the projects would not result in a significant cumulative impact to water resources. Therefore, the Proposed Action, in conjunction with other in-water projects in the North Bay, would not result in significant cumulative impacts to water resources.

4.4.2.3 Cumulative Impact Analysis

Proposed Action

Implementation of the Proposed Action would have temporary, localized, and less than significant impacts to water resources.

Reduced Dredging Footprint Alternative

Under the Reduced Dredging Footprint Alternative, impacts to biological resources would be similar to those of the Proposed Action. Implementation of the Reduced Dredging Footprint Alternative would result in temporary and short-term impacts to biological resources. The duration of dredging activities under the Reduced Dredging Footprint Alternative is not anticipated to be longer than 84 days.

No Action Alternative

Under the No Action Alternative, existing conditions would remain unchanged. No dredging would occur at the Pier 5000 site and the current sediment surface depth would not be manually altered to meet the submarine operational depth requirements. Therefore, the No Action Alternative would not result in any significant direct or cumulative impacts to water resources.

4.4.3 Biological Resources

4.4.3.1 Description of Geographic Study Area

The ROI for cumulative biological resource impacts consists of the areas surrounding the dredging site and NBPL.

4.4.3.2 Relevant Past, Present, and Future Actions

The past, present, and reasonably foreseeable projects that have the greatest potential to interact with the Proposed Action and cumulatively impact biological resources include actions that involve ongoing or future in-water operations. Impacts associated with past, short-term dredging projects in the vicinity of the Proposed Action site are unlikely to interact with Proposed Action-associated impacts, given their temporal separation.

4.4.3.3 Cumulative Impact Analysis

Proposed Action

Impacts of the Proposed Action, when compared with those of currently ongoing and reasonably foreseeable future actions, would be temporary and less than significant. Dredging activities would result in a temporary increase in turbidity and underwater noise as well as the temporary removal of prey resources or foraging areas until such time that the benthos naturally recovers following completion of dredging. Similarly, there would no adverse effect to Essential Fish Habitat (EFH), listed Fishery Management Plan (FMP) species, or special aquatic sites, including eelgrass. Short-term impacts to EFH from dredging activities would result in minor disturbances to Bay bottom and the water column and fish from increased suspended sediment loads, turbidity, and underwater noise. In addition, there would be only short-term, localized, and less than significant impacts to marine habitats, fish, invertebrates, sea turtles, birds, and marine mammals that occur in the vicinity of NBPL.

Only two listed threatened or endangered species have the potential to occur in the project vicinity: the green sea turtle and California least tern. With implementation of BMPs (discussed in Section 2.5), the

Proposed Action would result in no effects on individuals of any species. Additionally, avoidance and minimization measures discussed in Section 3.3.3.1 would be implemented to further avoid potential impacts to special status species.

Under the Proposed Action, dredging activities are anticipated to occur in 2019/2020. In-water construction work at NBPL (Smuggler's Cove), NBSD (Mole Pier Floating Dry Dock and Graving Dock Maintenance Dredging), and NABC (various pier maintenance, repair, and construction projects) may potentially occur simultaneously during the Proposed Action in the vicinity of NBPL. However, even if in-water work for all projects is completed concurrently, the cumulative impacts would be minimal. The duration of Proposed Action dredging is not anticipated to be longer than 90 days and would be limited to the geographic scope of the dredging area. For these reasons, any potential overlap between the projects would not result in a significant cumulative impact to biological resources. Therefore, the Proposed Action, in conjunction with any reasonably foreseeable future projects, would not result in significant cumulative impacts to biological resources.

Reduced Dredging Footprint Alternative

Under the Reduced Dredging Footprint Alternative, impacts to biological resource would be similar to those of the Proposed Action. Implementation of the Reduced Dredging Footprint Alternative would result in temporary and short-term impacts to biological resources. The duration of dredging activities under the Reduced Dredging Footprint Alternative is not anticipated to be longer than 84 days.

No Action Alternative

Under the No Action Alternative, existing conditions would remain unchanged. No dredging would occur at the Pier 5000 site and the current sediment surface depth would not be manually altered to meet the submarine operational depth requirements. Therefore, the No Action Alternative would not result in any significant direct or cumulative impacts to biological resources.

4.4.4 Noise

4.4.4.1 Description of Geographic Study Area

The ROI for noise cumulative impacts includes areas in proximity to the dredging site at Pier 5000 at NBPL.

4.4.4.2 Relevant Past, Present, and Future Actions

The past, present, and reasonably foreseeable projects that have the greatest potential to interact with the Proposed Action and cumulatively generate noise impacts include actions that involve ongoing or future in-water operations. Impacts associated with past, short-term, dredging projects in the vicinity of the Proposed Action site are unlikely to interact with Proposed Action-associated impacts, given their temporal separation.

4.4.4.3 Cumulative Impact Analysis

Proposed Action

The Proposed Action would result in temporary, less-than-significant noise impacts because noise-generating activities would last only for the duration of dredging activities and would occur at least 1,000 feet off-shore and at sufficient distance from any noise-sensitive receptors. These impacts would be below established limits or would be very short-term and intermittent, and dredging activity noise would cease upon completion of dredging activities. Further, all airborne noise-generating activities associated with

the Proposed Action would be screened from noise-sensitive land uses (i.e., schools, residences) by other noise-generating uses that are characteristic of the urbanized, industrial waterfront at NBPL. Underwater noise would not significantly affect fish or marine mammals and sea turtles because these species are highly mobile and can avoid these localized, short-term disturbances. Therefore, implementation of the Proposed Action, combined with past, present, and reasonably foreseeable future projects, would not result in significant noise impacts within the ROI.

Reduced Dredging Footprint Alternative

Under the Reduced Dredging Footprint Alternative, impacts to biological resources would be similar to those of the Proposed Action. Implementation of the Reduced Dredging Footprint Alternative would result in temporary and short-term impacts to biological resources. The duration of dredging activities under the Reduced Dredging Footprint Alternative are not anticipated to last longer than 84 days.

No Action Alternative

Under the No Action Alternative, existing conditions would remain unchanged. No dredging would occur at Pier 5000 site and the current sediment surface depth would not be manually altered to meet the submarine operational depth requirements. Therefore, the No Action Alternative would not result in any significant direct or cumulative impacts to the local noise environment.

4.4.5 Transportation and Traffic

4.4.5.1 Description of Geographic Study Area

The ROI for cumulative impacts for transportation and traffic would be less than significant for all disposal options discussed as part of the Proposed Action. All in-water disposal options (nearshore replenishment or ocean disposal) would not include any ground transportation; therefore, there would be no expected increase in traffic to circulation roadway segments and intersections in the vicinity of NBPL. Upland disposal of sediment would expand the ROI to include the regional road network connecting the CDF at NBSD and the Otay Landfill.

4.4.5.2 Relevant Past, Present, and Future Actions

The past, present, and reasonably foreseeable projects that have the greatest potential to interact with the Proposed Action and cumulatively generate vessel or traffic impacts include actions that involve ongoing or future in-water operations. Impacts associated with past, short-term, dredging projects in the vicinity of the Proposed Action site are unlikely to interact with Proposed Action-associated impacts, given their temporal separation and appropriate routing of vessel traffic or roadway transit.

4.4.5.3 Cumulative Impact Analysis

Proposed Action

Dredging activities would consist of a 1,000-cy-capacity barge that would be loaded with sediment and transported in the Bay and Pacific Ocean to either a nearshore replenishment site or LA-5 ODMDS. The Navy would issue a Notice to Mariners for the duration of dredging activities. The Bay is actively used by commercial, recreational, and military vessels; therefore, vessel transportation associated with dredging activities would be consistent with existing vessel traffic in the Bay.

If upland sediment disposal is selected as the appropriate disposal option, sediment will be removed from the dredge site to a CDF and then transported to the Otay Landfill for final disposal. This option would

necessitate trucking sediment on the regional road network. As documented in Section 3.5.3, the approximate total number of trucks trips to transport all of the dredged sediment would be less than 5 percent of the average daily trips on the roadways connecting the CDF and the Otay Landfill, a less-than-significant amount.

Therefore, the Proposed Action, for all options, would not result in significant cumulative impacts to transportation within the Bay and the Pacific Ocean or landside between the CDF and the Otay Landfill.

Reduced Dredging Footprint Alternative

Under the Reduced Dredging Footprint Alternative, impacts to biological resources would be similar to those of the Proposed Action. Implementation of the Reduced Dredging Footprint Alternative would result in temporary and short-term impacts to biological resources. The duration of dredging activities under the Reduced Dredging Footprint Alternative is not anticipated to be longer than 84 days.

No Action Alternative

Under the No Action Alternative, existing conditions would remain unchanged. No dredging would occur at the Pier 5000 site and the current sediment surface depth would not be manually altered to meet the submarine operational depth requirements. Therefore, the No Action Alternative would not result in any significant direct or cumulative impacts to transportation and traffic.

4.4.6 Hazardous Materials and Wastes

4.4.6.1 Description of Geographic Study Area

The ROI for cumulative impacts to hazardous materials and waste consists of NBPL.

4.4.6.2 Relevant Past, Present, and Future Actions

The past, present, and reasonably foreseeable future actions that have a potential to use hazardous materials or generate hazardous waste at NBPL include the Mole Pier Floating Drydock project that may require use and/or disposal of hazardous materials, including fuels.

4.4.6.3 Cumulative Impact Analysis

Proposed Action

Implementation of the Proposed Action would not result in a significant impact from hazardous materials and wastes, based on the 2013 Pier 5000 NSO Berth sediment testing and characterization results, which showed that the proposed dredged sediment is substantially free of chemical contaminants and has no significant associated toxicity. Therefore, the Proposed Action would not result in significant cumulative impacts associated with the use, storage, or disposal of hazardous materials and wastes.

Reduced Dredging Footprint Alternative

Under the Reduced Dredging Footprint Alternative, impacts hazardous materials or wastes on biological resources would be similar to those of the Proposed Action. Implementation of the Reduced Dredging Footprint Alternative would result in temporary and short-term impacts to biological resources. The duration of dredging activities under the Reduced Dredging Footprint Alternative is not anticipated to be longer than 84 days.

No Action Alternative

Under the No Action Alternative, existing conditions would remain unchanged. No dredging would occur at the Pier 5000 site and the current sediment surface depth would not be manually altered to meet the submarine operational depth requirements. Therefore, the No Action Alternative would not result in any significant direct or cumulative impacts related to hazardous materials and wastes.

5 Other Considerations Required by NEPA

5.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies, and Regulations

Implementation of the Proposed Action or the Reduced Dredging Footprint Alternative would be consistent with federal, state, local, and regional land use plans, policies, and controls to the extent required by federal law and regulation. No potential conflicts have been identified. Table 5-1 provides a summary of environmental compliance for either the Proposed Action or the Reduced Dredging Footprint Alternative.

Table 5-1. Principal Federal and State Laws Applicable to the Proposed Action

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] Section (§)4321 *et seq*.); CEQ NEPA implementing regulations; Navy procedures for Implementing NEPA (32 Code of Federal Regulations [CFR] 775)	Navy	This Draft Environmental Assessment (EA) has been prepared in accordance with the Council on Environmental Quality (CEQ) Regulations implementing National Environmental Policy Act (NEPA) and Navy NEPA procedures.
Coastal Zone Management Act (16 CFR § 1451 *et seq*.)	Navy	A federal action is subject to Coastal Zone Management Act (CZMA) federal consistency requirements if the action would have any reasonable foreseeable direct or indirect effect on any coastal use or resource. The Navy conducted an effects test for purposes of federal consistency review. Due to past similar activities in the area and similar effects to coastal uses and resource from dredging, the Navy determined that no adverse effects to coastal use or resources would occur in the coastal zone. The Navy is currently preparing a Coastal Consistency Negative Determination for the Proposed Action and intends to consult with the California Coastal Commission as required by the CZMA.
Clean Water Act (§§ 401-402 and 404, 33 U.S.C. § 1251 *et seq*.)	USEPA, USACE	The Proposed Action or the Reduced Dredging Footprint Alternative would not involve the release of chemicals requiring a National Pollutant Discharge Elimination System (NPDES) permit. The project would involve dredging for which a Clean Water Act (CWA) Section 404/Rivers and Harbors Act (RHA) Section 10 permit from the United States Army Corps of Engineers (USACE) would be obtained, along with related CWA Section 401 Water Quality Certification from the San Diego Regional Water Quality Control Board (RWQCB). A CWA Section 103 permit in compliance with the Marine Protection, Research, and Sanctuaries Act would be obtained should ocean disposal be selected.

Table 5-1. Principal Federal and State Laws Applicable to the Proposed Action

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
Clean Air Act (42 U.S.C. § 7401 *et seq*.)	USEPA	Per the Federal Clean Air Act (CAA) regulations, the Proposed Action or the Reduced Dredging Footprint Alternative would not compromise air quality attainment status or conflict with attainment status and maintenance goals established by the South Coast Air Quality Management District State Implementation Plan. A formal CAA conformity determination is not required. The Proposed Action or the Reduced Dredging Footprint Alternative would be in compliance with the CAA and would comply with all applicable San Diego Pollution Control District (SDAPCD) Rules and Regulations.
Executive Order (EO) 11990, *Protection of Wetlands* (42 Federal Register 26961)	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative would not impact wetlands (none are present in the project area) and would be in compliance with EO 11990.
Endangered Species Act (ESA) (16 U.S.C. § 1531)	Navy / National Marine Fisheries Service (NMFS)/ United States Fish and Wildlife Service (USFWS)	The Proposed Action or the Reduced Dredging Footprint Alternative are not likely to adversely affect any federally listed endangered or threatened species or critical habitat and formal consultation with USFWS is not required. [The Navy has conducted informal consultation with NMFS (green sea turtle) and USFWS (bird species); therefore, the Proposed Action or the Reduced Dredging Footprint Alternative would be in compliance with the ESA.
Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801, *et seq*.) as amended by the Sustainable Fisheries Act (Public Law 104-267)	NMFS	The Proposed Action or the Reduced Dredging Footprint Alternative would have minimal adverse effects on Essential Fish Habitat (EFH) for federally managed fish species within the Coastal Pelagic Species and Pacific Coast Groundfish Fishery Management Plan (FMP) areas. These effects would be temporary and limited in scope. The Proposed Action and the Reduced Dredging Footprint Alternative contain adequate measures to avoid and minimize any remaining potential adverse effects to EFH. The Navy would consult informally with NMFS; therefore, the Proposed Action or the Reduced Dredging Footprint Alternative would be in compliance with the Magnuson-Stevens Fishery Conservation and Management Act.

Table 5-1. Principal Federal and State Laws Applicable to the Proposed Action

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
Marine Mammal Protection Act (MMPA) of 1972 (16 U.S.C. § 1361-1407)	NMFS	The Proposed Action and Reduced Dredging Footprint Alternative would be in compliance with the MMPA. Because monitoring for marine mammals prior to and during all dredging activities would occur including work stoppage if marine mammals are observed in or near the project area, there would be no reasonably foreseeable harassment of marine mammals, as defined by the MMPA.
Migratory Bird Treaty Act (16 U.S.C. §§ 703-712)	Navy	The Proposed Action and Reduced Dredging Footprint Alternative would be restricted to short-term, in-water work within a limited geographic area relative to entirety of San Diego Bay.
National Historic Preservation Act (§ 106, 16 U.S.C. § 470 *et seq*.)	Advisory Council on Historic Preservation, California State Historic Preservation Office	Project components will occur in-water without landside impacts to historic or cultural resources.
Comprehensive Environmental Response and Liability Act (42 U.S.C. § 9601 *et seq*.)	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative would not involve the use or discharge of any hazardous materials.
Emergency Planning and Community Right-to-Know Act (42 U.S.C. §§ 11001-11050)	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative would not involve the use or discharge of any hazardous materials.
Resource Conservation and Recovery Act (42 U.S.C. § 6901 *et seq*.)	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative would not involve the use or discharge of any hazardous materials.
Sikes Act Improvement Act (16 U.S.C. § 670a *et seq*.)	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative would be in compliance with the Integrated Natural Resources Management Plan for San Diego Bay and NBPL and therefore would be in compliance with the Sikes Act Improvement Act.
EO 12088, Federal Compliance with Pollution Control Standards	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative would not be a significant source of pollutants and would comply with all pollution control measures and would therefore be in compliance with EO 12088.
EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations*	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative would not directly impact any residential populations including minority

Table 5-1. Principal Federal and State Laws Applicable to the Proposed Action

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
and Low-income Populations (59 Federal Register 7629)		populations and low-income populations and would be in compliance with EO 12898.
EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (62 Federal Register 19885)	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative would not directly, or indirectly, impact any residential populations (including children) or locations where congregations of children would occur (e.g., schools, daycare centers, etc.) and would be in compliance with EO 13045.
EO 13089, *Coral Reef Protection* (63 Federal Register 32701)	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative would not affect any coral reef habitat and would be in compliance with EO 13089.
EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (66 Federal Register 3853)	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative are not likely to have a measurable negative effect on migratory bird populations and would be in compliance with EO 13186.
EO 13175, *Consultation and Coordination with Indian Tribal Governments* (65 Federal Register 218)	Navy	The proposed action will not directly or indirectly affect any protected cultural, archeological or historic resources.
EO 13693, Planning for Federal Sustainability in the Next Decade (80 Federal Register 119)	Navy	The Proposed Action or the Reduced Dredging Footprint Alternative do not include structures with energy or water demands with potential improvements to conservation. Therefore, the Proposed Action or the Reduced Dredging Footprint Alternative would comply with EO 13693.

5.2 Irreversible or Irretrievable Commitments of Resources

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

Implementation of the Proposed Action would involve human labor and the consumption of fuel, oil, and lubricants for dredging vehicles. Human labor would be a reversible commitment limited to the dredging period as laborers would be available for other project following completion of the project. Consumption of fuel, oil, and lubricants for dredging vehicles would include an irretrievable commitment of these resources; however, material consumption would be limited to implementing the Proposed Action and would not create a continuous demand for these resources by creating new permanent demand for these

resources. Implementing the Proposed Action would not result in significant irreversible or irretrievable commitment of natural or depletable resources at NBPL.

5.3 Unavoidable Adverse Impacts

This EA has determined that the Proposed Action would not result in any significant impacts; therefore, there would be no probable adverse environmental effects that could not be avoided or that would not be amendable to mitigation.

5.4 Relationship between Short-Term Use of the Environment and Long-Term Productivity

NEPA requires an analysis of the relationship between a project's short-term impacts to the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development site reduces future flexibility in pursuing other options, or that using a parcel of land or other resources often eliminates the possibility of other uses at that site.

The Proposed Action or the Reduced Dredging Footprint Alternative would, reversibly, dedicate equipment and other resources to a particular use during a limited period of time. These resources would not be available for other productive uses throughout the duration of the Proposed Action or the Reduced Dredging Footprint Alternative. However, these impacts are considered less than significant, because the facilities and geographic areas associated with the Proposed Action and the Reduced Dredging Footprint Alternative area are designated for, and have historically accommodated, the types of uses proposed, and the duration would be minimal. Therefore, the Proposed Action or the Reduced Dredging Footprint Alternative would not result in any impacts that would reduce environmental productivity or permanently narrow the range of beneficial uses of the environment. In fact, if the dredged material is found to be suitable for nearshore replenishment at one of the three beneficial reuse sites, the Proposed Action would result in a benefit to long-term productivity at the site, or sites, selected to receive dredged material. Further, maintenance dredging at Pier 5000 likely would eventually be required, thereby potentially providing an additional, long-term source of material for beneficial reuse.

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Appendix A
Correspondence With Other Government Agencies

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

June 3, 2019

Refer to NMFS No.:
WCRO-2019-00563

Commander J.M. Alger
United States Navy
Public Works Officer
Point Loma Public Works Team
140 Sylvester Road
San Diego, California 92106-3251

Re: Informal Section 7 Consultation under the Endangered Species Act (ESA) for Pier 5000 Northside Outer Berth and Pier Approach Dredging at Naval Base Point Loma.

Dear Commander Alger:

On May 1, 2019, NOAA's National Marine Fisheries Service (NMFS) received your request to initiate informal consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended, for the United States Navy (USN) Naval Base Point Loma (NBPL) dredging project. In that letter, the USN requested concurrence that the proposed action may affect, but is not likely to adversely affect, species listed as threatened or endangered or critical habitats under the ESA. In addition, the USN also indicated their determination that the proposed project may adversely affect essential fish habitat (EFH) and requested consultation on EFH for species managed under the Pacific Coast Groundfish Species and Coastal Pelagic Species Fishery Management Plans (FMPs), pursuant to Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and provided NMFS with an EFH Assessment (EFHA).

This response to your ESA consultation request was prepared by NMFS pursuant to Section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence. NMFS also reviewed the proposed action for potential effects on EFH designated under the MSA, including conservation measures and any determination you made regarding potential effects of the action. This review was pursuant to Section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. In addition, NMFS provides comments pursuant to the Fish and Wildlife Coordination Act (FWCA; 16 U.S.C. 662). Finally, because the proposed action occurs in areas where marine mammals may be found, NMFS also provides comments relative to compliance with the Marine Mammal Protection Act (MMPA; USC § 1361 et seq.).

This letter underwent pre-dissemination review using standards to utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001,

Public Law 106-554). A complete record of this consultation is on file at the NMFS Long Beach Office.

Proposed Action and Action Area

The USN intends to perform dredging activities at the North Side Outer (NSO) Berthing and Approach Area of Pier 5000, located at NBPL, San Diego, California (Figures 1 and 2). Currently, the NSO berth of Pier 5000 is tidally restricted during two-thirds of the year. Naval Sea Systems Command (NAVSEA) *Memo 3120 Ser 39T236/008*, dated March 2015, established submarine depths for inner harbor and pier-side berths. The memo increased the water depth requirements and identified requirements for minimum under-hull clearance in soft-bottom conditions. The current depth conditions at the Pier 5000 NSO berth do not meet the requirements set forth in the memo. The proposed dredging would include approximately 110,619 cubic yards (cy) of sediment across 679,451 square feet (15.60 acres) of waterfront berthing and approach areas. Specifically, the NSO berth and approach will be dredged to a depth of -42.5 feet mean lower low water (MLLW), plus an additional 2 feet of potential overdredge. Future maintenance dredging may be necessary to maintain the operational depth requirement of -42.5 feet MLLW. Routine maintenance dredging will not include any lateral expansion or deepening of the previously dredged area. Per email communications between the Navy and NMFS, dated May 6, 2019, the Navy expects to dredge up to 800 cubic yards per day, depending on the equipment available to the contractor. Additionally, the most recent (2014) dredging activity discovered numerous underwater obstructions that will require further investigation prior to the commencement of this project. Upon the identification of these obstructions, a work plan for their removal and appropriate disposal will be prepared.

Dredging operations will most likely involve a barge-mounted clamshell dredge and a dump scow. The USN anticipates that the initial dredging episode may take as long as 90 days to complete, and operations will occur on a 24-hour per day basis. Sediment testing of dredged material will determine whether the material is suitable for future beneficial reuse, ocean disposal, or upland disposal. Three replenishment sites (Figure 3) have be identified for dredged material deposition: 1) Imperial Beach; 2) Naval Air Station (NAS) North Island Beach (NASNI); and 3) boat lanes at Naval Base Coronado's (NBC) Silver Strand Training Complex Beach. All proposed options for sediment disposal are described below in further detail.

NBPL Pier 5000 is located to the north of Ballast Point Peninsula, approximately 1.8 miles north-northeast of the southern tip of Point Loma, extending toward the main channel of San Diego Bay. The action area is defined as the geographic extent of the project as based on direct and indirect physical, biological, and chemical effects associated with each of the proposed project elements, as well as the extent of any interrelated and interdependent activities. The entirety of the action area is defined by the outermost extent of all of the zones of potential effect combined. For the proposed project, the action area includes the dredging site, the transit routes, the disposal sites, and the extent of natural sediment transport from the dredging and disposal sites.

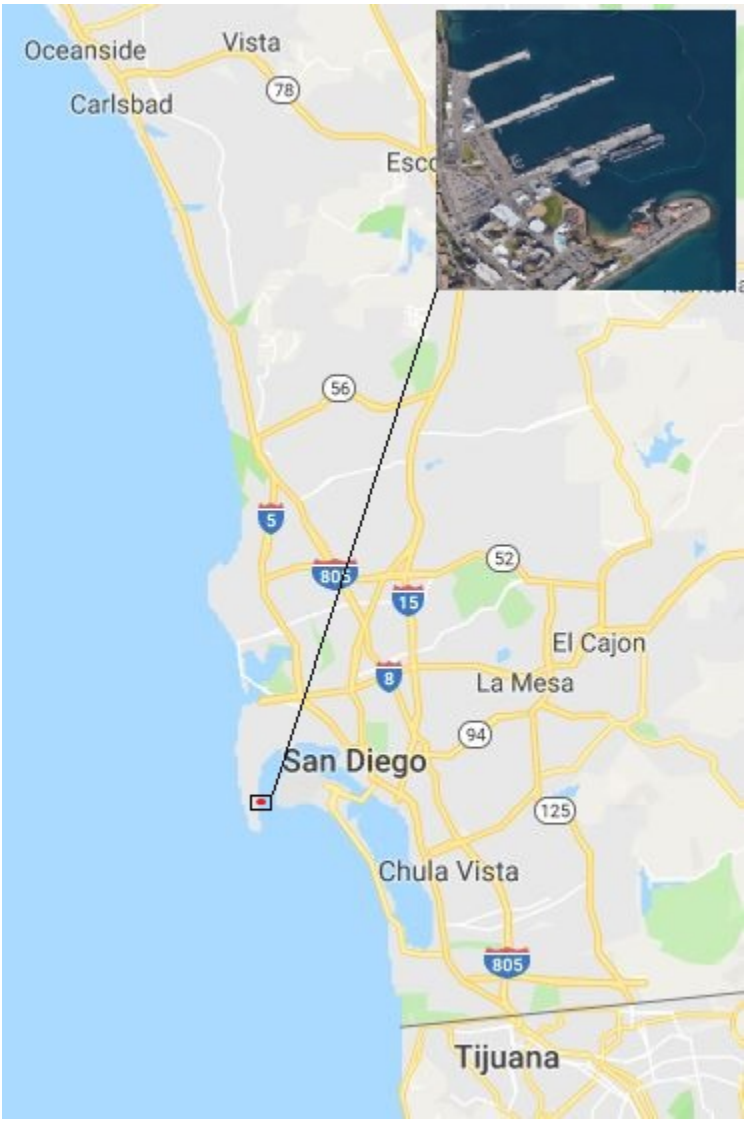

Figure 1. Proposed Project Regional Location. The proposed project will occur at Naval Base Point Loma, within the northern ecoregion of San Diego Bay, San Diego, California. The red mark (surrounded by the black box) represents the project site. The inlay in the upper right corner shows a more zoomed-in view of the project site.

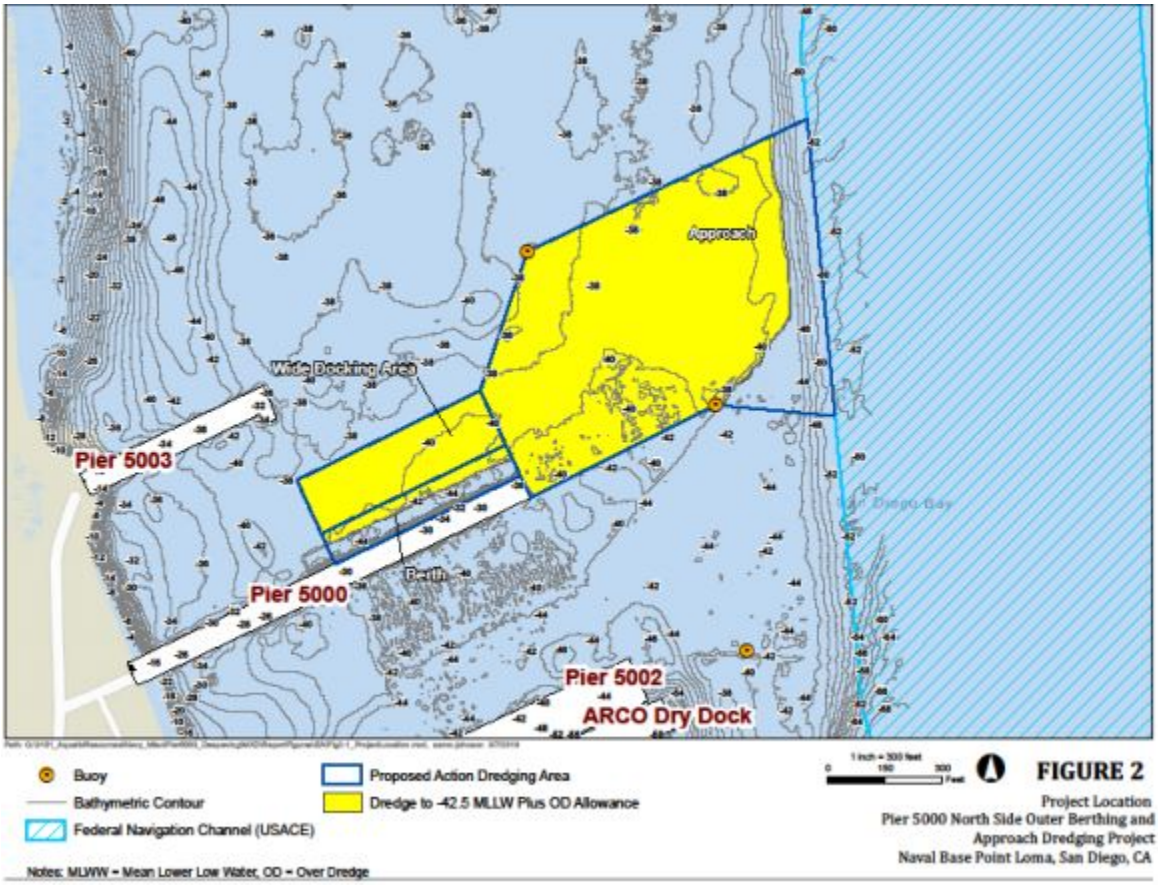

Figure 2. Proposed Dredging Area. The proposed dredging will occur along the North Side Berthing and the Approach for Pier 5000 at NBPL. The proposed dredging area is represented in the image by the yellow shape surrounded by a blue outline. This area will be dredged to -42.5 feet mean lower low water (MLLW).

Disposal Option 1: Nearshore Replenishment – Beneficial Reuse

The Nearshore Replenishment option involves loading dredged sediment onto barges and transporting the sediment to a Nearshore Replenishment site for beneficial reuse. Three sites have been identified for possible use for sediment redistribution: 1) Imperial Beach; 2) Naval Air Station North Island Beach, and 3) Silver Strand Boat Lanes at Naval Base Coronado Silver Strand Training Complex Beach. Imperial Beach is located approximately 9 miles southeast from the project site, and is dominated by sandy nearshore communities. North Island Beach is approximately 1.5 miles to the east of the project site and is dominated by sandy nearshore communities. Silver Strand Boat Lanes is located approximately 6 miles to the southeast of the project site and is dominated by sandy nearshore communities.

Disposal Option 2: Ocean Disposal

The Ocean Disposal option involves loading the dredged sediment onto barges and transporting the sediment to the Ocean Dredged Material Disposal Site (ODMDS) LA-5. ODMDS is a designated offshore open-water disposal site located on the ridged slope of the continental shelf

at a depth of approximately 600 feet, 5.4 nautical miles from Point Loma, off the coast of San Diego. To dispose of dredged sediment at the LA-5 ocean disposal site, sediment characterization testing results must show that sediment is suitable for ocean disposal.

Disposal Option 3: Upland Disposal

Under this option, dredged sediments from the project site will be transported by land to a confined drying facility. Once sediments have adequately dried, they will be transported by truck to an approved and permitted landfill for disposal.

Figure 3. Proposed Disposal Sites. The proposed disposal sites (indicated by the yellow markings) from north to south, include the Naval Air Station North Beach, the Silver Strand Boat Lanes, and Imperial Beach. Not shown are the LA-5 ocean disposal site (offshore ocean-side of NBPL) and the upland disposal site. The disposal option and site(s) selected will depend on the results of the sediment characterization study.

Avoidance and Minimization Measures

As detailed in the project documents and as described in further detail during communications between the NMFS and the project POC, a number of avoidance and minimization measures are included as part of the project description. These measures include, but are not limited to:

1. The USN and its contractors shall instruct all personnel associated with the project of the potential presence of green sea turtles and the need to maintain a 20 meter buffer and avoid collisions with individuals or groups. All construction personnel are responsible for observing water-related activities for the presence of green sea turtles.

2. Due to the possibility of 24-hour dredging operations, a designated, trained biological monitor will always be on site during night-time dredging operations (sunrise to sunset). Per electronic communications between NMFS and the USN, dated May 6, 2019, if night-time dredging occurs, the contractor will provide adequate lighting for the monitor to observe the surrounding area. The USN noted in that correspondence that daytime dredging is preferred but 24-hour operations may be required depending on the work schedule.

3. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. Additionally, per the May 6, 2019 email correspondence between the Navy and NMFS, barges en route to disposal sites would operate at 3-4 knots.

4. To avoid potential foraging habitat, all vessels will follow deep-water routes (e.g. marked channels) whenever possible.

5. If a green sea turtle is seen within the vicinity of active project activities, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment within 20 meters of a green sea turtle. Operation of any mechanical construction equipment shall cease immediately if a turtle is observed within 20 meters of the equipment, and activities may not resume until the protected species has departed the area on its own, or has not been sighted for 15 minutes.

6. Pre-construction and post-construction eelgrass surveys will be completed in accordance with the California Eelgrass Mitigation Policy (CEMP). Per the May 6th correspondence, this includes the disposal sites that may have eelgrass present during operations.

7. Prior to any bottom-disturbing activities, a pre-construction survey of the project area for *Caulerpa taxifolia* will be conducted and furnished to NMFS and the California Department of Fish and Wildlife (CDFW) in accordance with the *Caulerpa* Control Protocol (CCP). In the event that *Caulerpa* is detected within the project area, the Navy will not commence work until such time as the infestation has been isolated, treated, and the risk of spread eliminated.

8. In the event of a collision between any project-related watercraft or equipment and a green sea turtle, the Navy will immediately contact the NMFS Stranding Coordinator, Justin Viezbicke, at 562-980-3230.

Action Agency's Effects Determination

The proposed project involves dredging materials at the U.S. Navy's Naval Base Point Loma, within San Diego Bay, California. For the proposed action, the Navy determined that the proposed project may affect, but is not likely to adversely affect, the East Pacific distinct population segment (DPS) of green sea turtles (*Chelonia mydas*), which is federally listed as a threatened species under the MSA. The Navy, as the lead agency, has determined that no other ESA-listed species are expected to be affected in the proposed project action area, and therefore are not addressed in the consultation request. Additionally, no other interdependent or interrelated actions are associated with the proposed project.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

Researchers believe that San Diego Bay is an important foraging area for the East Pacific DPS of green sea turtles along the west coast of the United States. The shallower waters of the highly urbanized San Diego Bay provide valuable coastal foraging resources for green sea turtles, such as marine algae and seagrass. A portion of the turtle population that is found within San Diego Bay are members of a local resident foraging population (Eguchi *et al*. 2010) that NMFS believes are likely to be members of two Mexican turtle management units[1] (MUs) within the East Pacific DPS: Revillagigedo Islands and Michoacán (Dutton *et al*. 2019). Green sea turtles are attracted to the shallow waters and the relatively high concentrations of eelgrass that are typical of the southern portion of San Diego Bay; the known presence of eelgrass – an important food and habitat item for turtles and their prey – likely influences sea turtle activity patterns within San Diego Bay (Lemons *et al*. 2011). Data from tag-recapture studies suggest that San Diego Bay is a productive habitat for green sea turtles, with these turtles showing faster growth rates when compared to green turtles found in more tropical environments (Eguchi *et al*. 2012).

[1] Dutton *et al*. (2019) defines a management unit (MU) as a smaller-scale nesting population within a species DPS that are phylogenetically related to, but are demographically independent of each other, and can be distinguished by genetic markers.

San Diego Bay is divided into four distinct ecoregions: North Bay, North Central Bay, South Central Bay, and South Bay. Surveys conducted throughout the Bay have found that green sea turtles generally forage and are typically found within the boundaries of the South Bay ecoregion, which has consistently shown to have higher eelgrass distribution in comparison to other regions (NAVFAC SW and Port of San Diego 2018). Turtles observed in this area have been known to frequent and forage in waters near the former South Bay Power Plant, which ceased operations in 2010 (MacDonald *et al*. 2012). Researchers believe that the turtles are attracted to anthropogenically warmed habitats, such as those created by the warm effluent from power plants (Crear *et al*. 2016). Recent observations in monitoring and tracking green sea turtle movement throughout the Bay have provided information that indicates some activity outside of South Bay, with relatively short duration movements between other areas and back to South Bay (Madrak *et al*. 2014). These include observations during the winter and spring months when water temperatures are generally cooler.

The proposed dredging project will take place at Naval Base Point Loma's Pier 5000, which is located in North San Diego Bay. Previous research has indicated that areas outside of South San Diego Bay are not as commonly visited by and do not appear to sustain the regular presence of green sea turtles in comparison to South Bay. However, occasional observations of green sea turtles by the public and by Navy personnel, historical records of sea turtle strandings in San Diego Bay (NMFS unpublished stranding data), and more recent research using satellite telemetry (Bredvik *et al*. 2015) indicate that the occasional presence of green sea turtles throughout San Diego Bay at any time of year can occur. Taking the above into consideration, it is reasonable to expect that green sea turtles could be found within the project area while project activities are underway.

The potential effects of the proposed action include risks of injury, disturbance, loss/avoidance of habitat, and/or mortality to sea turtles as a result of dredging activities in San Diego Bay through the use of vessels, cranes, dredges, or any other equipment needed to complete dredging activities. Any turtles present in the project area may be subjected to significant injuries if struck by a vessel or dredging equipment being used, or by debris in the water as a result of dredging activities. Turtles may also be affected through collisions with vessels that are transporting dredged materials to disposal sites. Additionally, habitats in the project area that may be utilized by sea turtles – primarily seagrass beds – have the potential to be impacted via disturbance or degradation. In their consultation request, the Navy indicated their intent to employ the avoidance and minimization measures described above. These measures are expected to minimize the risk of potential adverse effects to green sea turtles caused by the proposed activities in the unlikely event that a turtle is encountered during the project.

Dredging

Direct Contact Injury

In general, the risks of direct contact injury for sea turtles as a result of the proposed action are low as green sea turtles do not commonly occur in this part of San Diego Bay, based on the information previously described. However, because there is a possibility of green sea turtles being present, the proposed project includes measures that are designed to minimize the risks of

sea turtles coming into direct contact with any vessels, equipment, or debris. For example, the project area will be monitored for green sea turtles. If a turtle is observed within a 20 meter perimeter around activities, operations will cease for at least 15 minutes or until the animal is observed outside of the 20 meter zone, ensuring that any turtles have vacated the project area. If any turtles are in project areas but avoid detection, we expect those turtles will detect the commencement of project activities as dredging equipment and/or vessels begin to ramp up operations in the turtle's immediate vicinity, and will have an opportunity to move away, especially during the initial stages of mobilizing equipment and vessels for work.

The severity of injuries resulting from a collision typically depends on the size and speed of the vessel (Knowlton and Kraus 2001; Laist *et al*. 2001; Vanderlaan and Taggart 2007). For example, research has shown that lethality, defined as mortality or serious injury, increases with vessel speed; the most dramatic increase in lethality to large whales occurred between 10 and 14 knots (Vanderlaan and Taggart 2007). As described above in the avoidance and minimization measures, vessels will be moving at relatively slow speeds while conducting project-related movements. While vessel collisions are the primary identified cause of green sea turtle strandings along the west coast of the United States (LeRoux 2015; NMFS unpublished stranding data), the likelihood of collisions between sea turtles and project vessels at such slow speeds is remote, as we expect both alert vessel operators and turtles to be able to avoid collisions.

NMFS expects that implementation of the proposed avoidance and minimization measures will be effective at reducing the risks of direct contact between sea turtles and vessels and/or equipment. As a result of the low likelihood that sea turtles will commonly be in project areas, the additional impact minimization measures that can be triggered as a result of monitoring and avoidance measures that have been proposed, NMFS concludes that the likelihood of direct contact resulting in severe injury or mortality of a green sea turtle as a result of the proposed dredging project is extremely unlikely, and therefore discountable.

General Disturbance

In general, all in-water construction projects present some degree of risk of disturbance to any green sea turtles that may be present within the project area. Dredging and other vessel-based operations that may involve the generation of underwater or surface sounds or the increase of turbidity in the water column have the potential to create some level of disturbance for any green sea turtles that are nearby. However, the level of sound produced by dredging activities is typically expected to be relatively limited compared to other types of in-water construction activities, such as pile driving. San Diego Bay is a generally noisy area, particularly in the north and central portions, as these areas of the Bay are subjected to significantly more vessel traffic (based on observations by NMFS staff of vessel automatic identification system (AIS) data in San Diego Bay via https://www.marinetraffic.com). Additionally, clamshell dredging typically generates low frequency sound pressure levels, from 100 to 120 dB re 1 micro-Pascal (Dickerson *et al*. 2001). These levels are below the 160 dB re 1 micro-Pascal criteria for marine mammal harassment, which NMFS also uses as a general guideline for sea turtles. Little data exists on the behavior of sea turtles in response to noise generated by dredging activities, but we expect the

reaction to any disturbance that may be created by the proposed action will be avoidance of the immediate project areas.

Given that green sea turtles are not known to spend significant amounts of time in the vicinity of the project area, avoidance of the area where the proposed action may occur is not likely to significantly impact or disrupt the regular movements or behaviors of turtles. Eelgrass habitat has been identified as areas that are likely to be utilized by green sea turtles for foraging in San Diego Bay. However, based on historical and recent eelgrass surveys, there appears to be little eelgrass in the vicinity of the proposed project in comparison to other areas of San Diego Bay, despite ongoing efforts to expand the eelgrass habitat that is present in North Bay. Avoidance of a small portion of available foraging habitats is not likely to limit foraging abilities or have any detectable effect on the health of sea turtles, as they are not expected to rely specifically or exclusively on the project areas for forage, rest, or refuge. Therefore, NMFS expects that any effects or disturbance resulting from exposure to project activities will be insignificant, given the low probability that sea turtles will be in the project areas for any length of time and the lack of any expected impact on health and fitness that avoidance of these areas would have on green sea turtles.

Impacts to Sea Turtle Foraging

As detailed in the EFH analysis below, the proposed project may result in impacts to eelgrass habitat. The Navy has agreed to implement pre- and post-construction eelgrass surveys in order to determine the impacts to eelgrass as a result of the project. As described above, the potential effects of behavioral avoidance of noise disturbance are expected to be insignificant to the health and fitness of green sea turtles, due to the fact that the project area is not expected to consist of common sites for green turtle foraging, and that adequate foraging habitat exists away from project areas in South Bay where green sea turtles spend the majority of their time. Similarly, NMFS also expects that if any loss of eelgrass habitat in the project area does occur, those losses would not significantly affect the foraging habits of green turtles, since these project areas are not expected to contribute significant sources of food. Considering the measures included in the proposed project that aim to minimize the risks of impacts to eelgrass and the relatively low likelihood that green sea turtles are expected to be in project areas and utilize any available resources that may be found there, NMFS concludes that the potential risks of impacts related to the quantity, quality, or availability of sea turtle foraging habitat in San Diego Bay as a result of the proposed dredging project are expected to be insignificant and discountable.

Dredged Material Disposal

As previously described, the Navy expects dredging operations to remove approximately 110,619 cubic yards of material. Of the disposal options detailed above, the Navy's preference is to utilize the beneficial reuse option, depositing materials to be reused at nearby beaches. The option selected, though, will depend on the results of sediment characterization and chemistry testing. If the results do not fall within the allowable parameters for the beneficial reuse sites, then the ocean disposal or upland disposal options will be considered. Regardless of the disposal option selected, the transport and disposal of dredged material to disposal sites presents a risk for

collisions between vessels and/or barges and protected species during transport to the disposal site, as well as exposure to materials being deposited during disposal.

Collision Risk

Although the exact number of trips that vessels will take to disposal sites is unknown, the Navy has indicated that they expect the daily dredging production rate to be approximately 800 cubic yards per day. Therefore, we can estimate that disposal operations may involve as many as approximately 138 total trips to disposal sites over the course of dredging operations, depending on equipment availability and final dredging schedule. Based on observations of sea turtle behavior during research activities, sea turtles appear to be adept at detecting and avoiding slow-moving vessels, even upon detecting them at very close proximity while surfacing (Dan Lawson, NMFS West Coast Region pers. comm., October 29, 2018). Although there is no mandated speed limit for vessels towing barges away from the project location, vessels with barges in tow are expected to travel at relatively low speeds (<10 knots) to meet the general expectations for safe navigation as outlined by the U.S. Coast Guard (USCG) as an overall requirement for all vessels operating in all U.S. waters at all times (COLREG Rule 6; 33 CFR §83.06). Additionally, the Navy expects barges to maintain speeds under 5 knots while en route to disposal sites per their proposed measures to avoid and minimize effects. Therefore, we conclude that the risk of a collision between green turtles and vessels/barges causing significant injury or being lethal is insignificant and discountable. In the unlikely event that a green sea turtle does come into close proximity with a barge in tow during transport and disposal, we expect this encounter to be brief and inconsequential, with the vessel in transit taking care to avoid collisions and green turtles continuing their migratory, foraging, or other behavior as the vessel and animals travel away from each other.

Disposal of Dredged Material

Green sea turtles may occasionally be found transiting through the offshore waters near the beneficial reuse and ocean disposal sites, although NMFS does not expect green sea turtles to be foraging in the offshore waters at these sites. The LA-5 disposal site is outside of the typical depth range to support eelgrass growth (150+ meters in depth offshore), and NMFS does not have any historical records of eelgrass being present at the Silver Strand or Imperial Beach sites. There is a historical record, though, of eelgrass presence off of North Island Beach. Therefore, it is reasonable to expect there to be a chance of sea turtle presence near this site. However, given the apparent preference the turtles have for South Bay, and under the expectation of turtles to vacate the area when operations commence, it is unlikely that disposal at this site will impact turtles. Taking the above into consideration, NMFS expects that effects to green sea turtles from disposal of dredged material are insignificant and discountable.

Given the vast amount of habitat available in comparison to the relatively small footprint of a barge releasing sediment, there is a small probability that a green sea turtle will be present in the same area at the same time that any disposal event may occur. However, there is a risk of exposure to disposed sediment and effects ranging from mild disturbance and agitation, to relatively serious injuries to external organs (e.g. eyes), as well as internal injuries if accidentally inhaled or ingested. The Navy has proposed to include turtle monitoring within 20 meters of

equipment. Operations will be delayed by up to 15 minutes or until the animal is observed outside of the 20 meter zone. As a result of the low probability of interaction and the measures proposed, NMFS has determined that the risks of green sea turtle encounters with disposed dredge materials are insignificant.

The placement of dredged materials in the marine waters at the proposed disposal sites may impact the local habitat through increased turbidity and possible disturbance to turtle foraging as sediment is being disposed. However, this increased turbidity and disturbance is expected to dissipate to negligible level as sediment settles to the bottom or is dispersed by currents and wave action. Considering the potential encounter of green sea turtles with dredged sediments is unlikely and the temporary nature of any disturbance produced by disposal, as well as the small potential for turtles to be foraging near one disposal site, NMFS concludes that the release of dredged sediments will overall be insignificant on the foraging of green sea turtles.

The coastal ocean areas where the disposal sites are located represent a portion of the California coast where numerous other ESA-listed species may periodically occur during migration or foraging activities. Blue, fin, humpback, and gray whales are all generally well-known to be visitors to these coastal areas throughout their lifetimes (juveniles and adults), and are observed frequently transiting or foraging in areas near San Diego. Individuals of all of the above-mentioned species are known to visit the area on an annual basis during migrations. Published scientific estimates of cetacean densities on the U.S. west coast (Becker *et al*. 2012) suggest that this coastal area in California is where densities of blue, fin, and humpback whales can occur in relatively high proportions under various environmental conditions that occur seasonally and/or during some years. However, the Navy has determined that no other protected species will be affect by the proposed project footprint, and therefore no other species were included in the consultation request.

Conclusion

Based on the project description, including location, methods, and the proposed avoidance and minimization measures, NMFS concurs with the U.S. Navy's determination that the proposed project may affect, but is not likely to adversely affect, the federally-listed threatened green sea turtles – specifically, the East Pacific distinct population segment of green sea turtles.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the USN or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). Take, either through injury or death of sea turtles or any other ESA-listed species, is not expected from this project; evidence of such an outcome would require re-initiation under (1) of this paragraph. In such a case, the USN should require that operations cease immediately and must be immediately

reported to Justin Viezbicke, California Stranding Network Coordinator, at (562) 980-3230, or Justin Greenman, Assistant Stranding Network Coordinator, at (562) 980-3264. This concludes the ESA portion of this consultation.

The conclusion above is that the potential impacts related to the quantity, quality, or availability of sea turtle foraging habitat as a result of the proposed project are insignificant and discountable. Should the project change or should information indicate that: (1) the proposed project results in unexpected additional negative impacts to eelgrass habitat; (2) any planned eelgrass mitigation efforts are not successful in terms of accordance with CEMP; or (3) other significant reductions of eelgrass in the project area occur during the proposed project time frame, the USN and NMFS may need to reinitiate consultation under the ESA to determine if adverse effects may be occurring, or have likely occurred. The USN and NMFS will need to coordinate efforts to track the progress of this proposed project in terms of actual impacts to eelgrass that occur, and the progress of any necessary mitigation efforts.

Additionally, the conclusion above does not cover activities related to the investigation and removal of the obstructions found during the 2014 dredging project. Once these obstructions have been identified and a work plan has been established, the USN should consult with NMFS regarding the effects that this action may have on endangered species and habitats, as appropriate. Depending on the results of the obstruction identification, the removal of these obstructions may warrant issuance of credits for debris removal from the marine environment – this can be discussed and determined during the consultation with NMFS.

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. The USN has these same responsibilities, and project consultation offers action agencies an opportunity to address their conservation responsibilities under section 7(a)(1). We recommend that the USN compile and maintain a record of observations of protected species sightings and behavior during all projects and share this record with NMFS. We believe examination of the monitoring records will assist both the USN and NMFS, as well as other potential applicants, in future project designs and support future requests for consultation, as well as informing other general conservation efforts for these species in areas where green sea turtles are known to occur.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), this consultation is intended to promote the protection, conservation and enhancement of essential fish habitat (EFH) as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10), and "adverse effect" means any impact which reduces either the quality or quantity of EFH (50 CFR 600.910(a)). Adverse effects may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

NMFS has determined that the proposed action may adversely affect EFH and offers the following comments.

Action Area

The proposed action will occur at the North Side Outer (NSO) Berthing and Approach Area of Naval Base Point Loma's (NBPL) Pier 5000, located within San Diego, California. Pier 5000 is located to the north of Ballast Point Peninsula, approximately 1.8 miles north-northeast of the southern tip of Point Loma, extending toward the main channel of San Diego Bay. The entirety of the action area is defined by the outermost extent of all of the zones of potential effect combined. For the proposed project, the action area includes the dredging site, the transit routes, the disposal sites, and the extent of natural sediment transport from the dredging and disposal sites.

The proposed action occurs within and may affect EFH for various federally managed fished species within the Coastal Pelagic Species, Pacific Coast Groundfish Species, and Highly Migratory Species Fishery Management Plans (FMPs). In addition, the proposed project occurs within, or in the vicinity of, estuarine and eelgrass habitats, which are designated as habitat areas of particular concern (HAPC) for various federally managed fish species within the Pacific Coast Groundfish FMP. HAPC are described in the regulations as subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the MSA; however, federal projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process.

The Navy has proposed to include a number of avoidance and minimization measures in the project plan. For example, pre- and post-construction surveys will be completed in accordance with the California Eelgrass Mitigation Policy (CEMP). These surveys will be conducted at the dredge site as well as at the beach nourishment sites that have shown to support seagrass habitats. Additionally, a pre-construction survey for *Caulerpa taxifolia* will be completed in accordance with the Caulerpa Control Protocol. In the event that *Caulerpa* is detected within the project area, the Navy will not commence work until such time as the infestation has been isolated, treated, and the risk of spread eliminated. Finally, when possible, all vessels will follow deep-water routes to avoid impacts to foraging habitat (e.g. eelgrass).

The conservation measures described above as part of the proposed action should minimize or avoid adverse effects to EFH. NMFS regards these conservation measures as integral components of the proposed action and expects that all proposed activities will be completed consistent with those measures. Any deviation from the project description and these conservation measures will be beyond the scope of this consultation and may require supplemental consultation to determine what effect the modified action is likely to have on EFH.

Effects of the Action

The adverse effects to EFH that may occur as a result of the proposed dredging include 1) direct removal/burial of organisms; 2) turbidity/siltation effects, including light attenuation from

turbidity; 3) contaminant release and uptake, including nutrients, metals, and organics; 4) release of oxygen-consuming substances; 5) entrainment; 6) noise disturbances; and 7) alteration to hydrodynamic regimes and physical habitats. Dredging equipment and vessels may also affect EFH via deployment of anchors, grounding of vessels, and/or propeller scarring and prop wash.

The disposal of dredged material may adversely affect EFH by 1) impacting or destroying benthic communities; 2) affecting adjacent habitats; 3) creating turbidity plumes and introducing contaminants and/or nutrients. Disposing of dredged materials may result in varying degrees of change in the physical, chemical, and biological characteristics of the substrate. Discharges may adversely affect infaunal and bottom-dwelling organisms at the site by smothering immobile organisms (e.g. prey invertebrate species) or forcing mobile animals (e.g. benthic-oriented fish species) to migrate from the area.

Sensitive habitats, such as eelgrass, may be impacted by the proposed dredging activities. Eelgrass habitats provide a wide range of ecological functions that are important for maintaining healthy estuarine and coastal ecosystems (Anderson 1989, Peterson and Lipcius 2003) and serve as nursery habitats for numerous recreationally and commercially important finfish and shellfish species (Hoffman 1986, Heck *et al*. 1989, Dean *et al*. 2000, Semmens 2008). The water depths documented within the majority of the project footprints are generally too deep to support eelgrass. However, eelgrass has been previously observed near the proposed Naval Air Station North Island disposal site, and may be impacted during sediment disposal. The results of the pre- and post-construction eelgrass surveys will be used to determine what effects to eelgrass, if any, occurred as a result of the proposed project.

Another potential concern is the spread of the invasive alga *Caulerpa taxifolia* as a result of bottom-disturbing project activities. Evidence of the harm that can ensue as a result of an uncontrolled spread of the alga has already been seen in the Mediterranean Sea, where it has destroyed local ecosystems, impacted commercial fishing areas, and affected coastal navigation and recreational opportunities. Although it is not known to be present within San Diego Bay, it had been previously detected in two other locations in Southern California, including Agua Hedionda Lagoon in San Diego County. If the invasive alga is present in the project area and goes undetected, the dredging activities have the potential to adversely affect EFH by promoting its spread and increasing negative ecosystem impacts. However, the Navy has agreed to conduct pre-construction surveys for *C. taxifolia* prior to the commencement of dredging, and, if found, will refrain from conducting project activities until the infestation has been isolated and treated and the risk of spread eliminated.

EFH Adverse Effects Determination

Based upon the above effects analysis, NMFS has determined that the proposed project would adversely affect EFH for various federally managed fish species covered under the Pacific Coast Groundfish, Coastal Pelagic Species, and Highly Migratory Species FMPs. However, the Navy has included conservation measures to avoid and/or otherwise minimize negative impacts to EFH. As long as the proposed conservation measures are implemented and negative impacts to eelgrass are properly mitigated in accordance with CEMP, NMFS believes that these effects will

not be substantial and has no additional EFH Conservation Recommendations to provide at this time.

Supplemental Consultation

Pursuant to 50 CFR 600.920(l), the Navy must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations.

FISH AND WILDLIFE COORDINATION ACT

The purpose of the Fish and Wildlife Coordination Act (FWCA) is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development [16 U.S.C. 661]. The FWCA establishes a consultation requirement for federal departments and agencies that undertake any action that proposes to modify any stream or any other body of water for any purpose, including navigation and drainage [16 U.S.C. 662]. Consistent with this consultation requirement, NMFS provides recommendations and comments to federal action agencies for the purpose of conserving fish and wildlife resources. The FWCA allows the opportunity to offer recommendations for the conservation of species and habitats beyond those currently managed under the MSA.

As described in the EFH effects analysis, NMFS has determined that estuary and eelgrass habitat will be negatively impacted by the proposed activities. Therefore, the avoidance and minimization measures to address adverse effects to EFH are also considered necessary to address negative impacts to fish and wildlife resources managed under the FWCA.

MARINE MAMMAL PROTECTION ACT

In addition to green sea turtles, various other ESA-listed marine mammals, as well as other common marine mammal species, may be found in some parts of the proposed project's action area. The additional ESA-listed species include blue whales (*Balaenoptera physalus*), fin whales (*Balaenoptera musculus*), humpback whales (*Megaptera novaeangliae*), and Western North Pacific gray whales (*Eschrichtus robustus*), which may be encountered while in transit to and from disposal sites and while offloading dredged materials. Other marine mammals that may be encountered include California sea lions (*Zalophus californianus*), Pacific harbor seals (*Phoca vitulina*), and common dolphins (*Delphinus spp*). Marine mammals are protected under the Marine Mammal Protection Act (MMPA) (16 U.S.C. § 1361 et seq.). Under the MMPA, it is illegal to "take" a marine mammal without prior authorization from NMFS. "Take" is defined as to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal. Except with respect to military readiness activities and certain scientific research conducted by, or on behalf of, the Federal Government, "harassment" is defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal in the wild, or has the potential to disturb a marine mammal in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering. If the incidental take of marine mammals is expected to occur as a result of any proposed action, the

applicant should apply for an Incidental Harassment Authorization (IHA) or Letter of Authorization (LOA) from NMFS well in advance of the proposed action. Please note that this letter does not provide Incidental Harassment Authorization for any marine mammals; any authorization would have to come from NMFS Office of Protected Resources, in Silver Spring, Maryland.

During the monitoring associated with this proposed project, the Navy should note marine mammal presence and any behaviors indicative of potential harassment under the MMPA. These behaviors could include startled response, irregular diving, or flushing from haul-out positions in the vicinity of the project area. Implementation of the protocols for avoiding protected green sea turtles during offshore dredge material disposal described earlier should help minimize the potential for marine mammal harassment or injury resulting from this additional proposed activity if those same avoidance measures are used for marine mammals. NMFS requests that the Navy carefully record the behavior of any marine mammals that do occur within the proposed project area. If the proposed project disturbs marine mammals, the Navy should cease activity and contact NMFS before proceeding further. In the unlikely event of an injury or mortality of a marine mammal due to this project, please immediately contact our regional stranding coordinator, Justin Viezbicke, at (562) 980-3230, or Justin Greenman, Assistant Stranding Network Coordinator, at (562) 980-3264.

Thank you for consulting with NMFS regarding this project. We appreciate your efforts to comply with Federal regulations and to conserve and protect marine mammals, sea turtles, fish, and habitat. Please direct questions regarding ESA, MMPA, or EFH to James Harrison, 562-980-4044, or at James.Harrison@noaa.gov.

Sincerely,

Penny Ruvelas
Long Beach Office Branch Chief
Protected Resources Division

cc: Administrative File: 151422WCR2019PR00112

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May 30, 2019

James M. Alger
Dept. of the Navy
Attn: Deb McKay
Naval Base Point Loma
140 Sylvester Rd.
San Diego, CA 92106-3521

Re: **ND-0009-19** U.S Navy, Negative Determination, Pier 5000, Maintenance Dredging, Point Loma, San Diego

Dear Mr. Alger:

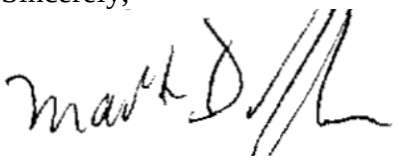
The U. S. Navy has submitted the above-referenced negative determination for the maintenance dredging of up to 110,619 cu. yds. of sediment to maintain submarine berthing capabilities on the north side (including the adjacent approach area) of Pier 5000, east side of the Point Loma peninsula, Naval Base Point Loma. Disposal would be dependent on the sediment test results and the material would be used, as determined suitable based on the dredge material Tier III test results, for nearshore disposal, LA-5 disposal, or upland disposal.

Initial interpretations of the results are that 100% of the sediments are suitable for beneficial reuse with the likely disposal location occurring at the SSTC boat lanes. The Navy will inform and coordinate with the Commission staff in the event the final interpretations of the test results necessitates a modification to the disposal regime.

Under the federal consistency regulations, a negative determination can be submitted for an activity "which is the same as or similar to activities for which consistency determinations have been prepared in the past." We **agree** with the Navy that the proposed dredging is similar to previous Commission and Commission staff concurrences with the above-described consistency and negative determinations submitted by the Navy for San Diego Bay dredging activities (CD-64-92, CD-51-94, CD-89-99, CD-031-01, ND-011-11, ND-052-12, CD-011-13, ND-007-14, ND-0031-14, ND-0011-16, ND-0002-18, and ND-0040-18), and would not adversely affect public access and recreation, sensitive habitats, or other coastal

zone resources. We therefore **concur** with your negative determination made pursuant for 15 CFR Section 930.35 of the NOAA implementing regulations. Please contact Mark Delaplaine at (415) 904-5289, if you have any questions regarding this matter.

Sincerely,



(for) JOHN AINSWORTH
Executive Director

cc: San Diego District

DEPARTMENT OF THE NAVY
NAVAL BASE POINT LOMA
140 SYLVESTER ROAD
SAN DIEGO, CALIFORNIA 92106-3521

IN REPLY REFER TO:
5090
Ser 005/ldg
10 Apr 19

Mr. Mark Delaplaine
Manager, Federal Consistency Division
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, California 94105-2219

Dear Mr. Delaplaine:

SUBJECT: COASTAL CONSISTENCY NEGATIVE DETERMINATION FOR PIER 5000 NORTHSIDE OUTER BERTH AND PIER APPROACH DREDGING AT NAVAL BASE POINT LOMA

The Navy proposes to conduct dredging to deepen the berthing at Pier 5000 North Side Outer (NSO) Berth and Pier Approach Dredging at Naval Base Point Loma. The proposed project is designed to comply with operational depth requirements for navigation and berthing of all classes of submarines at Naval Base Point Loma.

This submittal is in compliance with Section 930.35 of the National Oceanic and Atmospheric Administration (NOAA) Federal Consistency Regulations (15 CFR 930). The Navy has determined that the proposed action would have no effect to coastal resources for the reasons identified in the enclosure.

The Navy requests your concurrence on this proposed project. When completed, send an electronic copy of your letter of concurrence to Ms. Deb McKay, Region NEPA Coordinator, at deborah.mckay@navy.mil. If you have any questions or need further information, please contact Ms. Deb McKay at (619) 532-2284.

Sincerely,

JAMES M. ALGER
By Direction

Encl: (1) Coastal Consistency Negative Determination

Coastal Consistency Negative Determination

In accordance with the Federal Coastal Zone Management Act (CZMA) of 1972 as amended, Section 307c (1), the United States Department of the Navy (Navy) has determined that the proposed project, Pier 5000 North Side Outer (NSO) Berth and Pier Approach Dredging at Naval Base Point Loma (NBPL) in San Diego, California, would not adversely affect the resources or uses of the coastal zone. Therefore, the Navy has concluded that a Coastal Consistency Determination is not required and is requesting your concurrence with this Coastal Consistency Negative Determination (CCND) in compliance with the Ocean and Coastal Resource Management regulations (15 CFR 930.35).

This submittal is similar to previously concurred with determinations for projects dredging in the San Diego Bay (CD-51-87, CD-64-92, CD-51-94, CD-89-99, CD-031-01, CD-046-07, ND-036-07, ND-011-11, ND-052-12, CD-011-13, ND-007-14, and ND-0011-16, ND-0002-18, ND-0040-18). In those decisions, especially the most recent ND-0002-18 for the Navy, the Commission found that Navy's dredging activities either had no effect on coastal uses or resources or were consistent with the enforceable policies of the coastal management program including the provisions pertaining to dredging of coastal waters to maintain or restore previously dredged depths. The Commission concurred that the activities complied with the water quality, public access and recreation, and environmentally sensitive habitat policies of the Coastal Act.

PROJECT DESCRIPTION

Pier 5000, also referred to as middle pier, is located approximately 1.5 miles north-northeast of the southern tip of Point Loma, near Ballast Point. See Figure 1 for vicinity and aerial maps. Previous dredging efforts in the vicinity of Pier 5000 at NBPL were conducted as described under ND-0052-12 which provided for deepening 1-2 feet (ft) to -40 ft mean lower low water (MLLW) (plus 2 ft overdredge) at Pier 5000 by dredging 4,888 cy of sediments on the north side of the pier. Subsequently, ND-0031-14 provided for the deepening to -39.3 ft MLLW (plus 2 ft overdredge) at Pier 5000 by dredging 21,074 cy and relocating a pile on the south side of the pier among other dredging locations at other piers. See Figure 2 for previous dredge locations.

The current proposed project would involve deepening the Approach, Berth, and Wide Docking Areas in the vicinity of Pier 5000 NSO to provide safe access and maneuvering for Navy submarines. See Figure 3 for project location map. This proposed action would allow maximum use, capabilities, and efficiencies of Pier 5000 at NBPL. The purpose of the proposed dredging is to provide adequate deep-water berthing capability for all Navy submarines at Pier 5000 to satisfy current operational requirements for navigation and berthing.

The dredge footprint encompasses a 679,451 square feet (SF) (15.60 acres) area. The desired dredge limit would be -42.5 ft (MLLW), plus an additional -2 ft of overdredge depth generating an estimated 110,619 cubic yards (cy) of dredge sediments. Dredge sediments would be disposed of offsite. Dredge equipment would involve either a barge-mounted clamshell or backhoe dredge, depending largely on the disposal location as described below. Dredging activity would last up to 90 days.

The Navy has considered the following three disposal alternatives for nearshore replenishment, ocean disposal, and upland disposal: (1) Nearshore Replenishment at Naval Air Station North Island, Silver Strand Boatlanes, or Imperial Beach; (2) LA-5 Ocean Dredged Material Disposal Site (ODMDS); or (3) upland disposal at the Otay Landfill. Based on sediment testing in accordance with protocols of the U.S. Environmental Protection Agency (USEPA) and USACE per an approved Sampling and Analysis Plan, all sediments from the Pier 5000 dredge site are expected to be suitable for use as nearshore beach replenishment, unconfined aquatic disposal, or disposal at a designated ocean disposal site.

Option 1, nearshore replenishment at one of three local beneficial reuse sites (Naval Air Station North Island, Silver Strand Boatlanes, or Imperial Beach), includes beneficial reuse of dredged material and would require a clamshell or backhoe dredge. The locations of the beneficial reuse sites relative to NBPL are as follows:

- Naval Air Station North Island is located approximately 1.5 mile from Pier 5000;
- Silver Strand Boatlanes is located approximately 6 miles from Pier 5000 at the Naval Base Coronado Silver Strand Training Complex; and
- Imperial Beach is located approximately 9 miles from Pier 5000.

Under Option 1, dredged sediment would be transported by 1,000-cy-capacity barges equipped with electronic tracking devices to document that the dredge material is placed within the disposal site boundaries, as specified in a dredging permit.

Option 2 includes disposal at the ODMDS LA-5 site, located 5.4 nautical miles from Point Loma, off the San Diego Coast at a depth of 600 ft. Option 2 would be used for subsequent dredge episodes if testing identified that the materials would not be suitable for beneficial reuse. Dredging for disposal at LA-5 ODMDS would require a clamshell or backhoe dredge. The ocean disposal of dredged sediment is regulated under Section 103 of the Marine Protection, Research, and Sanctuaries Act, and disposal operations would comply with permitting and dredging regulations published in Title 33 Code of Regulations (33 CFR 320–330 and 33 CFR 335–338).

Option 3 included upland disposal at the Otay Landfill, located approximately 12 miles from Naval Based San Diego (NBSD), the site of the nearest confined drying facility (CDF), where dredged sediments would be taken from Pier 5000 before transit to the disposal site at Otay Landfill. Option 3 would be used for dredge materials if testing identified that the materials would not be suitable for nearshore beneficial replenishment or ocean disposal at LA-5 ODMDS.

EFFECTS ANALYSIS

As defined in Section 304 of the CZMA, the term “coastal zone” does not include “lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government.” NBPL, including submerged lands extending 300 yards out from the shoreline, is owned and operated by the Navy and, therefore, is excluded from the coastal zone. Although the Navy does not own the adjacent submerged lands in San Diego Bay, it does maintain navigational servitude of them through implementation of a security zone (33 CFR 165.1102) as shown in National Oceanographic and Atmospheric Administration (NOAA) Nautical Chart 18773 (NOAA Office of Coast Survey 2012). The Navy recognizes that Federal actions on land excluded from the coastal zone may affect uses and resources within the coastal zone. Accordingly, the Navy analyzed the impacts of the proposed project on the coastal zone by

looking at reasonable foreseeable, direct and indirect effects on the coastal uses or resources. Also analyzed were the relevant management program enforceable policies, and the Coastal Resources Planning and Management Policies (CRPMP).

The Navy analyzed the impacts of the proposed project by considering reasonably foreseeable direct and indirect effects on any coastal use or resource and reviewing relevant management program enforceable policies (15 CFR 930.33[a][1]) and the Coastal Resources Planning and Management Policies (CRPMP).

Public Access (Coastal Resources Planning and Management Policies [CRPMP] Section 30210 *et seq.*), Recreation (CRPMP Sections 30220 *et seq.*)

The proposed action would not interfere with public access or boater recreation within the coastal zone. The project is located near an industrial area on NBPL where access is controlled by the Navy and is restricted to military personnel, Department of Defense and USCG employees, and authorized contractors. Public access is also restricted by the U.S. Coast Guard security zone that encompasses both the USCG pier south of Ballast Point and the primary submarine piers at NBPL. Surrounding land uses adjacent to the project area are designated for military activities and include waterfront operations, parking lots, and limited recreation. The project would be compatible with existing adjacent land uses, and no changes would occur to public access or recreational opportunities.

Therefore, there will be no effect to public access or recreation.

Marine Environment (CRPMP Sections 30230 *et seq.*)

Activities associated with dredging will disturb a portion of the bottom sediments within the project area. Disturbances of bottom sediments (mostly sand) may cause the following impacts on marine water quality: formation of localized but temporary turbidity plumes with elevated concentrations of suspended particles and decreased light transmittance; and localized but temporary decreases in dissolved oxygen concentrations in bottom waters. Decreases in light penetration levels and dissolved oxygen would occur within a few hundred feet of the dredging site and end several hours from cessation of dredging activities. Because the material to be dredged is mostly sand in which historic analytical testing has not indicated elevated levels of contaminants, it is unlikely that temporary turbidity associated with dredging would mobilize significant levels of dissolved-phase contaminants into the water column. Consequently, effects will be localized and temporary because suspended sediments will quickly settle from the water to the bottom. These changes will not cause toxicity to aquatic organisms or increase potentials for contaminant bioaccumulation.

All operations will comply with Clean Water Act Section 404 and be in accordance with a permit issued by the ACOE, and a Clean Water Act Section 401 water quality certification from the San Diego Regional Water Quality Control Board. Based upon sediment testing for the USCG dredging, the sediment is predominantly coarser grain, beach-compatible grain sand which settles quickly instead of remaining suspended in the water column. The NBPL waterfront experiences high velocity currents which scour the native bay floor surface and prevent sedimentation of fine particulates which would otherwise contain and retain contaminants.

Sampling results for the proposed action footprint are expected to exhibit the same characteristics and be found suitable for unconfined aquatic disposal. Because the material to be dredged is mostly sand and analytical testing did not indicate elevated levels of contaminants, it is unlikely that temporary turbidity associated with dredging would mobilize significant levels of dissolved-phase contaminants into the water column.

The project will have no long-term effects on biological productivity or water quality. Implementing standard construction Best Management Practices (BMPs), such as a spill prevention and cleanup plan, will avoid or minimize the potential for accidental releases of fuels/oils during dredging and operation of dredging equipment.

Based on the above analysis, all water quality impacts will be temporary and localized, therefore, there will be no long-term affects to water quality.

The project region is located within a general area designated as Essential Fish Habitat (EFH) by two Fishery Management Plans, the Pacific Coast Groundfish and Coastal Pelagic Species. Temporary impacts to EFH species may occur from increased suspended sediments and increased noise levels, consistent with dredging equipment. However, EFH species are highly mobile and will likely leave the project area during dredging activities and return when these activities are completed. Physical disturbance of bay bottom during the dredging operation would result in temporary loss of marine benthic organisms. The project area would be expected to recolonize after dredging operations cease.

Eelgrass (Zostera marina) is not found in the project area as the depths at the pier are too great to support eelgrass habitat in the dredge locations. The project area is located approximately 1,640 feet (500 meters) from the nearest mapped eelgrass area from the San Diego Baywide survey for eelgrass conducted in 2014. Nevertheless, pre- and post-dredging eelgrass surveys would be conducted consistent with the Southern California Eelgrass Mitigation Policy.

A pre-construction survey for the presence of Caulerpa taxifolia will also be conducted at the dredge site in accordance with NMFS and California Department of Fish and Wildlife (CDFW) published protocol. If Caulerpa taxifolia is found, dredging will be delayed and NMFS and CDFW consulted immediately.

Two federally listed species – green sea turtles (Chelonia mydas) and California least tern (Sterna antilarium browni) may be present or transit through the area of the proposed project. Least tern forage in coastal and nearshore areas of San Diego Bay where schooling fish concentrate. There are no least tern nesting sites in or near the project area. The proposed project would occur during the colder winter season, outside of the least tern's nesting season (1 April through 15 September) and during the non-typical transit period for green sea turtle.

Marine mammals in the San Diego Bay include the California sea lion (Zalophus californianus), coastal bottlenose dolphin (Tursiops truncates), Pacific harbor seal (Phoca vitulina), and occasionally California gray whale (Eschrichtius robustus). There are five known sea lion haul-out locations in the vicinity of the proposed project. The closest haul-out location is approximately 980 feet (300 meters) north of the proposed project at the bait barges. The

proposed project's surface area would be visually scanned for the presence of marine mammals and sea turtles prior to commencement of in-water dredging activities and if spotted during noise producing activities, will cease until the animal voluntarily leaves.

Therefore, there would be no effect to the biological productivity, water quality, or the marine environment.

Land Resources (CRPMP Section 30240 *et seq.*)

There will be no effect on historic properties since none exist within the project area. The project area falls under the coverage of the Naval Base Point Loma Programmatic Agreement (NBPL PA) executed in May 2014 between Commanding Officer, NBPL, the Advisory Council on Historic Preservation, and the California State Historic Preservation Officer. In conformance with Stipulation 8A of the NBPL PA, the Cultural Resource Management Program (CRMP) has determined that the proposed action will not affect listed, contributing or eligible National Register of Historic Places (NRHP) properties. Consistent with 36 CFR 800.4(d)(1), The CRMP has accordingly made a determination of "no historic properties affected" for the proposed action.

Therefore, there would be no effects to land resources as a result of the proposed project.

Development (CRPMP Section 30250 *et seq.*)

The proposed project will not affect views available to the public from publicly accessible areas on Point Loma and will be consistent with the industrial visual aesthetic of NBPL. Dredging activities will be visible to military and authorized civilian personnel working near Pier 5000 and 5003 and boaters transiting the federal channel. However, dredging activities will be relatively short-term and will occur in a developed area that is accessible only to military personnel. After dredging, the project area will be visually consistent with the current marine-industrial and military activities that take place at the NBPL waterfront sites and adjacent areas. Therefore, there will be no effect to aesthetics.

The project will follow applicable San Diego County Air Pollution Control District (SDCAPCD) rules. Project emissions will not exceed the annual conformity de minimis thresholds identified for the San Diego Air Basin (SDAB). Additionally, annual project construction emissions will not be regionally significant in the air basin, as they will be substantially less than 10 percent of the applicable conformity-related emissions estimated for the SDAB. Therefore, the proposed action will conform to the SDAB State Implementation Plan and will not trigger a conformity determination under the Clean Air Act, as amended.

Therefore, there would be no effect to the visual, scenic, or air quality of coastal resources.

CONCLUSION

In accordance with Section 307(c)(1) of the Federal Coastal Zone Management Act, this Coastal Consistency Negative Determination demonstrates that the proposed action will be undertaken in

a manner as to not affect coastal uses or resources. The Navy respectfully requests your concurrence. If you need additional information, or if you have any questions, please do not hesitate to contact Deb McKay at (619) 532-2284 or email at deborah.mckay@navy.mil.

Figure 1: Vicinity Map

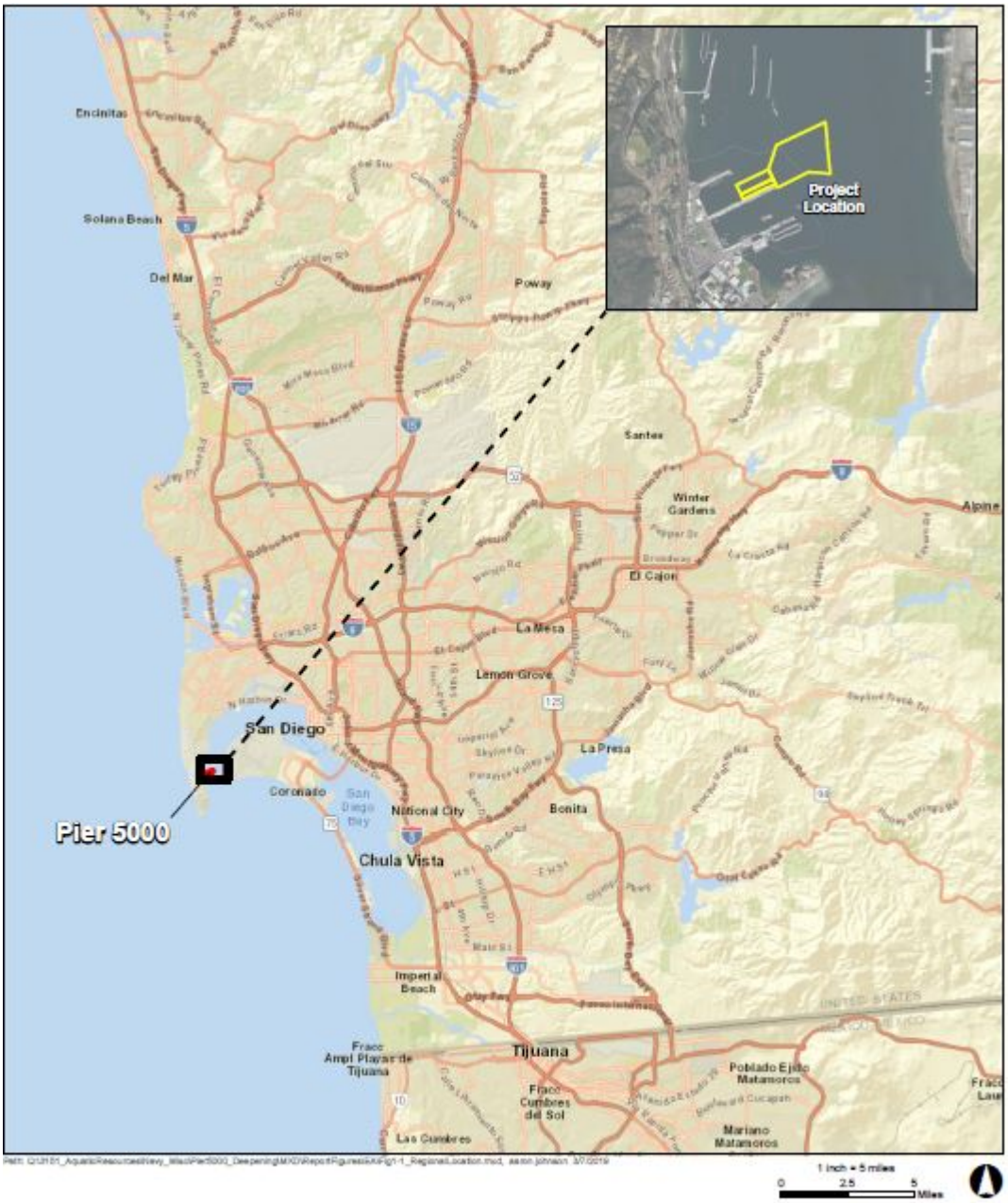
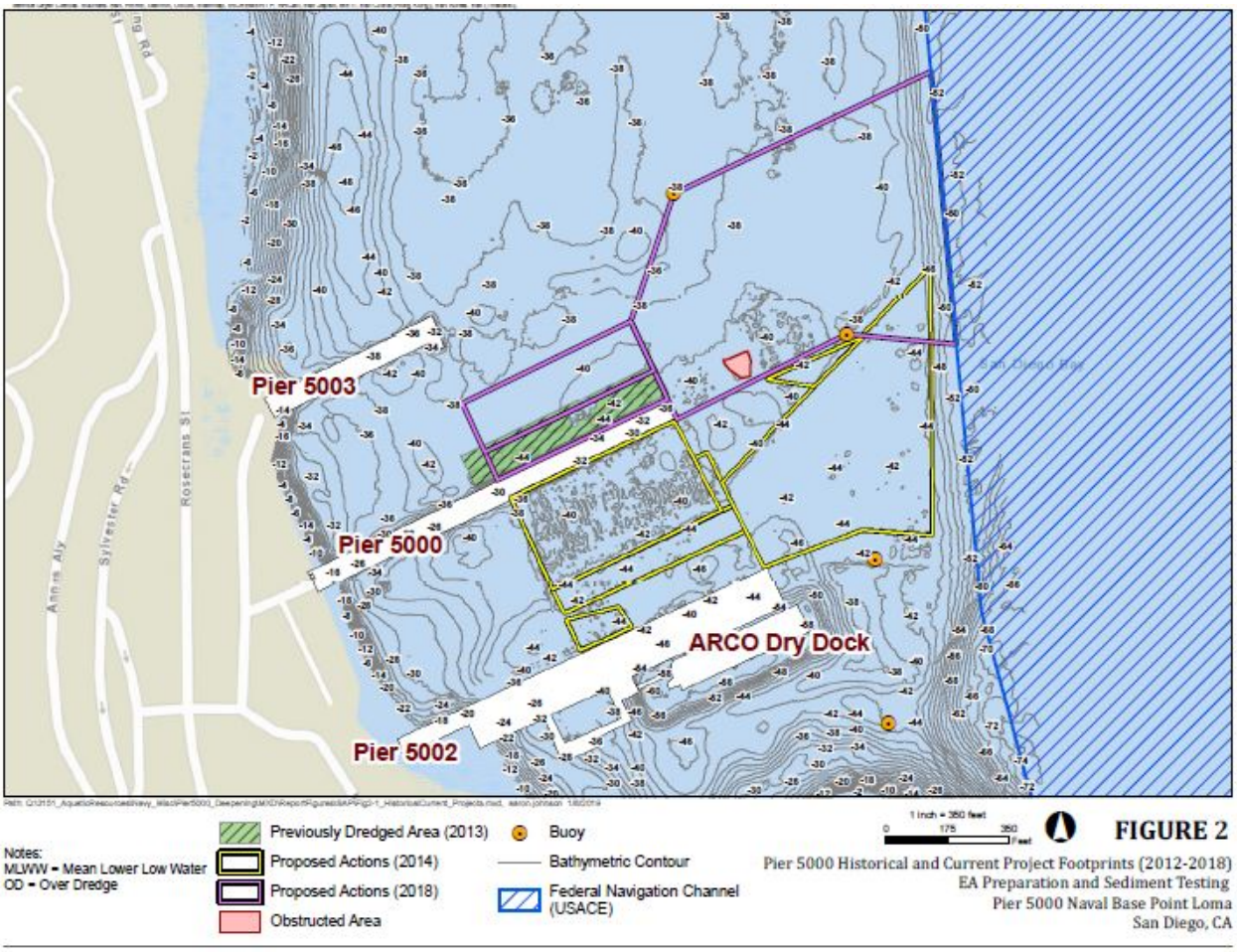


FIGURE 1
Regional Location
Pier 5000 North Side Outer Berthing and
Approach Area Dredging Project
Naval Base Point Loma, San Diego, CA

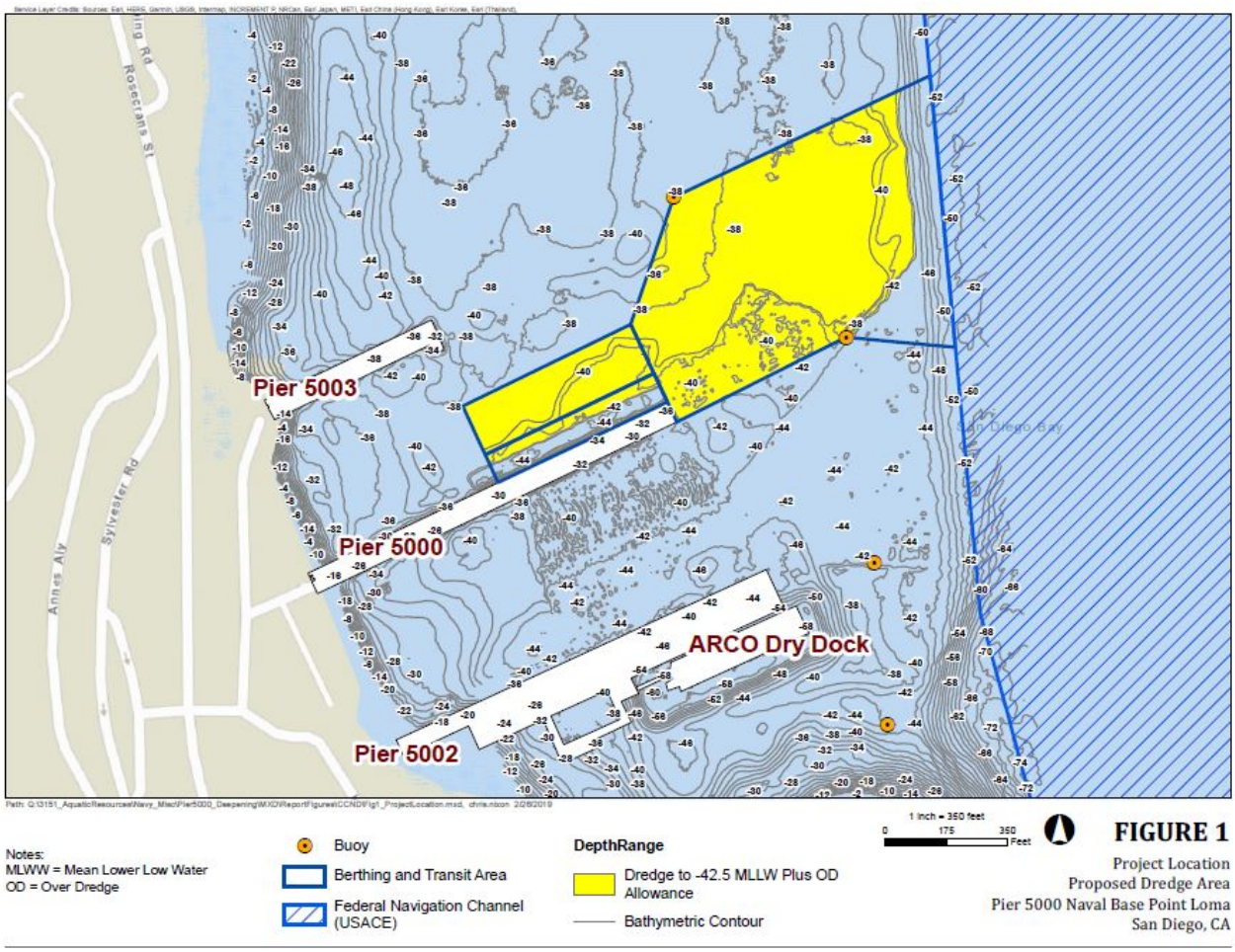
Figure 2: Previous Dredge Locations



Note: ND-0052-12 dredge area in green

ND-0031-14 dredge areas in yellow

Figure 3: Project Location



Gobbi, Kimbrie

From: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Sent: Wednesday, June 05, 2019 7:31 AM
To: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA); Snyder, Barry; Gobbi, Kimbrie; Ota, Allan
Subject: FW: NBPL Pier 5000 Sampling and Analysis Plan Report dated May 2019 - EPA Region 9 comments and Corps approval - suitability determination
Attachments: image001.jpg; image002.jpg

Importance: High

All,

The Corps makes reference to the final Sampling and Analysis Plan for the Sediment Characterization at Pier 5000 North Side Outer Berthing and Approach Area at Naval Base Point Loma (SAPR) dated May 2019 which the Corps and EPA reviewed and below are EPA's comments below. The Corps and EPA also participated in a teleconference yesterday on June 4, 2019 to discuss the latest SAPR results. The project would dredge 110,619 cy to a depth of -42.5 ft. MLLW and proposes to dispose of the dredged material at two beneficial reuse sites shown in Figure 1-D (preferred disposal site is at Navy owned boat lanes at the Silver Strand site) and the LA-5 Ocean Disposal site. The Corps agrees with EPA's comments below that the proposed dredged material has a grain size of mostly sand at greater than 90 % which may allow for beach nourishment or nearshore disposal and that the chemistry analysis indicates that the cores samples analyzed did show only minor substantial exceedances over the ERL limits for each of the analytes tested which were the entire suite of analytes shown in the SAPR. Also the bioassays indicated no toxicity in the composites but Composite A showed statistically significant worm reduction mortality but the soil hash effects affected the result and did not suggest a contaminant reaction but a physical response given that the contaminants of concern were near the ERL levels or slightly greater. The Corps would support the disposal option at the above Silver Strand Site given the shell hash that may be incompatible with the LA-5 Ocean Disposal site. Additional reference to the recent LA-5 study done by EPA may be required if the LA-5 site is used but the Corps will be processing the permit soon and the Navy may have a more accurate disposal plan as the permit process continue. If the Corps gets new information we will respond accordingly. I also want to thank Allan Ota from EPA for getting his comments to us so fast given we are now reviewing at least 5 SAPs for various projects.

Robert Revo Smith Jr., P.E., M. ASCE
Senior Project Manager, Regulatory Division U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008
Email: Robert.r.smith@usace.army.mil
☎ (760) 602-4831 Office or Cell (760) 277-5552 Assist us in better serving you! Please complete our brief customer survey, located at the following link:
https://urldefense.proofpoint.com/v2/url?u=http-3A__corpsmapu.usace.army.mil_cm-2Dapex_f-3Fp-3Dregulatory-5Fsurvey&d=DwIGIw&c=ZWY66qCYUTYUcOev9C2GlDEcKuYKzoWDVNR_L93Z9mQ&r=dJW81GLsaWVCEKxOzGOplcPIA8f2l8D9izDlJ4_rtJQ&m=tsN37yF8Q9TAeF_S1gfevFKQGyKXoqXCfhodYd9i71o&s=iCAJj1HSc_zuPpdDjLKgubFLZZH81oP2NZPKJbD9zTE&e=

-----Original Message-----
From: Ota, Allan [mailto:Ota.Allan@epa.gov]
Sent: Tuesday, June 4, 2019 3:40 PM
To: Smith, Robert R Jr CIV CESPL CESPD (USA) <Robert.R.Smith@usace.army.mil>
Subject: [Non-DoD Source] NBPL Pier 5000 Sampling and Analysis Plan Report - EPA Region 9 comments - suitability determination
Importance: High

Hi, Robert.

EPA Region 9 has reviewed the subject SAP in accordance with authorities of the MPRSA at 33 USC 1401 et seq and the EPA Ocean Dumping regulations at 40 CFR 220-227; we have the following understandings and comments:

1. [Section 1.1] This project is expected to generate about 110,619 cubic yards of dredged material; we understand that this is a deepening project with a target depth of -42.5 feet (-44.5 feet with overdredge depth allowance).
2. [Section 3.2] Refusal was encountered during vibracore operations, affecting the collection of test sediments in 24 of the 69 coring attempts; likely native formation strata (indicated by hard plug) in combination with shell hash and debris in the transition zone.
3. [Table 4-1a]] The sediment grain size for the composites and individual core samples ranged from low 90's to high 90's in percentage; this indicates potential for beach replenishment.
4. [Figure 4-1] The pair of photos appear to indicate that a significant amount of shell hash may also be present (Composite A sample) which may suggest nearshore placement may be appropriate for some or all of the dredging polygons.
5. [Table 4-1b] The sediment chemistry analysis shows overall low to non-detect levels of most of the analytes in the contaminants-of-concern list, with a minor exceedances of the ER-L screening values.
6. [Table 4-2a] The suspended phase bioassays indicated no toxicity potential in any of the composites.
7. [Table 4-2b] The solid phase bioassays indicated no toxicity potential for amphipods; however, Composite A showed apparent reduction in mortality for the worms in excess of 10% and statistically significant.
8. [Table 4-2c] The worm survival in Composite A was acceptable for the bioaccumulation test; this suggests that the bigger worms used for the bioaccumulation test were better able to tolerate the shell hash than the smaller worms in the acute toxicity solid phase test; this suggests an adverse physical impact rather than a contaminant-induced toxicity response; the sediment chemistry for Composite A did not suggest any potential for toxicity response due to low to nondetect levels of analytes.
9. [Table 4-2g] The bioaccumulation test results suggest no chronic toxicity potential based on comparison of measured tissue analyte concentrations to the toxicity reference values (USACE Environmental Residue Effects Database).
10. The overall conclusion is that the proposed sediments from Pier 5000 are suitable for unconfined aquatic disposal; however, the potential significant amounts of shell hash suggest that nearshore placement for beach nourishment by sorted sand in the littoral zone may be more appropriate than ocean disposal at LA-5 and its fine grain muddy seafloor environment.

We appreciate the coordination between our program offices. Please contact me at your convenience if you have questions.

-Allan

==========

Allan Ota

Oceanographer / Regional Ocean Dumping Program Coordinator

Dredging and Sediment Management Team

U.S. Environmental Protection Agency, Region 9

Water Division

Mail Code: WTR-2-4

75 Hawthorne Street

San Francisco, CA 94105

415-972-3476 office

ota.allan@epa.gov <mailto:ota.allan@epa.gov>

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If you have more than 20 MB worth of attachments to send to me,

please contact me first by email to make arrangements to share the files.

“Live simply, so that others may simply live.” -- Mother Teresa

From: Gobbi, Kimbrie <kimbrie.gobbi@woodplc.com>
Sent: Wednesday, May 29, 2019 8:44 AM
To: Smith, Robert R Jr CIV CESPL CESPD (US) <Robert.R.Smith@usace.army.mil>; Ota, Allan <Ota.Allan@epa.gov>
Cc: Seneca, Lisa A CIV USN NAVFAC SW SAN CA (USA) <lisa.seneca@navy.mil>; Snyder, Barry <barry.snyder@woodplc.com>; Hirsch, Leanne <leanne.hirsch@woodplc.com>
Subject: NBPL Pier 5000 Sampling and Analysis Plan Report

Hi Robert and Allan!

Attached to this message is a draft Sampling and Analysis Plan Report (SAPr) for a proposed dredging project at Pier 5000.

We would like to set up a call to discuss this report at your earliest convenience.

A hardcopy will be sent to you in the mail today.

Please let us know your availability to discuss as soon as possible.

Thank you!

Kimbrie Gobbi, M. Sc.

Senior Marine Scientist and Project Manager

Wood Environment & Infrastructure Solutions

9210 Sky Park Court, Suite 200, San Diego, CA 92123, USA Tel +1 (858) 300 4300, Fax +1 (858) 300 4301 Direct +1 (858) 300 4326, Mobile (443) 852.4637

kimbrie.gobbi@woodplc.com <mailto:kimbrie.gobbi@woodplc.com>

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Appendix B
Air Quality Analysis and RONA

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RECORD OF NON-APPLICABILITY (RONA) FOR CLEAN AIR ACT CONFORMITY SAN DIEGO AIR BASIN

This Proposed Action falls under the Record of Non-Applicability (RONA) category and is documented with this RONA.

The U.S. Environmental Protection Agency (USEPA) published *Determining Conformity of General Federal Actions to State of Federal Implementation Plans; Final Rule*, in the 30 November 1993 Federal Register (40 Code of Federal Regulations [CFR] Parts 6, 51, and 93). The U.S. Navy published *Clean Air Act Conformity Guidance* in Appendix F, OPNAVINST 5090.1C, dated 30 October 2007. These publications provide guidance to document Clean Air Act Conformity requirements.

Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the Federal Agency to determine whether a Federal action conforms to the applicable implementation plan, before the action is taken (40 CFR Part 1 51.850[a]).

Federal actions are exempt from conformity determinations if their emissions do not exceed designated *de minimis* levels for criteria pollutants (40 CFR 93.153c); *de minimis* levels (in tons/year) for the air basin potentially affected by the Proposed Action are listed in Table 1.

Table 1
***de minimis* Levels for Criteria Pollutants in the San Diego Air Basin**

Criteria Pollutants	*De minimis Level (tons/year)*
Carbon Monoxide (CO)	100
Volatile Organic Compounds (VOC)	100
Oxides of Nitrogen (NO_x)	100

1.0 PROPOSED ACTION

Action Proponent: U.S. Navy

Location: Pier 5000 at Naval Base Point Loma (NBPL)

Proposed Action Name: Pier 5000 Dredging at Naval Base Point Loma

Proposed Action and Emissions Summary: The Proposed Action would involve dredging of sediment adjacent to Pier 5000 and sediment transport for offsite disposal. The proposed dredge footprint parallels the northeast segment of the pier and then widens to include the Approach Area between Pier 5000 and the Main Channel. Under the Proposed Action, depths at Pier 5000 would be increased to accommodate all classes and sized of submarines in the U.S. Navy fleet. The Proposed Action would provide the benefit of maximizing the use of naval property, consistent with the policy objectives of the NBPL Activity Overview Plan to increase existing capabilities, sustainability, and efficiencies.

Depths adjacent to the pier vary from -30 feet (ft) mean lower low water (MLLW) near the shore to -44 ft MLLW in the Main Channel. Almost the entire proposed Pier 5000 dredge footprint is currently at -36 ft MLLW or deeper. The required operational depth for navigation and berthing of large current and future submarines is -42.5 ft MLLW based on Naval Sea Systems Command (NAVSEA) Memo 3120 Ser 39T236/088 which specifies that water depth at the berth for all classes of submarine in the U.S. Navy fleet. A large portion of the dredge footprint is already deeper than -38 ft MLLW, with the exception of some shallower areas in the northern part of the Approach Area that range from -36 to -38 ft MLLW. The dredge amount would be approximately 1 to 6 ft, plus an additional 2 ft of overdredge allowance to accommodate variance in the precision of dredging equipment and methods. Therefore, the maximum dredge footprint is up to an approximate depth of -44.5 ft MLLW and would be permitted for removal of 110,619 cubic yards (cy) of sediment.

Dredging would occur within a 679,451 square ft area (15.60 acres) and would last approximately 90 days. Dredging would most likely involve a barge-mounted clamshell dredge.

Under the Proposed Action, sediment disposal would adhere to the relevant natural resource protection regulations and program requirements referenced in the Environmental Assessment (EA). The Proposed Action consists of three options for sediment disposal, determined by results of sampling and laboratory testing: beneficial reuse, offshore disposal, and upland disposal. Sediment characterization and chemistry test results will determine if allowable parameters for beneficial reuse or unconfined ocean disposal are met. Nevertheless, this EA analyzes the Nearshore Replenishment Option (beneficial reuse), Offshore Disposal Option, and the Upland Disposal Option.

Future maintenance dredging may be necessary to maintain the operational depth requirement of -42.5 ft MLLW at the Pier 5000 site. Maintenance dredging refers to the routine removal of accumulated sediment to maintain the required operations. Routine maintenance dredging would not include any expansion of the previously dredged area.

Option 1: Nearshore Replenishment – Beneficial Reuse

The *Nearshore Replenishment Option* involves loading the dredged sediment into barges and transporting it to a Nearshore Replenishment site for beneficial reuse. Beneficial reuse sites being considered include 1) Imperial Beach, 2) Naval Air Station North Island, and 3) Silver Strand Boat Lanes. One site or a combination of sites may be used to receive the dredged material.

- Imperial Beach (preferred site) is located approximately 9 miles from the Pier 5000 project site.
- Naval Air Station North Island beach, located approximately 1.5 miles from the Pier 5000 project site.
- Silver Strand Boat Lanes: Naval Base Coronado Silver Strand Training Complex beach, located approximately 6 miles from the Pier 5000 project site.

The round-trip durations from the dredging site to the beneficial replenishment site would vary depending on the site selected (16 hours for Imperial Beach, 10 to 12 hours for Silver Strand Boat Lanes, and 5 to 6 hours for Naval Air Station North Island). Barges would be equipped with electronic tracking devices to document that material releases occurred within the disposal site boundaries, as specified by the dredging permit.

Option 2: Ocean Disposal

The *Ocean Disposal Option* for disposal of sediment associated with the Proposed Action involves loading the dredged sediment into barges and transporting it to the LA-5 Ocean Dredged Material Disposal Site (ODMDS). LA-5 ODMDS is a designated offshore open-water disposal site located on the ridged slope of the continental shelf at a depth of approximately 600 ft, 5.4 nautical miles from Point Loma, off the San Diego Coast. Round trip from the Pier 5000 project site to LA-5 ODMDS is expected to take about 10 to 12 hours. The barges would be equipped with electronic tracking devices to document that material releases occurred within the disposal site boundaries, as specified in the dredging permit. The ocean disposal of dredged sediment is regulated under Section 103 of the MPRSA and disposal operations would need to comply with permitting and dredging regulations published in Title 33 Code of Federal Regulations (CFR) Parts 320 through 330 and 335 through 338 (33 CFR 320-330 and 33 CFR 335-338). In order to dispose dredged sediment at the LA-5 ODMDS, sediment characterization testing results would need to show that sediment from the Pier 5000 site is suitable for ocean disposal.

Option 3: Upland Disposal

The *Upland Disposal Option* would be implemented if it is determined that the sediment is not suitable for either beneficial reuse or ocean disposal. Upland Disposal involves transporting dredged sediment via barge to an upland confined drying facility (CDF). Once adequately dried, the sediment would be placed on a dump scow and mixed with a thickening agent. The sediment would then be transferred to a secondary holding site and tested for pH and water content in

accordance with applicable landfill requirements. Finally, the sediment would be transported via large trucks to a landfill such as the Otay Landfill, which is a permitted Class III Landfill (USEPA Facility Registration System ID 110000832243) located at 1700 Maxwell Road in Chula Vista, California, approximately 12.2 miles from Naval Base San Diego (NBSD). The landfill has a permitted maximum disposal rate of 5,830 tons per day, and it does not have a daily truck count limit. Otay Landfill has the capacity to accept 1,500 to 2,000 tons per day of dried dredged sediments.

Air Emissions Summary: The Proposed Action would result in air emissions from sediment dredging, transport, and disposal activities. Because no changes in existing Pier 5000 operations (transit, berthing, maintenance, and repair of submarines) are proposed as part of the Proposed Action, operational emissions would not differ from baseline conditions. Dredging operations identified under the Proposed Action are assumed to commence in FY 2019 and be completed within 90 days. Based on the air quality analysis for the Proposed Action, the maximum estimated emissions would be below the conformity *de minimis* levels and are summarized in Table 2.

Table 2
Estimated Total Net Project Emissions – Tons per Year

Construction Year	*Emissions (tons/year)*		
	CO	*VOC*	*NOx*
Proposed Action – Nearshore Replenishment Option			
Imperial Beach Replenishment Site			
2019	9.27	1.59	16.51
de minimis Threshold/Major Source Threshold	100	100	100
Exceeds Threshold?	**No**	**No**	**No**
Naval Air Station North Island Replenishment Site			
2019	6.03	1.21	11.26
de minimis Threshold/Major Source Threshold	100	100	100
Exceeds Threshold?	**No**	**No**	**No**
Naval Base Coronado Silver Strand Boat Lanes Replenishment Site			
2019	4.42	1.02	11.26
de minimis Threshold/Major Source Threshold	100	100	100
Exceeds Threshold?	**No**	**No**	**No**
Proposed Action – Ocean Disposal			
2019	6.03	1.21	13.01
de minimis Threshold/Major Source Threshold	100	100	100
Exceeds Threshold?	**No**	**No**	**No**
Proposed Action – Upland Disposal			
2019	9.49	1.42	16.76
de minimis Threshold/Major Source Threshold	100	100	100
Exceeds Threshold?	No	No	No

Date RONA prepared: 28 January 2019

2.0 EMISSIONS EVALUATION AND CONCLUSION

The Navy concludes that *de minimis* thresholds for applicable criteria pollutants would not be exceeded as a result of implementation of the Proposed Action. The emissions data supporting the conclusion shown in Table 2 above, is included in the attachment to the RONA. Therefore, the Navy concludes that further formal Conformity Determination procedures are not required, resulting in this Record of Non-Applicability.

3.0 RONA APPROVAL

To the best of my knowledge, the information presented in this Record of Non-Applicability is correct and accurate and I concur with the finding that the Proposed Action does not require a formal Conformity Determination.

Date: 22 May 2019

Signature: CHICHESTER.ROBERT.ALLEN.1096687210 Digitally signed by CHICHESTER.ROBERT.ALLEN.1096687210 Date: 2019.05.22 14:44:58 -07'00'

Navy Pier 5000 Environmental Assessment
Contract No:

PROPOSED ACTION - Nearshore Replenishment Option

EQUIPMENT

Engine	Model Year	Maximum HP	Assumed Hours of Operation per Day	Assumed Days of Operation per Year
Main genset	2000	2935	8	90
Aux genset	2000	550	8	90
Spud winch	2000	250	8	90
Tugboat with Barge (Replenishment Site 1) (Two units operating at opposite ends of route) (1)	NA	800	48	90
Tugboat with Barge (Replenishment Site 2) (Two units operating at opposite ends of route) (2)	NA	800	24	90
Tugboat with Barge (Replenishment Site 3) (Two units operating at opposite ends of route) (3)	NA	800	12	90

Equipment	Load Factor	Emission Factors (g/HP-hr)								
		CO (4)	Nox (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)	CH_4	N_2O
Main Genset	0.51	1.83	6.25	0.184	0.184	0.006	0.53	568.3	0.048	0.594
Aux Genset	0.74	1.49	4.8	0.164	0.164	0.003	0.46	568.3	0.041	0.456
Spud Winch	0.51	1.39	5.23	0.172	0.172	0.006	0.48	568.3	0.043	0.497
Tugboat with Barge (Replenishment Site 1)	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594
Tugboat with Barge (Replenishment Site 2)	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594
Tugboat with Barge (Replenishment Site 3)	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594

Equipment		Emissions (lbs/yr)								
		CO (4)	Nox (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)	CH_4	N_2O
Main Genset		4348	14850	437	437	14	1259	1350263	114	1411
Aux Genset		963	3101	106	106	2	297	367142	26	295
Spud Winch		281	1058	35	35	1	97	115014	9	101
Tugboat with Barge (Replenishment Site 1)		12952	14019	823	823	8	1524	801834	44	905
Tugboat with Barge (Replenishment Site 2)		6476	7010	411	411	4	762	400917	22	453
Tugboat with Barge (Replenishment Site 3)		3238	3505	206	206	2	381	200458	11	226
Replenishment Site 1 Total (lbs/yr)		18544	33028	1401	1401	26	**3177**	2634253	193	2712
Replenishment Site 2 Total (lbs/yr)		12068	26019	989	989	22	**2415**	2233336	171	2259
Replenishment Site 3 Total (lbs/yr)		8830	22514	784	784	20	**2035**	2032877	160	2033
Replenishment Site 1 Total (tons/yr)		**9.27**	**16.51**	**0.70**	**0.70**	**0.01**	**1.59**			
Replenishment Site 2 Total (tons/yr)		**6.03**	**13.01**	**0.49**	**0.49**	**0.01**	**1.21**			
Replenishment Site 3 Total (tons/yr)		**4.42**	**11.26**	**0.39**	**0.39**	**0.01**	**1.02**			

Green House Gas Potential*	1	21	310	
Repenishment Site 1 Total CO_2e (metric tons/yr)	1194.90	1.84	381.30	**1578.04**
Replenishment Site 2 Total CO_2e (metric tons/yr)	1013.04	1.63	317.66	**1332.34**
Replenishment Site 3 Total CO_2e (metric tons/yr)	922.11	1.53	285.84	**1209.48**

NOTES:

(1) Assumed 24 hours for roundtrip barge trip

(2) Assumed 12 hours for roundtrip barge trip

(3) Assumed 6 hours for roundtrip barge trip

(4) Tier 1 Nonroad diesel engine standards. Taken from http://www.dieselnet.com/standards/us/nonroad.php

(5) AP-42 Section 3.4, sulfur content of fuel assumed to be 0.0015%

PROPOSED ACTION - Ocean Disposal Option

EQUIPMENT

Engine	Model Year	Maximum HP	Assumed Hours of Operation per Day	Assumed Days of Operation per Year

Main genset	2000	2935	8	90
Aux genset	2000	550	8	90
Spud winch	2000	250	8	90
Tugboat with Barge (Two units operating at opposite ends of route) (1)	NA	800	24	90

Equipment	Load Factor	Emission Factors (g/HP-hr)								
		CO (2)	Nox (2)	PM_{10} (2)	$PM_{2.5}$ (2)	SO_2 (3)	VOC (2)	CO_2 (3)	CH_4	N_2O
Main Genset	0.51	1.83	6.25	0.184	0.184	0.006	0.53	568.3	0.048	0.594
Aux Genset	0.74	1.49	4.8	0.164	0.164	0.003	0.46	568.3	0.041	0.456
Spud Winch	0.51	1.39	5.23	0.172	0.172	0.006	0.48	568.3	0.043	0.497
Tugboat with Barge	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594

Equipment		Emissions (lbs/yr)								
		CO (2)	Nox (2)	PM_{10} (2)	$PM_{2.5}$ (2)	SO_2 (3)	VOC (2)	CO_2 (3)	CH_4	N_2O
Main Genset		4348	14850	437	437	14	1259	1350263	114	1411
Aux Genset		963	3101	106	106	2	297	367142	26	295
Spud Winch		281	1058	35	35	1	97	115014	9	101
Tugboat with Barge		6476	7010	411	411	4	762	400917	22	453
Total (lbs/yr)		12068	26019	989	989	22	2415	2233336	171	2259
Total (tons/yr)		**6.03**	**13.01**	**0.495**	**0.495**	**0.0108**	**1.21**			

Green House Gas Potential*	1	21	310	
Total CO_2e (metric tons/yr)	1013.04	1.63	317.66	**1332.34**

NOTES:

(1) Assumes 12 hours roundtrip barge trip

(2) Tier 1 Nonroad diesel engine standards. Taken from http://www.dieselnet.com/standards/us/nonroad.php

(3) AP-42 Section 3.4, sulfur content of fuel assumed to be 0.0015%

* IPCC Second Assessment Report (1996)

PROPOSED ACTION - Upland Disposal Option

EQUIPMENT

Engine	Model Year	Maximum HP	Assumed Hours of Operation per Day	Assumed Days of Operation per Year
Main genset	2000	2935	8	90
Aux genset	2000	550	8	90
Spud winch	2000	250	8	90
Shore-Based Crane	NA	240	8	90
Loader	NA	900	8	120
Tugboat with Barge	NA	800	6	90
Dump Truck - 12 CY HP-hrs (1) (2)	NA	6240	16	120

Equipment	Load Factor	Emission Factors (g/HP-hr)								
		CO (3)	Nox (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)	CH_4	N_2O
Main Genset	0.51	1.83	6.25	0.184	0.184	0.006	0.53	568.3	0.048	0.594
Aux Genset	0.74	1.49	4.8	0.164	0.164	0.003	0.46	568.3	0.041	0.456
Spud Winch	0.51	1.39	5.23	0.172	0.172	0.006	0.48	568.3	0.043	0.497
Shore-Based Crane	0.6	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594
Loader	0.5	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594
Tugboat with Barge	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594
Dump Truck - 12 CY	NA	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594

Equipment		Emissions (lbs/yr)								
		CO (3)	Nox (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)	CH_4	N_2O
Main Genset		4348	14850	437	437	14	1259	1350263	114	1411
Aux Genset		963	3101	106	106	2	297	367142	26	295
Spud Winch		281	1058	35	35	1	97	115014	9	101
Shore-Based Crane		1943	2103	123	123	1	229	120275	7	136
Loader		8095	8762	514	514	5	952	501146	28	566
Tug with Barge		3238	3505	206	206	2	0	0	0	0
Dump Truck - 12 CY		117	127	7	7	0	14	7239	0	8
Total (lbs/yr)		18985	33505	1429	1429	26	2848	2461079	184	2516
Total (tons/yr)		**9.49**	**16.75**	**0.714**	**0.714**	**0.0130**	**1.42**			
Green House Gas Potential*								1	21	310

Total CO_2e (metric tons/yr)	1116.35	1.75	353.81	**1471.91**

NOTES:

(1) One-way distance from NBSD to Otay Landfill = 12.2 miles

(2) Assumed 120 roundtrip truck trips per day

(3) Tier 1 Nonroad diesel engine standards. Taken from http://www.dieselnet.com/standards/us/nonroad.php

(4) AP-42 Section 3.4, sulfur content of fuel assumed to be 0.0015%

* IPCC Second Assessment Report (1996)

REDUCED DREDGING FOOTPRINT ALTERNATIVE - Nearshore Replenishment Option

EQUIPMENT

Engine	Model Year	Maximum HP	Assumed Hours of Operation	Assumed Days of Operation per Year
Main genset	2000	2935	8	84
Aux genset	2000	550	8	84
Spud winch	2000	250	8	84
Tugboat with Barge (Replenishment Site 1) (1)	NA	800	24	84
Tugboat with Barge (Replenishment Site 2) (2)	NA	800	12	84
Tugboat with Barge (Replenishment Site 3) (3)	NA	800	6	84

Equipment	Load Factor	Emission Factors (g/HP-hr)								
		CO (4)	Nox (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)	CH_4	N_2O
Main Genset	0.51	1.83	6.25	0.184	0.184	0.006	0.53	568.3	0.048	0.594
Aux Genset	0.74	1.49	4.8	0.164	0.164	0.003	0.46	568.3	0.041	0.456
Spud Winch	0.51	1.39	5.23	0.172	0.172	0.006	0.48	568.3	0.043	0.497
Tugboat with Barge (Replenishment Site 1)	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594
Tugboat with Barge (Replenishment Site 2)	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594
Tugboat with Barge (Replenishment Site 3)	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594

Equipment		Emissions (lbs/yr)								
		CO (4)	Nox (4)	PM_{10} (4)	$PM_{2.5}$ (4)	SO_2 (5)	VOC (4)	CO_2 (5)	CH_4	N_2O
Main Genset		4058	13860	408	408	13	1175	1260245	106	1317
Aux Genset		898	2894	99	99	2	277	342666	25	275
Spud Winch		263	988	32	32	1	91	107346	8	94
Tugboat with Barge (Replenishment Site 1)		6044	6542	384	384	4	711	374189	21	422

Tugboat with Barge (Replenishment Site 2)		3022	3271	192	192	2	356	187095	10	211
Tugboat with Barge (Replenishment Site 3)		1511	1636	96	96	1	178	93547	5	106
Replenishment Site 1 Total (lbs/yr)		11264	24284	923	923	20	2254	**2084447**	160	2108
Replenishment Site 2 Total (lbs/yr)		8241	21013	731	731	18	1899	**2814931**	150	1897
Replenishment Site 3 Total (lbs/yr)		6730	19378	635	635	17	1721	**1835328**	144	1792
Replenishment Site 1 Total (tons/yr)		**5.63**	**12.14**	**0.46**	**0.46**	**0.01**	**1.13**			
Replenishment Site 2 Total (tons/yr)		**4.12**	**10.51**	**0.37**	**0.37**	**0.01**	**0.95**			
Replenishment Site 3 Total (tons/yr)		**3.37**	**9.69**	**0.32**	**0.32**	**0.01**	**0.86**			

Green House Gas Potential*	1	21	310	
Repenishment Site 1 Total CO_2e (metric tons/yr)	945.50	1.52	296.48	**1243.51**
Replenishment Site 2 Total CO_2e (metric tons/yr)	1276.85	1.43	266.79	**1545.06**
Replenishment Site 3 Total CO_2e (metric tons/yr)	832.50	1.38	251.94	**1085.82**

NOTES:

(1) Assumed 24 hours for roundtrip barge trip
(2) Assumed 13 hours for roundtrip barge trip
(3) Assumed 6 hours for roundtrip barge trip
(4) Tier 1 Nonroad diesel engine standards. Taken from http://www.dieselnet.com/standards/us/nonroad.php
(5) AP-42 Section 3.4, sulfur content of fuel assumed to be 0.0015%

REDUCED DREDGING FOOTPRINT ALTERNATIVE - Ocean Disposal

EQUIPMENT

Engine	Model Year	Maximum HP	Assumed Hours of Operation	Assumed Days of Operation per Year
Main genset	2000	2935	8	84
Aux genset	2000	550	8	84
Spud winch	2000	250	8	84
Tugboat with Barge (1)	NA	800	12	84

Equipment	Load Factor	Emission Factors (g/HP-hr)								
		CO (2)	Nox (2)	PM_{10} (2)	$PM_{2.5}$ (2)	SO_2 (3)	VOC (2)	CO_2 (3)	CH_4	N_2O
Main Genset	0.51	1.83	6.25	0.184	0.184	0.006	0.53	568.3	0.048	0.594
Aux Genset	0.74	1.49	4.8	0.164	0.164	0.003	0.46	568.3	0.041	0.456
Spud Winch	0.51	1.39	5.23	0.172	0.172	0.006	0.48	568.3	0.043	0.497
Tugboat with Barge	0.2	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594

Equipment		Emissions (lbs/yr)								
		CO (2)	Nox (2)	PM_{10} (2)	$PM_{2.5}$ (2)	SO_2 (3)	VOC (2)	CO_2 (3)	CH_4	N_2O
Main Genset		4058	13860	408	408	13	1175	1260245	106	1317
Aux Genset		898	2894	99	99	2	277	342666	25	275
Spud Winch		263	988	32	32	1	91	107346	8	94
Tugboat with Barge		3022	3271	192	192	2	356	187095	10	211
Total (lbs/yr)		8241	21013	731	731	18	1899	1897352	150	1897
Total (tons/yr)		**4.12**	**10.51**	**0.366**	**0.366**	**0.0091**	**0.95**			

Green House Gas Potential*	1	21	310	
Total CO_2e (metric tons/yr)	860.64	1.43	266.79	**1128.85**

NOTES:

(1) Assumes 12 hours roundtrip barge trip

(2) Tier 1 Nonroad diesel engine standards. Taken from http://www.dieselnet.com/standards/us/nonroad.php

(3) AP-42 Section 3.4, sulfur content of fuel assumed to be 0.0015%

* IPCC Second Assessment Report (1996)

REDUCED DREDGING FOOTPRINT ALTERNATIVE - Upland Disposal Option

EQUIPMENT

Engine	Model Year	Maximum HP	Assumed Hours of Operation	Assumed Days of Operation per Year
Main genset	2000	2935	8	84
Aux genset	2000	550	8	84
Spud winch	2000	250	8	84
Shore-Based Crane	NA	240	8	84
Loader	NA	900	8	84

Dump Truck - 12 CY HP-hrs (1) (2)	NA	6240	NA	NA

Equipment	Load Factor	Emission Factors (g/HP-hr)								
		CO (3)	Nox (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)	CH_4	N_2O
Main Genset	0.51	1.83	6.25	0.184	0.184	0.006	0.53	568.3	0.048	0.594
Aux Genset	0.74	1.49	4.8	0.164	0.164	0.003	0.46	568.3	0.041	0.456
Spud Winch	0.51	1.39	5.23	0.172	0.172	0.006	0.48	568.3	0.043	0.497
Shore-Based Crane	0.6	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594
Loader	0.5	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594
Dump Truck - 12 CY	NA	8.5	9.2	0.54	0.54	0.0055	1.0	526.2	0.029	0.594

Equipment		Emissions (lbs/yr)								
		CO (3)	Nox (3)	PM_{10} (3)	$PM_{2.5}$ (3)	SO_2 (4)	VOC (3)	CO_2 (4)	CH_4	N_2O
Main Genset		4058	13860	408	408	13	1175	1260245	106	1317
Aux Genset		898	2894	99	99	2	277	342666	25	275
Spud Winch		263	988	32	32	1	91	107346	8	94
Shore-Based Crane		1813	1963	115	115	1	213	112257	6	127
Loader		5667	6133	360	360	4	667	350802	19	396
Dump Truck - 12 CY		117	127	7	7	0	14	7239	0	8
Total (lbs/yr)		12816	25965	1022	1022	21	2437	2180555	165	2217
Total (tons/yr)		**6.41**	**12.98**	**0.511**	**0.511**	**0.0106**	**1.22**			
Green House Gas Potential*								1	21	310
Total CO_2e (metric tons/yr)								989.10	1.57	311.74	**1302.41**

NOTES:

(1) One-way distance from NBSD to Otay Landfill = 5.2 miles

(2) Assumed 120 roundtrip truck trips per day

(3) Tier 1 Nonroad diesel engine standards. Taken from http://www.dieselnet.com/standards/us/nonroad.php

(4) AP-42 Section 3.4, sulfur content of fuel assumed to be 0.0015%

* IPCC Second Assessment Report (1996)

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Appendix C
Essential Fish Habitat Assessment

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

June 3, 2019

Refer to NMFS No.:
WCRO-2019-00563

Commander J.M. Alger
United States Navy
Public Works Officer
Point Loma Public Works Team
140 Sylvester Road
San Diego, California 92106-3251

Re: Informal Section 7 Consultation under the Endangered Species Act (ESA) for Pier 5000 Northside Outer Berth and Pier Approach Dredging at Naval Base Point Loma.

Dear Commander Alger:

On May 1, 2019, NOAA's National Marine Fisheries Service (NMFS) received your request to initiate informal consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended, for the United States Navy (USN) Naval Base Point Loma (NBPL) dredging project. In that letter, the USN requested concurrence that the proposed action may affect, but is not likely to adversely affect, species listed as threatened or endangered or critical habitats under the ESA. In addition, the USN also indicated their determination that the proposed project may adversely affect essential fish habitat (EFH) and requested consultation on EFH for species managed under the Pacific Coast Groundfish Species and Coastal Pelagic Species Fishery Management Plans (FMPs), pursuant to Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and provided NMFS with an EFH Assessment (EFHA).

This response to your ESA consultation request was prepared by NMFS pursuant to Section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence. NMFS also reviewed the proposed action for potential effects on EFH designated under the MSA, including conservation measures and any determination you made regarding potential effects of the action. This review was pursuant to Section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. In addition, NMFS provides comments pursuant to the Fish and Wildlife Coordination Act (FWCA; 16 U.S.C. 662). Finally, because the proposed action occurs in areas where marine mammals may be found, NMFS also provides comments relative to compliance with the Marine Mammal Protection Act (MMPA; USC § 1361 et seq.).

This letter underwent pre-dissemination review using standards to utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001,

Public Law 106-554). A complete record of this consultation is on file at the NMFS Long Beach Office.

Proposed Action and Action Area

The USN intends to perform dredging activities at the North Side Outer (NSO) Berthing and Approach Area of Pier 5000, located at NBPL, San Diego, California (Figures 1 and 2). Currently, the NSO berth of Pier 5000 is tidally restricted during two-thirds of the year. Naval Sea Systems Command (NAVSEA) *Memo 3120 Ser 39T236/008*, dated March 2015, established submarine depths for inner harbor and pier-side berths. The memo increased the water depth requirements and identified requirements for minimum under-hull clearance in soft-bottom conditions. The current depth conditions at the Pier 5000 NSO berth do not meet the requirements set forth in the memo. The proposed dredging would include approximately 110,619 cubic yards (cy) of sediment across 679,451 square feet (15.60 acres) of waterfront berthing and approach areas. Specifically, the NSO berth and approach will be dredged to a depth of -42.5 feet mean lower low water (MLLW), plus an additional 2 feet of potential overdredge. Future maintenance dredging may be necessary to maintain the operational depth requirement of -42.5 feet MLLW. Routine maintenance dredging will not include any lateral expansion or deepening of the previously dredged area. Per email communications between the Navy and NMFS, dated May 6, 2019, the Navy expects to dredge up to 800 cubic yards per day, depending on the equipment available to the contractor. Additionally, the most recent (2014) dredging activity discovered numerous underwater obstructions that will require further investigation prior to the commencement of this project. Upon the identification of these obstructions, a work plan for their removal and appropriate disposal will be prepared.

Dredging operations will most likely involve a barge-mounted clamshell dredge and a dump scow. The USN anticipates that the initial dredging episode may take as long as 90 days to complete, and operations will occur on a 24-hour per day basis. Sediment testing of dredged material will determine whether the material is suitable for future beneficial reuse, ocean disposal, or upland disposal. Three replenishment sites (Figure 3) have be identified for dredged material deposition: 1) Imperial Beach; 2) Naval Air Station (NAS) North Island Beach (NASNI); and 3) boat lanes at Naval Base Coronado's (NBC) Silver Strand Training Complex Beach. All proposed options for sediment disposal are described below in further detail.

NBPL Pier 5000 is located to the north of Ballast Point Peninsula, approximately 1.8 miles north-northeast of the southern tip of Point Loma, extending toward the main channel of San Diego Bay. The action area is defined as the geographic extent of the project as based on direct and indirect physical, biological, and chemical effects associated with each of the proposed project elements, as well as the extent of any interrelated and interdependent activities. The entirety of the action area is defined by the outermost extent of all of the zones of potential effect combined. For the proposed project, the action area includes the dredging site, the transit routes, the disposal sites, and the extent of natural sediment transport from the dredging and disposal sites.

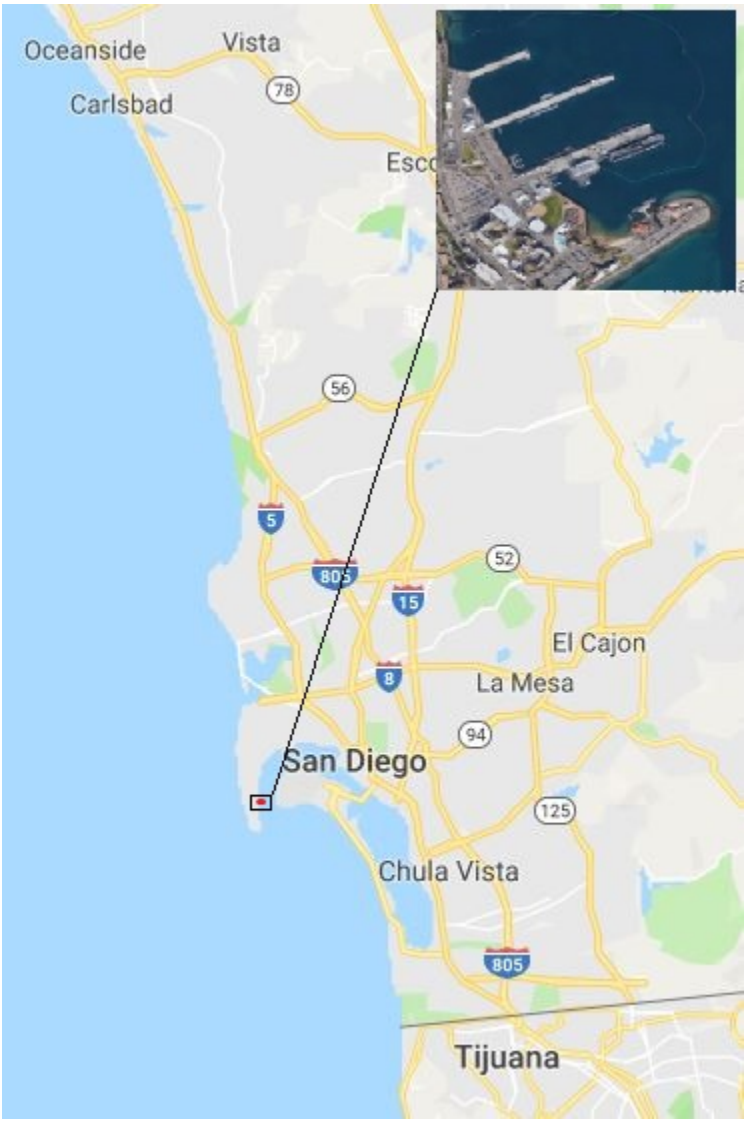

Figure 1. Proposed Project Regional Location. The proposed project will occur at Naval Base Point Loma, within the northern ecoregion of San Diego Bay, San Diego, California. The red mark (surrounded by the black box) represents the project site. The inlay in the upper right corner shows a more zoomed-in view of the project site.

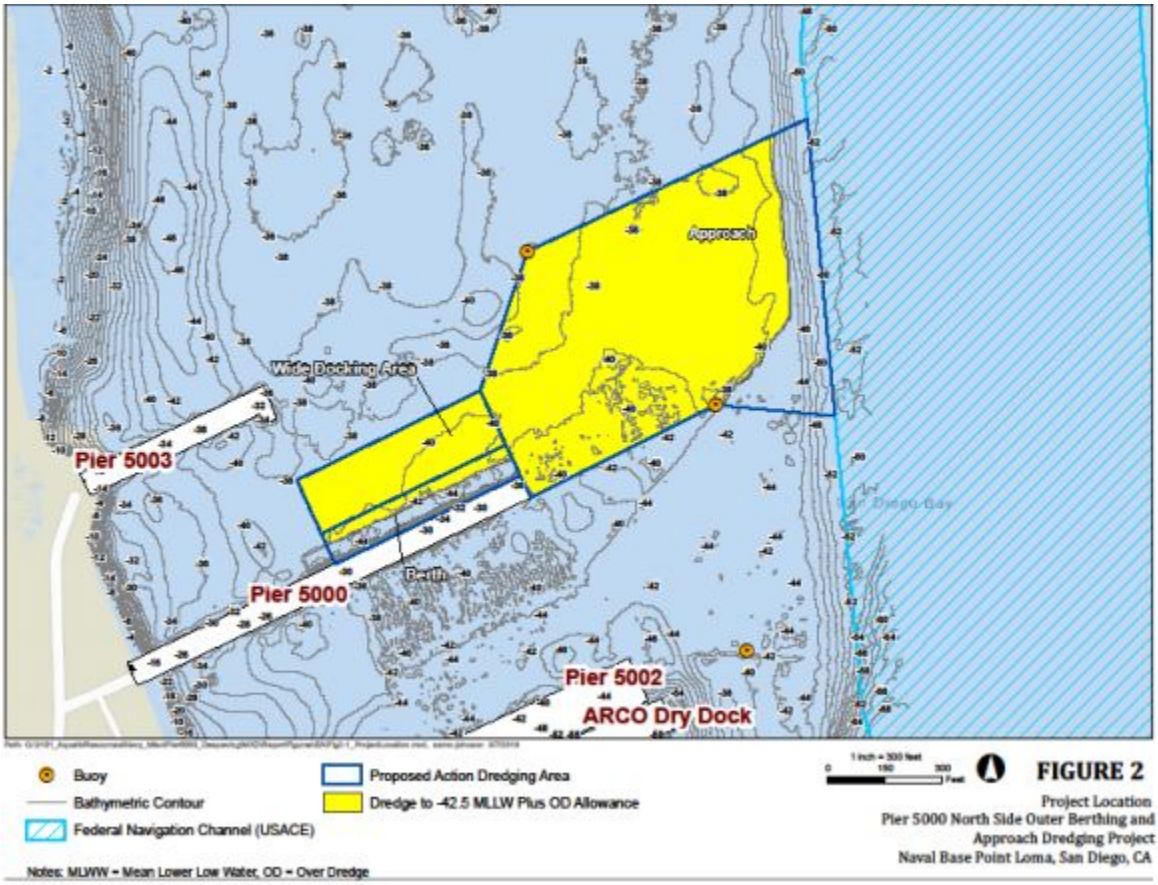

Figure 2. Proposed Dredging Area. The proposed dredging will occur along the North Side Berthing and the Approach for Pier 5000 at NBPL. The proposed dredging area is represented in the image by the yellow shape surrounded by a blue outline. This area will be dredged to -42.5 feet mean lower low water (MLLW).

Disposal Option 1: Nearshore Replenishment – Beneficial Reuse

The Nearshore Replenishment option involves loading dredged sediment onto barges and transporting the sediment to a Nearshore Replenishment site for beneficial reuse. Three sites have been identified for possible use for sediment redistribution: 1) Imperial Beach; 2) Naval Air Station North Island Beach, and 3) Silver Strand Boat Lanes at Naval Base Coronado Silver Strand Training Complex Beach. Imperial Beach is located approximately 9 miles southeast from the project site, and is dominated by sandy nearshore communities. North Island Beach is approximately 1.5 miles to the east of the project site and is dominated by sandy nearshore communities. Silver Strand Boat Lanes is located approximately 6 miles to the southeast of the project site and is dominated by sandy nearshore communities.

Disposal Option 2: Ocean Disposal

The Ocean Disposal option involves loading the dredged sediment onto barges and transporting the sediment to the Ocean Dredged Material Disposal Site (ODMDS) LA-5. ODMDS is a designated offshore open-water disposal site located on the ridged slope of the continental shelf

at a depth of approximately 600 feet, 5.4 nautical miles from Point Loma, off the coast of San Diego. To dispose of dredged sediment at the LA-5 ocean disposal site, sediment characterization testing results must show that sediment is suitable for ocean disposal.

Disposal Option 3: Upland Disposal

Under this option, dredged sediments from the project site will be transported by land to a confined drying facility. Once sediments have adequately dried, they will be transported by truck to an approved and permitted landfill for disposal.

Figure 3. Proposed Disposal Sites. The proposed disposal sites (indicated by the yellow markings) from north to south, include the Naval Air Station North Beach, the Silver Strand Boat Lanes, and Imperial Beach. Not shown are the LA-5 ocean disposal site (offshore ocean-side of NBPL) and the upland disposal site. The disposal option and site(s) selected will depend on the results of the sediment characterization study.

Avoidance and Minimization Measures

As detailed in the project documents and as described in further detail during communications between the NMFS and the project POC, a number of avoidance and minimization measures are included as part of the project description. These measures include, but are not limited to:

1. The USN and its contractors shall instruct all personnel associated with the project of the potential presence of green sea turtles and the need to maintain a 20 meter buffer and avoid collisions with individuals or groups. All construction personnel are responsible for observing water-related activities for the presence of green sea turtles.

2. Due to the possibility of 24-hour dredging operations, a designated, trained biological monitor will always be on site during night-time dredging operations (sunrise to sunset). Per electronic communications between NMFS and the USN, dated May 6, 2019, if night-time dredging occurs, the contractor will provide adequate lighting for the monitor to observe the surrounding area. The USN noted in that correspondence that daytime dredging is preferred but 24-hour operations may be required depending on the work schedule.

3. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. Additionally, per the May 6, 2019 email correspondence between the Navy and NMFS, barges en route to disposal sites would operate at 3-4 knots.

4. To avoid potential foraging habitat, all vessels will follow deep-water routes (e.g. marked channels) whenever possible.

5. If a green sea turtle is seen within the vicinity of active project activities, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment within 20 meters of a green sea turtle. Operation of any mechanical construction equipment shall cease immediately if a turtle is observed within 20 meters of the equipment, and activities may not resume until the protected species has departed the area on its own, or has not been sighted for 15 minutes.

6. Pre-construction and post-construction eelgrass surveys will be completed in accordance with the California Eelgrass Mitigation Policy (CEMP). Per the May 6th correspondence, this includes the disposal sites that may have eelgrass present during operations.

7. Prior to any bottom-disturbing activities, a pre-construction survey of the project area for *Caulerpa taxifolia* will be conducted and furnished to NMFS and the California Department of Fish and Wildlife (CDFW) in accordance with the *Caulerpa* Control Protocol (CCP). In the event that *Caulerpa* is detected within the project area, the Navy will not commence work until such time as the infestation has been isolated, treated, and the risk of spread eliminated.

8. In the event of a collision between any project-related watercraft or equipment and a green sea turtle, the Navy will immediately contact the NMFS Stranding Coordinator, Justin Viezbicke, at 562-980-3230.

Action Agency's Effects Determination

The proposed project involves dredging materials at the U.S. Navy's Naval Base Point Loma, within San Diego Bay, California. For the proposed action, the Navy determined that the proposed project may affect, but is not likely to adversely affect, the East Pacific distinct population segment (DPS) of green sea turtles (*Chelonia mydas*), which is federally listed as a threatened species under the MSA. The Navy, as the lead agency, has determined that no other ESA-listed species are expected to be affected in the proposed project action area, and therefore are not addressed in the consultation request. Additionally, no other interdependent or interrelated actions are associated with the proposed project.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

Researchers believe that San Diego Bay is an important foraging area for the East Pacific DPS of green sea turtles along the west coast of the United States. The shallower waters of the highly urbanized San Diego Bay provide valuable coastal foraging resources for green sea turtles, such as marine algae and seagrass. A portion of the turtle population that is found within San Diego Bay are members of a local resident foraging population (Eguchi *et al*. 2010) that NMFS believes are likely to be members of two Mexican turtle management units[1] (MUs) within the East Pacific DPS: Revillagigedo Islands and Michoacán (Dutton *et al*. 2019). Green sea turtles are attracted to the shallow waters and the relatively high concentrations of eelgrass that are typical of the southern portion of San Diego Bay; the known presence of eelgrass – an important food and habitat item for turtles and their prey – likely influences sea turtle activity patterns within San Diego Bay (Lemons *et al*. 2011). Data from tag-recapture studies suggest that San Diego Bay is a productive habitat for green sea turtles, with these turtles showing faster growth rates when compared to green turtles found in more tropical environments (Eguchi *et al*. 2012).

[1] Dutton *et al*. (2019) defines a management unit (MU) as a smaller-scale nesting population within a species DPS that are phylogenetically related to, but are demographically independent of each other, and can be distinguished by genetic markers.

San Diego Bay is divided into four distinct ecoregions: North Bay, North Central Bay, South Central Bay, and South Bay. Surveys conducted throughout the Bay have found that green sea turtles generally forage and are typically found within the boundaries of the South Bay ecoregion, which has consistently shown to have higher eelgrass distribution in comparison to other regions (NAVFAC SW and Port of San Diego 2018). Turtles observed in this area have been known to frequent and forage in waters near the former South Bay Power Plant, which ceased operations in 2010 (MacDonald *et al*. 2012). Researchers believe that the turtles are attracted to anthropogenically warmed habitats, such as those created by the warm effluent from power plants (Crear *et al*. 2016). Recent observations in monitoring and tracking green sea turtle movement throughout the Bay have provided information that indicates some activity outside of South Bay, with relatively short duration movements between other areas and back to South Bay (Madrak *et al*. 2014). These include observations during the winter and spring months when water temperatures are generally cooler.

The proposed dredging project will take place at Naval Base Point Loma's Pier 5000, which is located in North San Diego Bay. Previous research has indicated that areas outside of South San Diego Bay are not as commonly visited by and do not appear to sustain the regular presence of green sea turtles in comparison to South Bay. However, occasional observations of green sea turtles by the public and by Navy personnel, historical records of sea turtle strandings in San Diego Bay (NMFS unpublished stranding data), and more recent research using satellite telemetry (Bredvik *et al*. 2015) indicate that the occasional presence of green sea turtles throughout San Diego Bay at any time of year can occur. Taking the above into consideration, it is reasonable to expect that green sea turtles could be found within the project area while project activities are underway.

The potential effects of the proposed action include risks of injury, disturbance, loss/avoidance of habitat, and/or mortality to sea turtles as a result of dredging activities in San Diego Bay through the use of vessels, cranes, dredges, or any other equipment needed to complete dredging activities. Any turtles present in the project area may be subjected to significant injuries if struck by a vessel or dredging equipment being used, or by debris in the water as a result of dredging activities. Turtles may also be affected through collisions with vessels that are transporting dredged materials to disposal sites. Additionally, habitats in the project area that may be utilized by sea turtles – primarily seagrass beds – have the potential to be impacted via disturbance or degradation. In their consultation request, the Navy indicated their intent to employ the avoidance and minimization measures described above. These measures are expected to minimize the risk of potential adverse effects to green sea turtles caused by the proposed activities in the unlikely event that a turtle is encountered during the project.

Dredging

Direct Contact Injury

In general, the risks of direct contact injury for sea turtles as a result of the proposed action are low as green sea turtles do not commonly occur in this part of San Diego Bay, based on the information previously described. However, because there is a possibility of green sea turtles being present, the proposed project includes measures that are designed to minimize the risks of

sea turtles coming into direct contact with any vessels, equipment, or debris. For example, the project area will be monitored for green sea turtles. If a turtle is observed within a 20 meter perimeter around activities, operations will cease for at least 15 minutes or until the animal is observed outside of the 20 meter zone, ensuring that any turtles have vacated the project area. If any turtles are in project areas but avoid detection, we expect those turtles will detect the commencement of project activities as dredging equipment and/or vessels begin to ramp up operations in the turtle's immediate vicinity, and will have an opportunity to move away, especially during the initial stages of mobilizing equipment and vessels for work.

The severity of injuries resulting from a collision typically depends on the size and speed of the vessel (Knowlton and Kraus 2001; Laist *et al*. 2001; Vanderlaan and Taggart 2007). For example, research has shown that lethality, defined as mortality or serious injury, increases with vessel speed; the most dramatic increase in lethality to large whales occurred between 10 and 14 knots (Vanderlaan and Taggart 2007). As described above in the avoidance and minimization measures, vessels will be moving at relatively slow speeds while conducting project-related movements. While vessel collisions are the primary identified cause of green sea turtle strandings along the west coast of the United States (LeRoux 2015; NMFS unpublished stranding data), the likelihood of collisions between sea turtles and project vessels at such slow speeds is remote, as we expect both alert vessel operators and turtles to be able to avoid collisions.

NMFS expects that implementation of the proposed avoidance and minimization measures will be effective at reducing the risks of direct contact between sea turtles and vessels and/or equipment. As a result of the low likelihood that sea turtles will commonly be in project areas, the additional impact minimization measures that can be triggered as a result of monitoring and avoidance measures that have been proposed, NMFS concludes that the likelihood of direct contact resulting in severe injury or mortality of a green sea turtle as a result of the proposed dredging project is extremely unlikely, and therefore discountable.

General Disturbance

In general, all in-water construction projects present some degree of risk of disturbance to any green sea turtles that may be present within the project area. Dredging and other vessel-based operations that may involve the generation of underwater or surface sounds or the increase of turbidity in the water column have the potential to create some level of disturbance for any green sea turtles that are nearby. However, the level of sound produced by dredging activities is typically expected to be relatively limited compared to other types of in-water construction activities, such as pile driving. San Diego Bay is a generally noisy area, particularly in the north and central portions, as these areas of the Bay are subjected to significantly more vessel traffic (based on observations by NMFS staff of vessel automatic identification system (AIS) data in San Diego Bay via https://www.marinetraffic.com). Additionally, clamshell dredging typically generates low frequency sound pressure levels, from 100 to 120 dB re 1 micro-Pascal (Dickerson *et al*. 2001). These levels are below the 160 dB re 1 micro-Pascal criteria for marine mammal harassment, which NMFS also uses as a general guideline for sea turtles. Little data exists on the behavior of sea turtles in response to noise generated by dredging activities, but we expect the

reaction to any disturbance that may be created by the proposed action will be avoidance of the immediate project areas.

Given that green sea turtles are not known to spend significant amounts of time in the vicinity of the project area, avoidance of the area where the proposed action may occur is not likely to significantly impact or disrupt the regular movements or behaviors of turtles. Eelgrass habitat has been identified as areas that are likely to be utilized by green sea turtles for foraging in San Diego Bay. However, based on historical and recent eelgrass surveys, there appears to be little eelgrass in the vicinity of the proposed project in comparison to other areas of San Diego Bay, despite ongoing efforts to expand the eelgrass habitat that is present in North Bay. Avoidance of a small portion of available foraging habitats is not likely to limit foraging abilities or have any detectable effect on the health of sea turtles, as they are not expected to rely specifically or exclusively on the project areas for forage, rest, or refuge. Therefore, NMFS expects that any effects or disturbance resulting from exposure to project activities will be insignificant, given the low probability that sea turtles will be in the project areas for any length of time and the lack of any expected impact on health and fitness that avoidance of these areas would have on green sea turtles.

Impacts to Sea Turtle Foraging

As detailed in the EFH analysis below, the proposed project may result in impacts to eelgrass habitat. The Navy has agreed to implement pre- and post-construction eelgrass surveys in order to determine the impacts to eelgrass as a result of the project. As described above, the potential effects of behavioral avoidance of noise disturbance are expected to be insignificant to the health and fitness of green sea turtles, due to the fact that the project area is not expected to consist of common sites for green turtle foraging, and that adequate foraging habitat exists away from project areas in South Bay where green sea turtles spend the majority of their time. Similarly, NMFS also expects that if any loss of eelgrass habitat in the project area does occur, those losses would not significantly affect the foraging habits of green turtles, since these project areas are not expected to contribute significant sources of food. Considering the measures included in the proposed project that aim to minimize the risks of impacts to eelgrass and the relatively low likelihood that green sea turtles are expected to be in project areas and utilize any available resources that may be found there, NMFS concludes that the potential risks of impacts related to the quantity, quality, or availability of sea turtle foraging habitat in San Diego Bay as a result of the proposed dredging project are expected to be insignificant and discountable.

Dredged Material Disposal

As previously described, the Navy expects dredging operations to remove approximately 110,619 cubic yards of material. Of the disposal options detailed above, the Navy's preference is to utilize the beneficial reuse option, depositing materials to be reused at nearby beaches. The option selected, though, will depend on the results of sediment characterization and chemistry testing. If the results do not fall within the allowable parameters for the beneficial reuse sites, then the ocean disposal or upland disposal options will be considered. Regardless of the disposal option selected, the transport and disposal of dredged material to disposal sites presents a risk for

collisions between vessels and/or barges and protected species during transport to the disposal site, as well as exposure to materials being deposited during disposal.

Collision Risk

Although the exact number of trips that vessels will take to disposal sites is unknown, the Navy has indicated that they expect the daily dredging production rate to be approximately 800 cubic yards per day. Therefore, we can estimate that disposal operations may involve as many as approximately 138 total trips to disposal sites over the course of dredging operations, depending on equipment availability and final dredging schedule. Based on observations of sea turtle behavior during research activities, sea turtles appear to be adept at detecting and avoiding slow-moving vessels, even upon detecting them at very close proximity while surfacing (Dan Lawson, NMFS West Coast Region pers. comm., October 29, 2018). Although there is no mandated speed limit for vessels towing barges away from the project location, vessels with barges in tow are expected to travel at relatively low speeds (<10 knots) to meet the general expectations for safe navigation as outlined by the U.S. Coast Guard (USCG) as an overall requirement for all vessels operating in all U.S. waters at all times (COLREG Rule 6; 33 CFR §83.06). Additionally, the Navy expects barges to maintain speeds under 5 knots while en route to disposal sites per their proposed measures to avoid and minimize effects. Therefore, we conclude that the risk of a collision between green turtles and vessels/barges causing significant injury or being lethal is insignificant and discountable. In the unlikely event that a green sea turtle does come into close proximity with a barge in tow during transport and disposal, we expect this encounter to be brief and inconsequential, with the vessel in transit taking care to avoid collisions and green turtles continuing their migratory, foraging, or other behavior as the vessel and animals travel away from each other.

Disposal of Dredged Material

Green sea turtles may occasionally be found transiting through the offshore waters near the beneficial reuse and ocean disposal sites, although NMFS does not expect green sea turtles to be foraging in the offshore waters at these sites. The LA-5 disposal site is outside of the typical depth range to support eelgrass growth (150+ meters in depth offshore), and NMFS does not have any historical records of eelgrass being present at the Silver Strand or Imperial Beach sites. There is a historical record, though, of eelgrass presence off of North Island Beach. Therefore, it is reasonable to expect there to be a chance of sea turtle presence near this site. However, given the apparent preference the turtles have for South Bay, and under the expectation of turtles to vacate the area when operations commence, it is unlikely that disposal at this site will impact turtles. Taking the above into consideration, NMFS expects that effects to green sea turtles from disposal of dredged material are insignificant and discountable.

Given the vast amount of habitat available in comparison to the relatively small footprint of a barge releasing sediment, there is a small probability that a green sea turtle will be present in the same area at the same time that any disposal event may occur. However, there is a risk of exposure to disposed sediment and effects ranging from mild disturbance and agitation, to relatively serious injuries to external organs (e.g. eyes), as well as internal injuries if accidentally inhaled or ingested. The Navy has proposed to include turtle monitoring within 20 meters of

equipment. Operations will be delayed by up to 15 minutes or until the animal is observed outside of the 20 meter zone. As a result of the low probability of interaction and the measures proposed, NMFS has determined that the risks of green sea turtle encounters with disposed dredge materials are insignificant.

The placement of dredged materials in the marine waters at the proposed disposal sites may impact the local habitat through increased turbidity and possible disturbance to turtle foraging as sediment is being disposed. However, this increased turbidity and disturbance is expected to dissipate to negligible level as sediment settles to the bottom or is dispersed by currents and wave action. Considering the potential encounter of green sea turtles with dredged sediments is unlikely and the temporary nature of any disturbance produced by disposal, as well as the small potential for turtles to be foraging near one disposal site, NMFS concludes that the release of dredged sediments will overall be insignificant on the foraging of green sea turtles.

The coastal ocean areas where the disposal sites are located represent a portion of the California coast where numerous other ESA-listed species may periodically occur during migration or foraging activities. Blue, fin, humpback, and gray whales are all generally well-known to be visitors to these coastal areas throughout their lifetimes (juveniles and adults), and are observed frequently transiting or foraging in areas near San Diego. Individuals of all of the above-mentioned species are known to visit the area on an annual basis during migrations. Published scientific estimates of cetacean densities on the U.S. west coast (Becker *et al*. 2012) suggest that this coastal area in California is where densities of blue, fin, and humpback whales can occur in relatively high proportions under various environmental conditions that occur seasonally and/or during some years. However, the Navy has determined that no other protected species will be affect by the proposed project footprint, and therefore no other species were included in the consultation request.

Conclusion

Based on the project description, including location, methods, and the proposed avoidance and minimization measures, NMFS concurs with the U.S. Navy's determination that the proposed project may affect, but is not likely to adversely affect, the federally-listed threatened green sea turtles – specifically, the East Pacific distinct population segment of green sea turtles.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the USN or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). Take, either through injury or death of sea turtles or any other ESA-listed species, is not expected from this project; evidence of such an outcome would require re-initiation under (1) of this paragraph. In such a case, the USN should require that operations cease immediately and must be immediately

reported to Justin Viezbicke, California Stranding Network Coordinator, at (562) 980-3230, or Justin Greenman, Assistant Stranding Network Coordinator, at (562) 980-3264. This concludes the ESA portion of this consultation.

The conclusion above is that the potential impacts related to the quantity, quality, or availability of sea turtle foraging habitat as a result of the proposed project are insignificant and discountable. Should the project change or should information indicate that: (1) the proposed project results in unexpected additional negative impacts to eelgrass habitat; (2) any planned eelgrass mitigation efforts are not successful in terms of accordance with CEMP; or (3) other significant reductions of eelgrass in the project area occur during the proposed project time frame, the USN and NMFS may need to reinitiate consultation under the ESA to determine if adverse effects may be occurring, or have likely occurred. The USN and NMFS will need to coordinate efforts to track the progress of this proposed project in terms of actual impacts to eelgrass that occur, and the progress of any necessary mitigation efforts.

Additionally, the conclusion above does not cover activities related to the investigation and removal of the obstructions found during the 2014 dredging project. Once these obstructions have been identified and a work plan has been established, the USN should consult with NMFS regarding the effects that this action may have on endangered species and habitats, as appropriate. Depending on the results of the obstruction identification, the removal of these obstructions may warrant issuance of credits for debris removal from the marine environment – this can be discussed and determined during the consultation with NMFS.

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. The USN has these same responsibilities, and project consultation offers action agencies an opportunity to address their conservation responsibilities under section 7(a)(1). We recommend that the USN compile and maintain a record of observations of protected species sightings and behavior during all projects and share this record with NMFS. We believe examination of the monitoring records will assist both the USN and NMFS, as well as other potential applicants, in future project designs and support future requests for consultation, as well as informing other general conservation efforts for these species in areas where green sea turtles are known to occur.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), this consultation is intended to promote the protection, conservation and enhancement of essential fish habitat (EFH) as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10), and "adverse effect" means any impact which reduces either the quality or quantity of EFH (50 CFR 600.910(a)). Adverse effects may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

NMFS has determined that the proposed action may adversely affect EFH and offers the following comments.

Action Area

The proposed action will occur at the North Side Outer (NSO) Berthing and Approach Area of Naval Base Point Loma's (NBPL) Pier 5000, located within San Diego, California. Pier 5000 is located to the north of Ballast Point Peninsula, approximately 1.8 miles north-northeast of the southern tip of Point Loma, extending toward the main channel of San Diego Bay. The entirety of the action area is defined by the outermost extent of all of the zones of potential effect combined. For the proposed project, the action area includes the dredging site, the transit routes, the disposal sites, and the extent of natural sediment transport from the dredging and disposal sites.

The proposed action occurs within and may affect EFH for various federally managed fished species within the Coastal Pelagic Species, Pacific Coast Groundfish Species, and Highly Migratory Species Fishery Management Plans (FMPs). In addition, the proposed project occurs within, or in the vicinity of, estuarine and eelgrass habitats, which are designated as habitat areas of particular concern (HAPC) for various federally managed fish species within the Pacific Coast Groundfish FMP. HAPC are described in the regulations as subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the MSA; however, federal projects with potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process.

The Navy has proposed to include a number of avoidance and minimization measures in the project plan. For example, pre- and post-construction surveys will be completed in accordance with the California Eelgrass Mitigation Policy (CEMP). These surveys will be conducted at the dredge site as well as at the beach nourishment sites that have shown to support seagrass habitats. Additionally, a pre-construction survey for *Caulerpa taxifolia* will be completed in accordance with the Caulerpa Control Protocol. In the event that *Caulerpa* is detected within the project area, the Navy will not commence work until such time as the infestation has been isolated, treated, and the risk of spread eliminated. Finally, when possible, all vessels will follow deep-water routes to avoid impacts to foraging habitat (e.g. eelgrass).

The conservation measures described above as part of the proposed action should minimize or avoid adverse effects to EFH. NMFS regards these conservation measures as integral components of the proposed action and expects that all proposed activities will be completed consistent with those measures. Any deviation from the project description and these conservation measures will be beyond the scope of this consultation and may require supplemental consultation to determine what effect the modified action is likely to have on EFH.

Effects of the Action

The adverse effects to EFH that may occur as a result of the proposed dredging include 1) direct removal/burial of organisms; 2) turbidity/siltation effects, including light attenuation from

turbidity; 3) contaminant release and uptake, including nutrients, metals, and organics; 4) release of oxygen-consuming substances; 5) entrainment; 6) noise disturbances; and 7) alteration to hydrodynamic regimes and physical habitats. Dredging equipment and vessels may also affect EFH via deployment of anchors, grounding of vessels, and/or propeller scarring and prop wash.

The disposal of dredged material may adversely affect EFH by 1) impacting or destroying benthic communities; 2) affecting adjacent habitats; 3) creating turbidity plumes and introducing contaminants and/or nutrients. Disposing of dredged materials may result in varying degrees of change in the physical, chemical, and biological characteristics of the substrate. Discharges may adversely affect infaunal and bottom-dwelling organisms at the site by smothering immobile organisms (e.g. prey invertebrate species) or forcing mobile animals (e.g. benthic-oriented fish species) to migrate from the area.

Sensitive habitats, such as eelgrass, may be impacted by the proposed dredging activities. Eelgrass habitats provide a wide range of ecological functions that are important for maintaining healthy estuarine and coastal ecosystems (Anderson 1989, Peterson and Lipcius 2003) and serve as nursery habitats for numerous recreationally and commercially important finfish and shellfish species (Hoffman 1986, Heck *et al*. 1989, Dean *et al*. 2000, Semmens 2008). The water depths documented within the majority of the project footprints are generally too deep to support eelgrass. However, eelgrass has been previously observed near the proposed Naval Air Station North Island disposal site, and may be impacted during sediment disposal. The results of the pre- and post-construction eelgrass surveys will be used to determine what effects to eelgrass, if any, occurred as a result of the proposed project.

Another potential concern is the spread of the invasive alga *Caulerpa taxifolia* as a result of bottom-disturbing project activities. Evidence of the harm that can ensue as a result of an uncontrolled spread of the alga has already been seen in the Mediterranean Sea, where it has destroyed local ecosystems, impacted commercial fishing areas, and affected coastal navigation and recreational opportunities. Although it is not known to be present within San Diego Bay, it had been previously detected in two other locations in Southern California, including Agua Hedionda Lagoon in San Diego County. If the invasive alga is present in the project area and goes undetected, the dredging activities have the potential to adversely affect EFH by promoting its spread and increasing negative ecosystem impacts. However, the Navy has agreed to conduct pre-construction surveys for *C. taxifolia* prior to the commencement of dredging, and, if found, will refrain from conducting project activities until the infestation has been isolated and treated and the risk of spread eliminated.

EFH Adverse Effects Determination

Based upon the above effects analysis, NMFS has determined that the proposed project would adversely affect EFH for various federally managed fish species covered under the Pacific Coast Groundfish, Coastal Pelagic Species, and Highly Migratory Species FMPs. However, the Navy has included conservation measures to avoid and/or otherwise minimize negative impacts to EFH. As long as the proposed conservation measures are implemented and negative impacts to eelgrass are properly mitigated in accordance with CEMP, NMFS believes that these effects will

not be substantial and has no additional EFH Conservation Recommendations to provide at this time.

Supplemental Consultation

Pursuant to 50 CFR 600.920(l), the Navy must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations.

FISH AND WILDLIFE COORDINATION ACT

The purpose of the Fish and Wildlife Coordination Act (FWCA) is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development [16 U.S.C. 661]. The FWCA establishes a consultation requirement for federal departments and agencies that undertake any action that proposes to modify any stream or any other body of water for any purpose, including navigation and drainage [16 U.S.C. 662]. Consistent with this consultation requirement, NMFS provides recommendations and comments to federal action agencies for the purpose of conserving fish and wildlife resources. The FWCA allows the opportunity to offer recommendations for the conservation of species and habitats beyond those currently managed under the MSA.

As described in the EFH effects analysis, NMFS has determined that estuary and eelgrass habitat will be negatively impacted by the proposed activities. Therefore, the avoidance and minimization measures to address adverse effects to EFH are also considered necessary to address negative impacts to fish and wildlife resources managed under the FWCA.

MARINE MAMMAL PROTECTION ACT

In addition to green sea turtles, various other ESA-listed marine mammals, as well as other common marine mammal species, may be found in some parts of the proposed project's action area. The additional ESA-listed species include blue whales (*Balaenoptera physalus*), fin whales (*Balaenoptera musculus*), humpback whales (*Megaptera novaeangliae*), and Western North Pacific gray whales (*Eschrichtus robustus*), which may be encountered while in transit to and from disposal sites and while offloading dredged materials. Other marine mammals that may be encountered include California sea lions (*Zalophus californianus*), Pacific harbor seals (*Phoca vitulina*), and common dolphins (*Delphinus spp*). Marine mammals are protected under the Marine Mammal Protection Act (MMPA) (16 U.S.C. § 1361 et seq.). Under the MMPA, it is illegal to "take" a marine mammal without prior authorization from NMFS. "Take" is defined as to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal. Except with respect to military readiness activities and certain scientific research conducted by, or on behalf of, the Federal Government, "harassment" is defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal in the wild, or has the potential to disturb a marine mammal in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering. If the incidental take of marine mammals is expected to occur as a result of any proposed action, the

applicant should apply for an Incidental Harassment Authorization (IHA) or Letter of Authorization (LOA) from NMFS well in advance of the proposed action. Please note that this letter does not provide Incidental Harassment Authorization for any marine mammals; any authorization would have to come from NMFS Office of Protected Resources, in Silver Spring, Maryland.

During the monitoring associated with this proposed project, the Navy should note marine mammal presence and any behaviors indicative of potential harassment under the MMPA. These behaviors could include startled response, irregular diving, or flushing from haul-out positions in the vicinity of the project area. Implementation of the protocols for avoiding protected green sea turtles during offshore dredge material disposal described earlier should help minimize the potential for marine mammal harassment or injury resulting from this additional proposed activity if those same avoidance measures are used for marine mammals. NMFS requests that the Navy carefully record the behavior of any marine mammals that do occur within the proposed project area. If the proposed project disturbs marine mammals, the Navy should cease activity and contact NMFS before proceeding further. In the unlikely event of an injury or mortality of a marine mammal due to this project, please immediately contact our regional stranding coordinator, Justin Viezbicke, at (562) 980-3230, or Justin Greenman, Assistant Stranding Network Coordinator, at (562) 980-3264.

Thank you for consulting with NMFS regarding this project. We appreciate your efforts to comply with Federal regulations and to conserve and protect marine mammals, sea turtles, fish, and habitat. Please direct questions regarding ESA, MMPA, or EFH to James Harrison, 562-980-4044, or at James.Harrison@noaa.gov.

Sincerely,

Penny Ruvelas
Long Beach Office Branch Chief
Protected Resources Division

cc: Administrative File: 151422WCR2019PR00112

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