Final
SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
for the

FLOATING DRY DOCK PROJECT

AT

NAVAL BASE SAN DIEGO – MOLE PIER

SAN DIEGO, CALIFORNIA

December 2023

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Abstract

Designation: Final Supplemental EA

Proposed Action: Floating Dry Dock Project at NBSD –Mole Pier

Project Location: Naval Base San Diego

Lead Agency for the EA: U.S. Department of the Navy

Cooperating Agency: Not Applicable

Affected Region: San Diego County, California

Action Proponent: Naval Base San Diego

Point of Contact: NBSD Floating Dry Dock Project
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Naval Facilities Engineering Systems Command Southwest

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Date: December 2023

Naval Facilities Engineering Systems Command Southwest, a Command of the United States (U.S.) Department of the Navy, has prepared this Supplemental Environmental Assessment (EA) on behalf of Naval Base San Diego (NBSD) in accordance with the National Environmental Policy Act (NEPA) (42 U.S. Code [U.S.C.] Sections 4321-4370h), the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500–1508), and Navy Regulations for Implementing NEPA (32 CFR Part 775).

In 2020 the Final Environmental Assessment for the Floating Dry Dock at Naval Base San Diego was finalized to analyze the environmental impacts associated with the possible construction of two projects: the Mole Pier – South Berth Floating Dry Dock, and the Commercial Outlease Floating Dry Dock. Since then, the Mole Pier- South Berth Floating Dry Dock, which involves sediment dredging and disposal, pile driving, demolition, and construction and operation of pier and upland improvements, has been redesigned and regulatory consultations have been completed. The Commercial Outlease Floating Dry Dock is also under construction. As a result, the Navy has prepared this Supplemental EA.

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EXECUTIVE SUMMARY

This Supplemental Environmental Assessment was prepared pursuant to the Council on Environmental Quality regulations (40 Code of Federal Regulations (CFR) Parts §§ 1500-1508) implementing the National Environmental Policy Act (NEPA), 42 U.S.C. § 4331 et seq., and in accordance with the Department of Navy regulations implementing NEPA (32 CFR 775) and Chief of Naval Operations Instruction (OPNAVINST) 5090.1E.

ES.1 Proposed Action

The Navy proposes dredging as well as demolition and construction activities in support of the berthing and operation of a floating dry dock at Naval Base San Diego (NBSD). The proposal also includes both aquatic and upland disposal of dredged sediments.

In May 2020, the Navy completed the "Final Environmental Assessment for the Floating Dry Dock Project at Naval Base San Diego." It addressed two Naval Base San Diego (NBSD) Floating Dry Dock (FDD) projects: the Commercial Outlease FDD at the south edge of NBSD and the Navy Mole Pier – South Berth FDD. In 2020 the Navy signed a Finding of No Significant Impact (FONSI) for the Commercial Outlease FDD, and then leased project lands to Marine Group Boat Works (MGBW) and later to Austal USA. The commercial outlease FDD began construction in 2023. A FONSI was not signed in 2020 for the Mole Pier dry dock because its design and Marine Mammal Protection Act consultation were not yet completed. Since then, the Mole Pier FDD design has progressed sufficiently to support updating the NEPA analysis, the processing of an Incidental Harassment Authorization application with the National Marine Fisheries Service, and renewal of other project consultations. Construction at the Mole Pier – South Berth project site would start in 2024, and the floating dry dock would be delivered to the construction site and installed in 2025.

This Supplemental EA was prepared in compliance with OPNAVINST 5090.1E, to analyze needed revisions to the original environmental planning analysis since the Navy determined that one or more of the following conditions apply: 1) substantial changes made in the proposed action are beyond the scope of the original environmental planning document; 2) significant new circumstances occur or information becomes available that could affect the proposed action and its potential environmental impacts; or 3) Navy determines that Navy interests or the purposes of NEPA or Executive Order 12114 will be furthered by doing so. The proposed action, the Mole Pier FDD remains essentially as described in the "Final Environmental Assessment for the Floating Dry Dock Project at Naval Base San Diego" of 2020 (hereby incorporated by reference) and this supplement will focus on the newly available design information with any potential for environmental impacts, and resulting regulatory consultation updates. This Supplemental EA does not include project aspects or resource topics unaffected by the project changes. The following list summarizes the new project design information analyzed in this Supplemental EA:

1) Proposed design dredge depths and dredge footprint have been revised. The floating dry dock sump proposed design dredge depth increased from a depth of -53' to -56' feet Mean Lower Low Water (MLLW). The FDD approach channel proposed dredge depth is unchanged at a dredge depth of -37' feet MLLW. The turning basin dredge depth has decreased from -36' to -35' feet MLLW. The resulting dredge volume changed from approximately 86,121 cubic yards (cy) over 4.79 acres to a new dredge volume of approximately 110,960 cy over 9.98 acres.

2) The proposed operations of the floating dry dock, which are comprised of ship repair activities.
3) Proposed pier upgrade project elements have been revised and now include: mooring wharf demolition activities (demolition of decking, utilities, certain structural piles, and the existing ramp pier), construction of facility upgrades (construction of a new ramp pier, new permanent structural piles, wharf-pier attachments, seismic upgrades, and a cast concrete deck), upland facility demolition activities (demolition of mechanical utilities, quay wall repairs, removal of unneeded wharf improvements), and construction of a new electrical switch station building and parking, and landscaping. The Floating Dry Dock Mooring Facility (Shore Facilities) footprint will displace the existing NAVFAC Crane Lot currently located at Mole Road and Kidd Street.

The following regulatory consultations are completed and presented in this Supplemental EA to address the above listed project changes:

- Incidental Harassment Authorization under the Marine Mammal Protection Act – this consultation has been completed with the National Marine Fisheries Service to address potential impacts to marine mammals.
- Informal Section 7 Consultation under the Endangered Species Act – this consultation has been renewed with the National Marine Fisheries Service to address potential impacts to Green Sea Turtles.
- Essential Fish Habitat Consultation under the Magnuson-Stevens Fisheries Conservation and Management Act – this consultation has been renewed with the National Marine Fisheries Service to address potential impacts to Essential Fish habitat.
- Suitability for Unconfined Aquatic Disposal under the Clean Water Act – this consultation has been completed with the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency to address permitted disposal of dredge sediment in the aquatic environment.
- Coastal Consistency negative Determination under the Coastal Zone Management Act – this consultation has been completed with the California Coastal Commission to address potential impacts to coastal resources.

ES.2 Purpose of and Need for the Proposed Action

The *purpose* of the Proposed Action is to provide dry dock space necessary to support the U.S. Pacific Fleet's (CPF) forecasted surface ship maintenance requirement identified by the Commander of the CPF in a memorandum dated 16 January 2018.

Existing dry dock space available for surface ship maintenance in San Diego Bay consists of two floating docks owned and operated by British Aerospace Engineering San Diego (BAE); one floating dock owned and operated by National Steel and Shipbuilding Company (NASSCO); and one government-owned graving dock located on NBSD.

The need for berthing and operation of dry dock space is to ensure NBSD's capability to conduct berth-side complex repair and maintenance of vessels, furthering the Navy's ability to provide training and equipping of combat-capable Naval forces ready to deploy worldwide. Current and projected shortfalls of dry dock space have reduced overall surface ship maintenance capabilities at NBSD. The Proposed Action would address this shortfall and enhance the ability of the Navy to execute its congressionally mandated roles and responsibilities under 10 U.S. Code (U.S.C.) Section 5062.

A concept study was completed by the Naval Systems Engineering Directorate (Naval Sea Systems Command [NAVSEA] 05), after identifying the need for an additional floating dry dock space at NBSD and noting that the facility must support full docking capabilities for the DDG-51, LCS-2, LSD-41, and LSD-49 class ships.

ES.3 Alternatives Considered

This Supplemental Environmental Assessment (EA) re-analyzes the potential environmental impacts of the Proposed Action: berthing of a floating dry dock at the Mole Pier – South Berth. The proposed action includes both aquatic and upland disposal of dredged sediments.

The 2020 Final EA fully analyzed the potential impacts of the No Action Alternative and found that it would have no significant impact to environmental resources. Under this alternative no new floating dry dock would be berthed at the Mole Pier –South Berth. There are no updates or changes to the No Action Alternative that would change its analysis or findings. Therefore, the 2020 Final EA's analysis of the No Action Alternative is complete and accurate, and the No Action Alternative is not re-analyzed in this Supplemental Environmental Assessment.

The 2020 Final EA also analyzed the construction of both the Mole Pier – South Berth floating dry dock, and the Commercial Outlease (COL) floating dry dock. The COL floating dry dock was previously approved for construction and is under construction as of 2023. With this Supplemental EA the Navy is pursuing construction of its own dry dock at the Mole Pier – South Berth site. This Supplemental EA analyzes the Mole Pier south facility and presumes preceding construction impacts of COL floating dry dock facility.

ES.4 Summary of Environmental Resources Evaluated in the Supplemental EA

NEPA, CEQ Regulations for Implementation NEPA, and Navy Regulations for Implementing NEPA (32 CFR Part 775) specify that an EA should address those resource areas that are potentially subject to environmental impacts. In addition, the level of analysis should be commensurate with the anticipated level of impact. Resource areas with the potential to be affected by the Proposed Action alternative include: air quality/climate change, water resources, biological resources (including terrestrial and marine biological resources), noise, transportation, and hazardous materials and wastes.

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

Table ES-1 is a tabular summary of potential environmental impacts by resource area for the Mole Pier – South Berth Alternative followed by a list of respective avoidance and minimization measures. As described in Table ES-1, construction and operation of the Proposed Action alternative would not result in significant impacts on any of the analyzed resource areas. Chapter 3 provides a detailed discussion of environmental impacts associated with the Proposed Action.

ES.6 Public Involvement

Regulations from the CEQ (40 CFR part 1506.6) direct agencies to involve the public in preparing and implementing their NEPA procedures. Public involvement processes were completed for the 2020 Final Environmental Assessment for the Floating Dry Dock at Naval Base San Diego. In 2023 the Draft

Supplemental EA was also made available for public review and Notices of Availability (NOA) were advertised in local newspapers. The project NOA was advertised for three consecutive days in the San Diego Union-Tribune (4, 5, and 6 Aug 2023) and twice in the El Latino News – San Diego (4-10 Aug 2023, and 11-17 Aug 2023) (Appendix G). The Navy did not receive any public comments**.** One request was received for a hard copy of the EA. The Navy also met with the Air Pollution Control District (17 Nov 2023) and with the Portside Steering Committee (28 Nov 2023) to discuss the project.

The Notice of Availability described the Proposed Action, requested public comments on the Draft Supplemental EA, provided the Public Review closing date and project email address, and announced that copies of the Supplemental EA were available for review via the Commander, Navy Region Southwest (CNRSW) website (https://www.cnic.navy.mil/navysouthwestprojects) and three local public libraries (the San Diego Central Library, Logan Heights/San Diego Public Library, and Valencia Park/Malcolm X Branch Library).

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

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
Air Quality/Climate Change	Under the Proposed Action, air quality impacts from dredging, transportation, and sediment disposal activities as well as demolition and construction activities and post construction annual waterfront operations would occur as a result of combustion emissions associated with fossil-fuel-powered equipment. Because of the nature of Proposed Action, significant landside grading would not be required; dredging activities would not generate fugitive dust since the marine sediments that would be dredged are wet, which prevents the sediments from becoming airborne. Estimated construction-related and annual waterfront operational criteria pollutant emissions would be below the *de minimis* threshold levels for Clean Air Act conformity. The construction contractor will obtain required air permits for the project from the San Diego County Air Pollution Control District and California Air Resources Board, including those for portable, fuel driven power sources. The construction contractor will ensure that all rental equipment and subcontractor owned equipment shall, if required, have copies onsite of all associated rental agreements, California Air Resources Board registrations, and local county air permits to operate. The construction contractor will follow San Diego County Air Pollution Control District rules regarding dust, nuisance, particulate matter, storage, transfer containers, abrasives, and materials containing volatile organic compounds. Diesel powered equipment will use only California Air Resources Board fuel. In San Diego County, the SDAPCD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies. The SDAPCD's tasks include air pollution monitoring, preparation of the SIP for the SDAB, and the promulgation of rules and regulations. The SIP includes strategies and tactics to be used to attain the federal O3 standard within the SDAB. The SDAPD's rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts. SDAPCD regulations require proponents of stationary sources of air pollutants to obtain and maintain Permits to Operate for all stationary sources subject to the requirements of Regulation II. The SDAPCD is responsible for the review of applications, and for the approval and issuance of these permits. Once a permit is issued, the facility is responsible for compliance with the conditions specified in the permit. Prior to dry dock operation (vessel maintenance) all required permits will be obtained from the San Diego Air Pollution Control District (SDAPCD). This will ensure adequate analysis of emissions and will ensure adherence to local, state, and federal guidelines. Implementation of the Proposed Action would result in less than significant impacts to air quality and climate change. **Avoidance and Minimization Measures** Prior to dry dock operation (vessel maintenance) all required permits will be obtained from the San Diego Air Pollution Control District (SDAPCD). This will ensure adequate analysis of emissions and will ensure adherence to local, state, and federal guidelines. Under the Proposed Action, the Navy would comply with all applicable Best Management Practices (BMPs) presented in Table 2-2. Additional avoidance and minimization measures would not be required. Implementation of the Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels during construction. Dredging, transportation, and disposal activities as well as demolition and construction activities would generate a

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	limited amount of greenhouse gas (GHG) emissions that would not likely contribute to global warming to any discernible extent. Implementation of the Proposed Action would not result in significant impacts specific to GHG emissions.
Water Resources	Under the Proposed Action, dredging activities would result in minor changes to bathymetry at the south berth of the Mole Pier; however, these changes would not be sufficient to affect circulation patterns in the San Diego Bay. Potential surface water quality impacts associated with Proposed Action include spills and releases of hazardous and nonhazardous materials, including materials involved with dredging as well as demolition and construction. Potential sources of impacts on marine water quality associated with dredging as well as required demolition and construction activities include accidental release of vessel and equipment fuels or hydraulic fluids. The contractor would be required to develop, receive Navy approval of, and implement a site-specific construction Stormwater Pollution Prevention Plan (SWPPP) that specifies BMPs. The sediment to be dredged or disturbed by pile extraction/installation is estimated to be mostly sand and silts. Previous sampling conducted in the vicinity and at the south berth of the Mole Pier did not indicate elevated levels of contaminants. It is unlikely that temporary turbidity associated with these activities would mobilize significant levels of dissolved- phase contaminants into the water column. Physical disturbance during dredging and sediment disposal would last for approximately 90 days, required demolition would occur over 13 weeks, and construction activities are expected to last for 60 weeks. Under the Proposed Action, these activities would result in the short-term loss of marine benthic organisms. Turbidity would persist throughout these activities; however, it would vary spatially based on currents and sediment grain size. Most sediments suspended by dredging would resettle within several hours, and only a small fraction would take longer to resettle. Potential sources of impacts on marine water quality associated with dredging as well as required demolition and construction activities include accidental release of vessel and equipment fuels or hydraulic fluids. The contractor would be required to develop, receive Navy approval of, and implement a site-specific construction Stormwater Pollution Prevention Plan (SWPPP) specifying BMPs. The sediment to be dredged or disturbed by pile extraction/installation is estimated to be mostly sand and silts. Previous sampling conducted in the vicinity and at the south berth of the Mole Pier did not indicate elevated levels of contaminants. Therefore, it is unlikely that temporary turbidity associated with these activities would mobilize significant levels of dissolved- phase contaminants into the water column. Following berthing, operation of the floating dry dock would result in only minimal potential water resuspension; dry docking evolutions (i.e., lowering and raising the floating dry dock) would be slow and would not substantially disturb the underlying sediments. Ballast water pumps would be built into the floating dry dock and operated to comply with the requirements of the Uniform National Discharge Standard for Vessels of the Armed Forces. These standards would dictate the Marine Pollution Control Device performance standards necessary to control the vessel's discharges. Dry docking evolutions would average between 4 and 6 times per year, or a maximum of 8 times per year. Each event would take approximately 6 hours to complete, depending on the objective(s) of the specific dry docking event. Ballast water pumps would be powered from existing land- side electrical power sources. The dry dock ballast tanks would fill with air, and the floating dry dock would remain stationary in the raised position while maintenance and repair work is undertaken on a dry- docked vessel. While ship repair and

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	maintenance is occurring, appropriate BMPs would control for environmental releases of process water and dust. Implementation of the Proposed Action would result in less than significant impacts to water resources. **Avoidance and Minimization Measures** Under Proposed Action, the Navy would comply with all applicable BMPs presented in Table 2-2. Additionally, the Navy would implement additional construction- related avoidance and minimization measures intended to reduce the potential for construction-related impacts to water quality (e.g., spill control and response measures, clean construction materials, barge to collect demolition debris, etc.).
Biological Resources	Physical disturbance during dredging and sediment disposal would last for approximately 90 days, required demolition would occur over 13 weeks, and construction activities are expected to last for 60 weeks. Under the Proposed Action, these activities would result in the short-term loss of marine benthic organisms. Turbidity would persist throughout these activities; however, it would vary spatially based on currents and sediment grain size. Most sediments suspended by dredging would resettle within several hours, and only a small fraction would take longer to resettle. Following berthing, operation of the floating dry dock could result in potential water quality impacts. However, sediment resuspension would be minimal; dry docking evolutions (i.e., lowering and raising the floating dry dock) would be slow (approximately 6 hours) and would not substantially disturb the underlying sediments. Dredging as well as required construction and demolition 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. Under the Migratory Bird Treaty Act a pre-construction survey would be performed for migratory birds in the project area. Underwater noise generated during dredging, demolition, and pile extraction/driving would disturb fish and marine mammals within the vicinity. As a result, fish and marine mammals may temporarily leave or avoid the project area. The Navy submitted an Incidental Harassment Authorization (IHA) application to the National Marine Fisheries Service (NMFS) to address potential impacts to marine mammal. Per the IHA Application, the Navy will implement shutdown zones of from 33 feet (10 meters) to 197 feet (60 meters), depending on the pile being driven/extracted and the species of concern. With the implementation of the shutdown zones, Level A (injury) take would be avoided; However, implementation of the Proposed Action would result in Level B (behavioral) takes of three species: California sea lions (118 takes), Coastal Bottlenose dolphin (59 takes), and Harbor Seal (59 takes). NMFS concurred with the Navy's analysis and issued a draft IHA for the project on 21 July 2023, and then issued the Final IHA on 26 September, 2023. Potential impacts on green turtles from implementation of the Proposed Action would primarily be from impact pile driving. However, with the imposition of monitoring and shutdown zones for green turtles, the potential for acoustic injury would be avoided. The dry dock would be transported using a heavy-lift ship with an approximate length of 800 to 1,000 feet (244 to 305 meters). The FDD transit will follow established shipping lanes, leaving from Mobile, Alabama traveling through the Gulf of Mexico, along the western Atlantic coastline of South America, around Cape Horn at the southern tip of South America, and then up the eastern Pacific coast of South and Central America to San

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	Diego Bay. The full trip is expected to take approximately 75 to 90 days, and will include multiple stops for supplies and fuel. During the transit, average speeds would be maintained at approximately 8 to 10 knots (9.2 to 11.5 miles/hour), with a maximum speed of 14 knots (16.1 miles/hour). During the FDD transit, different species would be encountered in the different water bodies; however, the potential for, and types of, impact would remain the same regardless of the water body. Potential stressors during transit include elevated noise and vessel strike. During the transit, ESA-listed marine mammals and sea turtles may be encountered. The noise generated by the vessel would be consistent with other large vessels that would also use the same shipping lanes. Considering that the FDD transit would occur only once, the vessel would not remain in one place for any length of time, and noise generated by the heavy-lift vessel would be consistent with other ships in the shipping lanes, the Navy finds that the transit noise aspects of the project may affect, but are not likely to adversely affect ESA-listed turtles or marine mammals. The NMFS has concurred with this finding. Vessel strikes can result in lethal and sub-lethal injuries to marine species. If a marine species were to be struck during the FDD transit, impacts could include injury due to broken bones, or death as a result of the strike. A majority (89%) of the lethal or severe injuries were a result of ships traveling 14 knots (16.1 miles/hour) or faster. While there is a potential for encountering ESA-listed marine mammals and sea turtles during transit, the anticipated speeds of the heavy-lift vessel would generally be less than that expected to cause severe or lethal injury. The vessel will generally be moving at 8 to 10 knots (9.2 to 11.5 miles/hour), which is slower than the speed of most lethal or severe strikes. It is also a single trip, rather than a program of repeated trips, which makes any strike very unlikely to occur. Therefore, the Navy finds that the transit strike aspects of the project may affect, but are not likely to adversely affect ESA-listed turtles or marine mammals. The NMFS has concurred with this finding. The number of turtles using the bay is estimated to range between 40 and 60 animals during most months of the year, increasing to 100 animals during peak migratory periods (Eguchi 2017). During recent monitoring efforts for the NBSD Pier 6 replacement project, monitors were routinely stationed at Pier 1, Pier, 5 or Pier 7 on NBSD and in a small vessel adjacent to the Naval Base Coronado Naval Amphibious Base. During the eight months of monitoring efforts, green sea turtles were observed a total of six times in a large eelgrass patch off the eastern end of the Naval Base Coronado Naval Amphibious Base. No green sea turtles were observed in or among the piers. The FDD would be built to accommodate multiple classes of ships with multiple hull designs. For ships with sonar domes that may strike the deck of the FDD after it is raised, there is one location in the FDD that would be lower than the rest of the FDD. There is no known habitat (e.g., eelgrass) in the area that would be an attractant to adult green sea turtles. The Project Area is inside of a floating security fence and is adjacent to active piers to both the north and south. Green sea turtle presence in the Project Area is not expected, but it is possible that green sea turtles would be present in the vicinity of the FDD after it has been lowered to accommodate a ship entering the FDD and then raised. However, the FDD would be open on both ends, and water would leave the FDD via the open ends and any animals that may be in the FDD during this process would be expected to be "flushed" out with the water leaving the FDD. Furthermore, FDD-related personnel would be on site during all raising or lowering of the FDD, and BMPs identified in Table 2-2 would be followed during all FDD operations. These BMPs would also apply to other protected marine species (e.g., marine mammals) that have the potential to occur in the Project Area.

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	The Navy prepared and submitted a consultation letter to NMFS on 11 February 2020. After reviewing the consultation letter, NMFS provided a response on 25 March 2020 concurring with the Navy that the Proposed Action may affect, but is not likely to adversely affect Federally listed species and/or Federally designated critical habitats. Based on newly available project description information the Navy submitted to NMFS an Endangered Species Act informal Section 7 consultation re-initiation on 28 June 2023 based on the Navy finding that the Proposed Action may affect, but is not likely to adversely affect Federally listed species and/or Federally designated critical habitats. After reviewing the consultation letter, NMFS provided a response on 6 September 2023 concurring with the Navy that the Proposed Action may affect, but is not likely to adversely affect federally listed species and/or federally designated critical habitats. The Proposed Action's dredging footprint, volumes, and depths have increased since 2020. A new 2023 Functional Loss Equivalency Assessment was performed for the revised project. Calculation results indicate that only slight changes to the results of the 2020 Functional Loss Equivalency Analysis would occur relating to ecological functions which proportionately decrease with the increased dredging depths within the photic zone. Specifically, below 29 feet of depth, ever deeper dredging would have a proportionately decreasing amount of loss in benthic function as that function is at lower depths benthic function is no longer driven by light penetration. The deeper the water column, the more functional value is gained by water column productivity. To evaluate the changes in the Project design, the same methods and criteria were used (MAI, 2020a,b), but with updated information for bathymetry, dredging, and shade structures (Merkel and Associates, Inc. 2023). The dredge footprint would increase from 4.79 acres to 9.98 acres, and the over-water structures in the updated design specifications would increase shading in the Project area from 0.014 to 0.027 acres, depending on whether certain structures are kept or removed. Based on the 2023 analysis the changes in dredge depth would not have a significant impact on the eelgrass equivalency mitigation amount. Further, though the current design would increase coverage from that analyzed in the EFHA these cover changes also would be in waters deeper than -29 ft. and so would cause no additional benthic functional loss. Based on the new 2023 analysis the water column functional loss rises very slightly due to the expanded shading, and the eelgrass equivalency of the project would increase from 0.084 acres to 0.137 acres, or an additional 0.053 acres. This analysis is based on an evaluation of all the project's associated shade structures and the FDD. Navy Region Southwest has agreed to let the Project use the Navy's San Diego Bay Eelgrass Mitigation Bank to offset the conversion of shallow water habitat to deeper water, and increased shading from the new FDD and the associated structures. Based on the newly available project design information, and the new 2023 Functional Loss Equivalency Assessment the Navy submitted to NMFS an Essential Fish Habitat Assessment Re-initiation. On 6 September 2023 NMFS concurred stating that there is no objection to the Navy's assessment and NMFS had no additional EFH Conservation Recommendations. Implementation of the Proposed Action would result in less than significant impacts to biological resources. **Avoidance and Minimization Measures** Under the Proposed Action, the Navy would comply with all applicable BMPs presented in Table 2-2. Additionally, the Navy would implement additional construction- related

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	avoidance and minimization measures intended to prevent construction-related impacts to biological resources. These measures include the establishment of multiple monitoring and shutdown zones for underwater construction or demolition activities. The Proposed Action would result in a reduction in water column function that would be offset by the provision of approximately 0.137 acres of eelgrass habitat credits through the Navy Eelgrass Mitigation Bank. Potential impacts on green turtles from implementation of the Proposed Action impact pile driving would be minimized and the potential for acoustic injury would be avoided by the imposition of monitoring and shutdown zones for green turtles.
Airborne Noise	Under the Proposed Action, airborne noise would be produced from heavy machinery and vehicles required for demolition, construction, dredging, 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 between 6:00 p.m. and 6:00 a.m. for 90 days. Demolition and construction activities required under the Proposed Action would occur during daylight hours over a period of approximately 60 weeks and would involve the use of standard construction equipment ranging from trucks and cranes to pile drivers, all of which would create noise. The tugboat used to move and position the crane barge would also generate some noise, but the noise would be consistent with the ambient noise environment characteristic of NBSD. The sound level of the impact pile driver during construction would dominate and would almost exclusively determine the total sound level emanating from the south berth of the Mole Pier. Dredging and sediment disposal as well as required demolition and construction activities, including overnight work, would not increase ambient outdoor noise levels at the nearest sensitive receptor to greater than 65 decibels (dB) DNL and would not conflict with the City of San Diego construction noise ordinance. Noise- related impacts would be less than significant. Implementation of the Proposed Action would result in less than significant airborne noise impacts. **Avoidance and Minimization Measures** Under the Proposed Action, additional avoidance and minimization measures would not be required for airborne noise.
Transportation	Under the Proposed Action, landside traffic impacts would include construction worker commutes and construction equipment/materials deliveries that do not arrive via barge on the water-side of the south berth of the Mole Pier. However, these trips would be temporary and would add a negligible amount of traffic to the existing transportation network. Traffic impacts associated with sediment disposal would include the following: <u>Ocean Disposal</u> The primary source of traffic- related impacts related to ocean dredge material disposal would be vessel transportation within San Diego Bay and Pacific Ocean. The ocean disposal project element would involve loading the 93,248 cy of dredged sediment into a barge and transporting it to LA-5 ODMDS. Approximately one barge trip per day would be necessary over the approximately 90 day dredging operation duration in order to transport the dredged sediment to and from LA-5 ODMDS with one tug and barge loading at the dredge site while the other is in transit . Project barge tug/barge traffic levels in San Diego Bay and the Pacific Ocean would be temporary and negligible.

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	Upland Dredge Material Disposal The primary source for traffic- related impacts related to the upland dredge material disposal would be truck trips between NBSD and an approved upland disposal site such as the Otay Landfill. The upland disposal project element would involve transferring 17,712 cy of dredged sediment from the project's Confined Drying Facility (CDF) to an approved landfill such as the Otay Landfill. This would require approximately 1,704 truck trips over the duration of the Proposed Action. These truck trips would account for less than 1 percent of the existing average daily trips (ADT) along the haul route, including Interstate 5 (I-5) and I-805. Construction and Demolition The NBSD Pier 12 Replacement project generated more than seven times the amount of material that would be generated by the Proposed Action and Pier 12 did not have a significant traffic impact. The Proposed Action is a much smaller action which will also not have a significant traffic impact. Utility upgrades required for the project would intermittently require short term and phased road closures primarily on portions of Cummings Road and also on certain parallel roads. Normal traffic counts on these road segments are relatively low. This work would not extend further across the base or beyond NBSD. The construction contractor would be required to prepare a Traffic Control Plan which would need to be reviewed and approved by NBSD. Implementation of the Proposed Action would result in less than significant transportation impacts. **Avoidance and Minimization Measures** Under the Proposed Action, the Navy would comply with all applicable BMPs presented in Table 2-2. Additionally, the Navy would implement additional construction- related avoidance and minimization measures intended to reduce the potential for construction-related impacts. Specifically, haul truck trips associated with upland disposal would be scheduled such that they avoid the weekday and weekend peak hour traffic periods along local and regional roads and highways.
Hazardous Materials and Wastes	Sediment samples from the dredging footprint at the south berth of the Mole Pier were collected and tested in accordance with regulations in 40 Code of Federal Regulations (CFR) Parts 220–228. The resulting sediment characterization report was provided to U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACE) for review and comment on potential sediment disposal options. The sediment characterization and chemistry tests analyzed whether the sediment meets the allowable parameters for unconfined ocean disposal. Project sediments test results indicate that 93,248 cy of dredge material meet requirements for unconfined aquatic disposal at LA-5 ODMDS, and 17,712 cy of dredge material would be taken to an approved upland disposal site such as the Otay Landfill. On 18 July, 2023 USACE and USEPA issued a Suitability for Unconfined Aquatic Disposal (SUAD) determination concurring with these findings. All dredged sediment disposal operations performed for the Proposed Action would comply with Clean Water Act (CWA) Section 404 and would be in accordance with a dredging permit issued by USACE, and a CWA Section 401 Water Quality Certification from the San Diego Regional Water Quality Control Board (RWQCB). Contractors would be subject to all Federal, state, and San Diego County requirements for hazardous materials and hazardous waste management and would be required to follow the Hazardous Waste Management Plan (HWMP). In addition, a site-specific construction SWPPP would be developed and implemented by the demolition and construction

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	contractor that would incorporate BMPs designed to minimize the potential for hazardous material releases during demolition and construction activities. Any hazardous materials and wastes generated during construction and operational activities would also be subject to installation-wide Emergency Planning and Community Right-to-Know Act (EPCRA) 312 and 313 reporting requirements. For the operation of the floating dry dock any hazardous materials and waste would be subject to the conditions in the Hazardous Waste Management Plan and all applicable Federal, state, and County of San Diego requirements. Implementation of the Proposed Action would result in less than significant hazardous materials and wastes impacts. **Avoidance and Minimization Measures** The BMPs as well as avoidance and minimization measures that would be implemented to address hazards and hazardous materials would be identical those described for water resources.

Notes:

[1] This discussion of airborne noise includes the types or sources of airborne noise and the associated sensitive receptors in the human environment. Airborne and underwater noise in relation to biological resources and wildlife species is discussed in the Section 3.3, *Biological Resources*.

Final Supplemental Environmental Assessment
Floating Dry Dock Project at NBSD – Mole Pier
Naval Base San Diego, California

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Abbreviations and Acronyms

Acronym	Definition	Acronym	Definition
µg/L	microgram(s) per liter	CZMA	Coastal Zone Management Act
µg/m3	microgram(s) per cubic meter	dB	decibel(s)
µPa	microPascal	dB RMS re 1 µPa	decibels referenced to a pressure of 1 microPascal
ACM	asbestos-containing material		
ADT	Average Daily Trips	dBA	A-weighted decibel
AFDM	Auxiliary Floating Drydock Medium	DDG	Guided Missile Destroyer
		DNL	day-night average sound level
ANSI	American National Standards Institute	DoD	United States Department of Defense
AT/FP	Anti-Terrorism/Force Protection	DPS	distinct population segment
BAE	British Aerospace Engineering	EA	Environmental Assessment
Basin Plan	Water Quality Control Plan for the San Diego Basin	EFH	essential fish habitat
		EIS	Environmental Impact Statement
BMP	best management practice	EO	Executive Order
CAA	Clean Air Act	EPCRA	Emergency Planning and Community Right-to-Know Act
CAAQS	California Ambient Air Quality Standards	ESA	Endangered Species Act
Caltrans	California Department of Transportation	ESQD	Explosives Safety Quantity-Distance
CATEX	Categorical Exclusion	ESS	Explosives Safety Submission
CDF	confined drying facility	ESS DR	Explosives Safety Submission Determination Request
CDFW	California Department of Fish and Wildlife	FICUN	Federal Interagency on Urban Noise
CEQ	Council on Environmental Quality		
CEQA	California Environmental Quality Act	FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	FMP	Fishery Management Plan
		FTA	Federal Transit Administration
		°F	degree(s) Fahrenheit
CFR	Code of Federal Regulations	FY	fiscal year
CNEL	community noise equivalent level	GHG	greenhouse gas
CO	carbon monoxide	GPM	gallons per minute
CO_2	carbon dioxide	GIS	Geographic Information System
CO_2e	carbon dioxide equivalent	GPS	Global Positioning System
COL	Commercial Out Lease	HAPC	habitat area of potential concern
CONBSD	Commanding Officer Naval Base San Diego	HWMP	Hazardous Waste Management Plan
CPF	Commander of the United States Pacific Fleet	I-15	Interstate 15
		I-5	Interstate 5
CTR	California Toxics Rule	I-805	Interstate 805
CWA	Clean Water Act	IHA	Incidental Harassment Authorization
cy	cubic yards		

Acronym	Definition
INRMP	Integrated Natural Resources Management Plan
km2	square kilometer(s)
LCS	Littoral Combat Ship
Leq	equivalent sound level
Leq(24)	24-hour equivalent sound level
Lmax	maximum A-weighted sound level
LOS	level of service
MBTA	Migratory Bird Treaty Act
MEC	Munitions and Explosives of Concern
mg/L	milligram(s) per liter
mg/m3	milligram(s) per cubic meter
MGBW	Marine Group Boat Works, LLC
mL/L	milliliter(s) per liter
MLLW	mean lower low water
mm	millimeter(s)
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
MPPEH	Material Potentially Presenting an Explosives Hazard
MPRSA	Marine Protection, Research, and Sanctuaries Act
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSAT	Mobile Source Air Toxics
NA	Not Applicable or Not Available
NAAQS	National Ambient Air Quality Standards
NASSCO	National Steel and Shipbuilding Company
NAVFAC SW	Naval Facilities Engineering Command Southwest
NAVSEA 05	Naval Sea Systems Command (Naval Systems Engineering & Logistics Directorate)
Navy	United States Department of the Navy
NEPA	National Environmental Policy Act
NBSD	Naval Base San Diego
NIOSH	National Institute for Occupational Safety and Health
NIPTS	noise induced permanent threshold shift
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOx	nitrogen oxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOSSA	Naval Ordnance Safety and Security Activity
NPDES	National Pollutant Discharge Elimination System
NTU	nephelometric turbidity unit(s)
O_3	ozone
ODMDS	Ocean Dredged Material Disposal Site
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
POSD	Port of San Diego
ppb	part(s) per billion
ppm	part(s) per million
PSD	Prevention of Significant Deterioration
PTS	permanent threshold shift
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act
RMS	root mean square
ROI	Region of Influence
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SEL	sound exposure level
SELcum	cumulative sound exposure level over 24 hours
sf	square feet
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPL	sound pressure level
SWRCB	State Water Resources Control Board

Acronym	Definition	Acronym	Definition
SWPPP	Stormwater Pollution Prevention Plan		Engineers
TL	transmission loss	USDOT	United States Department of Transportation
TMDL	Total Maximum Daily Load	USEPA	United States Environmental Protection Agency
tpy	ton(s) per year		
TSCA	Toxic Substances Control Act	USFWS	United States Fish and Wildlife Service
TTS	temporary threshold shift		
UD	utilization distribution	USS	United States Ship
UNDS	Uniform National Discharge Standards for Vessels of the Armed Forces	UXO	Unexploded Ordnance
		VOC	volatile organic compound
		Wood	Wood Environmental & Infrastructure Solutions, Inc.
U.S.	United States		
U.S.C.	United States Code	ZOI	zone of influence
USACE	United States Army Corps of		

1 Purpose of and Need for the Proposed Action

1.1 Introduction

Naval Facilities Engineering Systems Command Southwest (NAVFAC SW), a Command of the United States (U.S.) Department of the Navy, has prepared this Supplemental Environmental Assessment on behalf of the Naval Base San Diego (NBSD) in accordance with the National Environmental Policy Act (NEPA) (42 U.S. Code [U.S.C.] Sections 4321–4370h); Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500–1508); and Navy Regulations for Implementing NEPA (32 CFR Part 775).

NBSD is a major port for Navy ships assigned to the U.S. Pacific Fleet (CPF) and is the major West Coast logistics base for surface forces of the Navy, dependent activities, and other commands. Activities at NBSD include Continuous Maintenance Availabilities and loading of supplies for fleet vessels (Navy 2012b, 2016).

In a memorandum dated 16 January 2018, the Commander of the CPF identified a current and projected shortfall of dry dock space necessary to support the CPF's forecasted surface ship maintenance requirement.

Existing dry dock space available for surface ship maintenance in San Diego Bay consists of two floating docks owned and operated by British Aerospace Engineering San Diego (BAE); one floating dock owned and operated by National Steel and Shipbuilding Company (NASSCO); and one government-owned graving dock located on NBSD. The graving dock is capable of docking the Avenger Class Mine Counter Measure and the Freedom-variant of the Littoral Combat Ship (LCS), the Arleigh Burke class Guided Missile Destroyer (DDG-51), and the LSD-49 class.

1.2 Location

NBSD is located approximately 3 miles southeast of the City of San Diego's Central Business District and 10 miles north of the U.S./Mexico border on the eastern shore of San Diego Bay. NBSD is bordered to the north by the community of Barrio Logan, to the east by Interstate 5 (I-5), and to the south by the cities of National City and Chula Vista. East Harbor Drive divides NBSD into two main parts: the mainly industrial bayfront area west of East Harbor Drive and the community support complex east of East Harbor Drive. There are approximately 977 acres of land and 326 acres of water that extend to the U.S. pier headline in San Diego Bay. NBSD contains 12 piers (including a Mole Pier), two channels, and various quay walls that extend along approximately 5.6 miles of shoreline (see Figure 1-1).

Berthing of the proposed floating dry dock would occur within San Diego Bay at the Mole Pier – South Berth. The Mole Pier – South Berth is located approximately 1 mile south of the main entrance gate to NBSD, immediately south of Pier 8 and the Paleta Creek Channel, and north of Pier 10 (see Figure 1-1). The Mole Pier – South Berth, was originally developed as a dry dock facility in the early 1980s to comprise a concrete wharf, mechanical pier, electrical pier, access pier, and ramp (see Figure 1-2). The existing pile-supported concrete wharf is approximately 588 feet long and 53 feet wide. The mechanical pier (approximately 75 feet long and 53 feet wide), electrical pier (approximately 21 feet long and 53 feet wide), and access pier (approximately 42 feet long and 53 feet wide) were constructed north of the wharf to provide servicing and access to the wharf. The ramp pier (approximately 105 feet long and 23

feet wide) is a finger pier located on the quay wall just east of the wharf between the Mole Pier and Pier 10. A sump was originally dredged at the south berth of the Mole Pier to accommodate the USS STEADFAST (AFDM 14), a floating dry dock previously used to repair Navy ships before it was relocated in 1998.

The Mole Pier - South Berth was modified in 2002 to accommodate berthing and mooring of the USNS CURTISS (T-AVB), which is currently stationed at the wharf. Modifications to the wharf involved construction of two mooring points for the USNS CURTISS (T-AVB), a dolphin at the forward portion of the vessel, and an extension of the wharf at the aft location (Navy 2018a). Additionally, floating hoteling facilities for the USNS CURTISS (T-AVB) are located immediately adjacent to the ramp pier. The Proposed Action site encompasses a proposed dredge area (approximately 9.98 acres), an upland construction area (approximately 4.15 acres), and a construction laydown area (approximately 3 acres). In addition, a temporary confined drying facility (approximately 4 acres) would be set up for processing dredge material bound for upland disposal (see Figure 1-3).

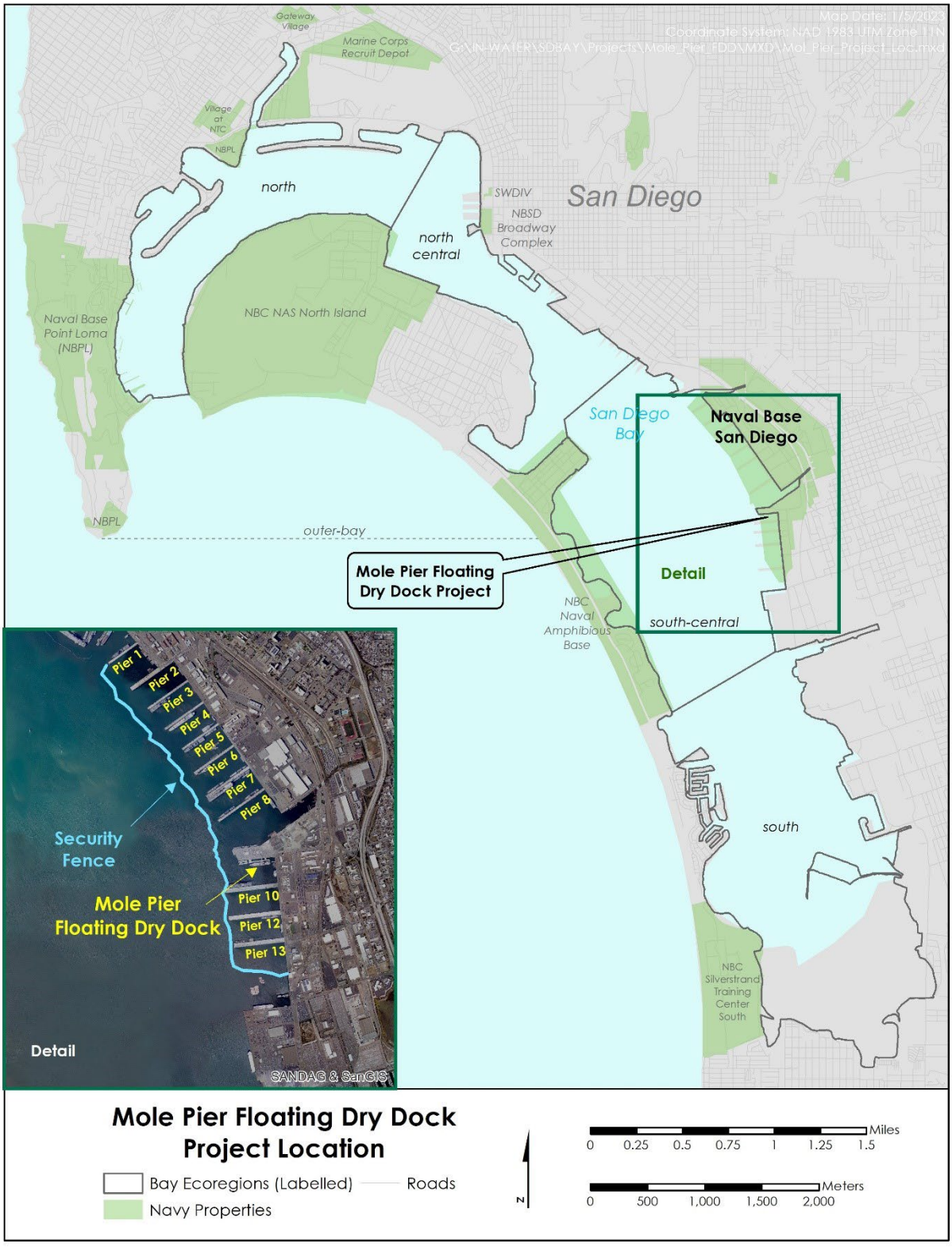

Figure 1--1. Regional Location of NBSD and Project Area.

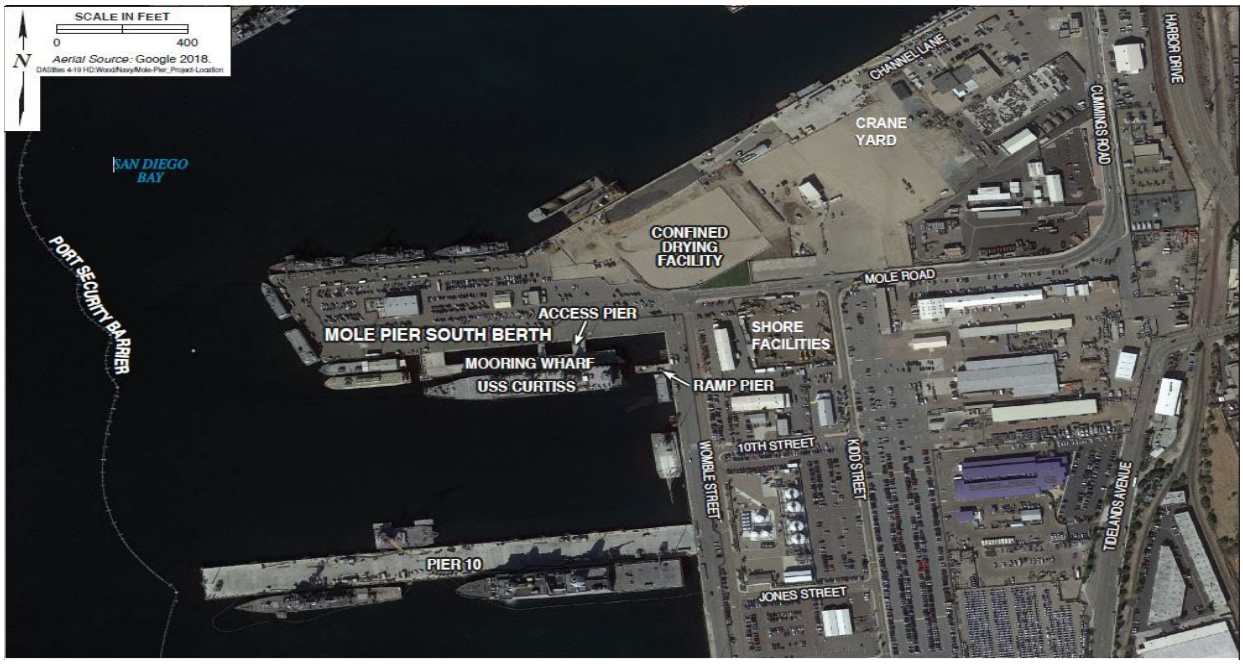

Figure 1--2. Mole Pier and Project Area at NBSD.

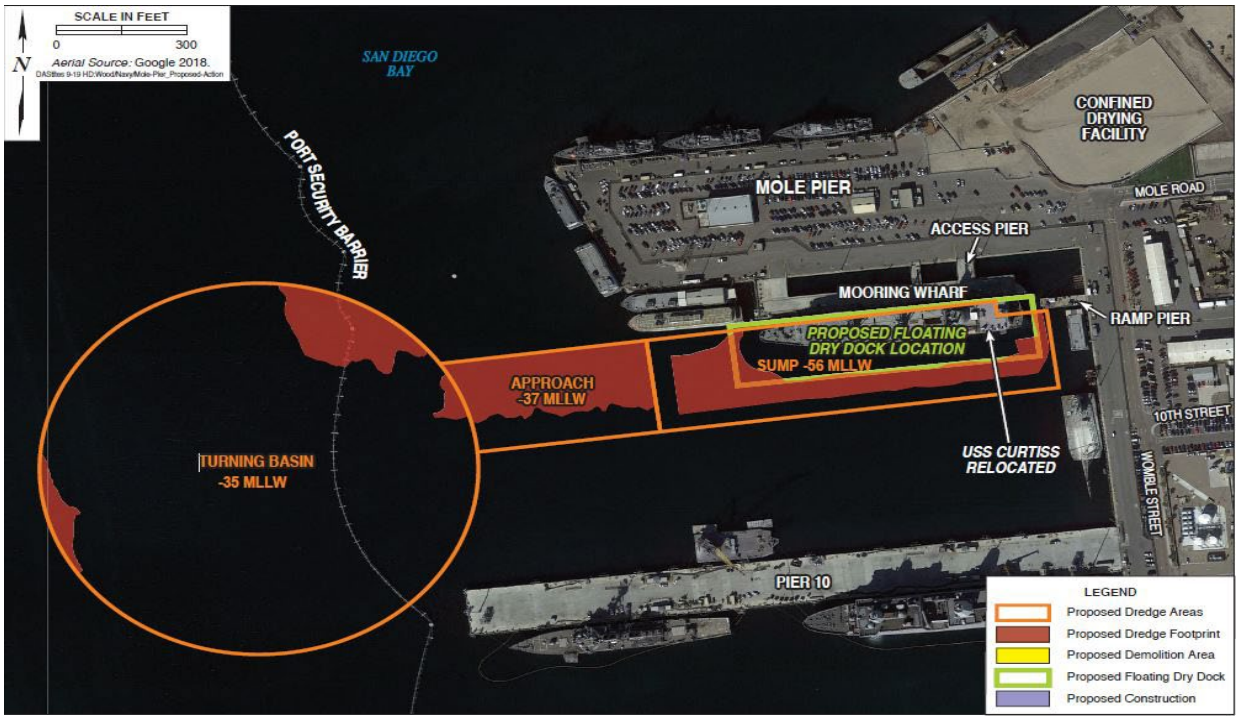

Figure 1--3. Proposed Action at Mole Pier – South Berth.

1.3 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide a new Navy floating dry dock, including all required dredging and sediment disposal as well as all required demolition and construction activities, necessary for maintenance of CPF ships including specifically the: DDG-51, LCS-2, LSD-41, and LSD-49 ship classes.

The need for berthing and operation of dry dock space is to ensure NBSD's capability to conduct berth-side complex repair and maintenance of vessels, furthering the Navy's ability to provide training and equipping of combat-capable Naval forces ready to deploy worldwide. Current and projected shortfalls of dry dock space have reduced overall surface ship maintenance capabilities at NBSD. The Proposed Action would address this shortfall and enhance the ability of the Navy to execute 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 Supplemental EA is to determine whether preparation of an Environmental Impact Statement (EIS) is needed. An EIS would be required if it is anticipated that the Proposed Action would have significant impacts on the human or natural environment. Should an EIS be deemed unnecessary, the Navy would prepare a Finding of No Significant Impact (FONSI).

1.5 Scope of Environmental Analysis

This Supplemental EA includes an analysis of potential environmental impacts associated with the proposed floating dry dock at NBSD Mole Pier - South Berth. The environmental resource areas analyzed in this Supplemental EA include: air quality/climate change, water resources, biological resources (including terrestrial and marine biological resources), noise, transportation, and hazardous materials and wastes.

The Navy completed a Final EA for the Floating Dry Dock at NBSD, San Diego, California in 2020 in response to the shortfall of dry dock space needed for maintenance of the CPF. The 2020 Final EA analyzed the potential environmental impacts of berthing and operation of a floating dry dock, at the NBSD Mole Pier – South Berth including all required dredging and sediment disposal as well as all required demolition and construction activities. In 2023 a sediment testing effort was completed for the proposed dredging which was followed by regulatory decision-making on disposal sites for dredged sediments (i.e., aquatic disposal, and upland disposal). Additionally, since 2020 the design of proposed floating dry dock demolition and construction activities was revised. These post-2020 design revisions are the subject of this Supplemental EA to include the potential direct, indirect, short-term, long-term, and cumulative impacts on the human and natural environment associated with the Proposed Action.

Various regulatory consultations are completed for the Proposed Action and consultation details are presented in this Supplemental EA. The Navy completed a Sediment Analysis Plan Results Report (Appendix D) which was submitted to the U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE). The USEPA and USACE issued a Suitability for Unconfined Aquatic Disposal (SUAD) determination (Appendix D) concurring with the Navy's sediment test results and approving aquatic disposal.

The Navy has updated its 2020 Essential Fish Habitat (EFH) Assessment and Endangered Species Act consultation analyses and received National Marine Fisheries Service (NMFS) concurrences for both consultations.

The Navy has completed an underwater acoustic survey and modeling for the Proposed Action and in support of an Incidental Harassment Authorization (IHA) from National Marine Fisheries Service (NMFS). On 21 July 2023 NMFS issued public notice in the Federal Register starting a 30-day public review period of NMFS' Draft IHA for the project. No public comments were received by NMFS during their public review period and NMFS issued a Final IHA for the project on 26 September, 2023.

The Navy has submitted to the California Coastal Commission a Coastal Consistency Negative Determination (CCND) renewal request for the Proposed Action and on 5 September 2023 the Commission issued its concurrence.

1.6 Key Documents

Key documents are sources of information related to the proposed berthing and operation of the Proposed Action docks that have been incorporated into this Supplemental 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 the following:

- *Final Environmental Assessment for the Floating Dry Dock Project at Naval Base San Diego, San Diego, California* (2020), hereby incorporated by reference. This document and its technical appendices addressed the potential impacts of the original design of the Proposed Action, including dredging, in water construction, and demolition activities. Section 1.6 of the 2020 Final EA included its own list of Key Documents that were used as sources of information in the document's environmental analysis.

- Incidental Harassment Authorization Application for the Navy's Floating Dry Dock Project at Naval Base San Diego, 15 March 2024 to 14 March 2025 (2023). This document presents the Navy's analyses and determinations about the Proposed Action's pile extraction and installation activities to potentially rise to the level of harassment under the MMPA. This IHA application is intended to cover pile extraction and installation activity between 15 March 2024 and 14 March 2025.

Documents included in the Appendix of this Supplemental EA include the following:

- Assessment of Project Design Changes Relative to the Green Sea Turtle Assessment for the Floating Dry Dock Project at Naval Base San Diego (2023). This document presents project design revisions made after the project Endangered Species Act (ESA) consultation was completed with the National Marine Fisheries Service in March 25, 2020. This document re-analyzes the potential impacts to ESA-listed sea turtles and marine mammals related to the dry dock facilities preparation (dredging and pile extraction/installation), dry dock transit from Mobile, Alabama (elevated noise and vessel strike), and dry dock waterfront operations.

- Essential Fish Habitat Assessment Renewal Request for the Floating Dry Dock Project, Naval Base San Diego (2023). This document presents project design revisions made after the project Essential Fish Habitat consultation with the National Marine Fisheries service was completed in April 2020. This document analyzes potential impacts to Essential Fish Habitat resources related to the dry dock facilities site preparation (dredging and pile extraction/installation), dry dock transit from Mobile, Alabama (elevated noise and vessel strike), and dry dock waterfront operations.

- Supplemental Analysis for Ecological Functional Loss Associated with Construction of Naval Base San Diego Mole Pier Floating Dry Dock (2023). This document supplements previous project analysis (Merkel & Associates 2020a and 2020b) and quantifies potential benthic and water column ecological function losses associated with the project design revisions, and proposes eelgrass habitat mitigation recommendations.

- Sediment Analysis Plan Results Report (SAPR) for Sediment Characterization Study, and Suitability for Unconfined Aquatic Disposal (SUAD) Determination. To Support Proposed Dredging at the Mole Pier Floating Dry Dock at Naval Base San Diego (2023). The project SAPR presents the Navy's June 2021 sediment collection and chemistry test results, and the dredge material disposal recommendations. The SUAD Determination presents USACE and USEPA concurrence with sediment testing results, and approval of unconfined aquatic sediment disposal at ocean disposal site ODMDS LA-5.

- U.S. Navy Coastal Consistency Negative Determination Renewal Request (2023). This document presents the Navy's analysis of project design revisions made after the project Coastal Zone Management Act (CZMA) consultation was completed with the California Coastal Commission in December 2019. This document analyzes potential impacts to coastal resources related to the dry dock facilities preparation (dredging and pile extraction/installation), dry dock transit from Mobile, Alabama (elevated noise and vessel strike), and dry dock waterfront operations.

1.7 Relevant Laws and Regulations

The Navy has prepared this Supplemental EA based on 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
- CEQ Regulations for Implementing the Procedural Provisions of NEPA, 40 CFR Parts 1500–1508
- Navy Regulations for Implementing NEPA, 32 CFR Part 775
- Clean Air Act (CAA) General Conformity Rule, 42 U.S.C. Section 7506(c)
- Clean Water Act (CWA), 33 U.S.C. Section 1251 *et seq.*
- Rivers and Harbors Act (RHA), 33 U.S.C. Section 407
- Coastal Zone Management Act (CZMA), 16 U.S.C. Section 3505
- National Historic Preservation Act, 54 U.S.C. Section 300101 *et seq.*
- Endangered Species Act (ESA), 16 U.S.C. Section 1531 *et seq.*
- Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), 16 U.S.C. Sections 1801–1883

- Marine Mammal Protection Act (MMPA), 16 U.S.C. Sections 1361–1407, Public Law 92-522
- Marine Protections, Research, and Sanctuaries Act (MPRSA) of 1972, 16 U.S.C. Section 1431
- Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section 703
- Bald and Golden Eagle Protection Act, 16 U.S.C. Sections 668–668d
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9601 *et seq.*
- Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. Sections 11001–11050
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. Section 136 *et seq.*
- Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*
- Toxic Substances Control Act (TSCA), 15 U.S.C. Sections 2601–2629
- Executive Order (EO) 11988, Floodplain Management
- EO 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions 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

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

- CWA Section 404 and RHA Section 10 permits from the U.S. Army Corps of Engineers (USACE) Carlsbad Field Office
- 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 LA-5 Ocean Dredged Material Disposal Site (ODMDS)

All required environmental operating permits for the floating dry dock will be obtained before operations (vessel maintenance) commence.

Table 5-1 in Chapter 5 describes the consistency of the Proposed Action with these laws, policies, and regulations, and provides the names of regulatory agencies responsible for their implementation.

1.8 Public and Agency Participation and Intergovernmental Coordination

Regulations from the CEQ direct agencies to involve the public in preparing and implementing their NEPA procedures. The Navy published a Notice of Availability (NOA) for the Draft EA in the *San Diego Union-Tribune* on 10- 12 October 2019. The NOA described the Proposed Action, solicited public comments on the Draft EA, provided dates of the public comment period, and announced that a copy of the Draft EA would be available for review on the Naval Facilities Engineering Command Southwest website and at the San Diego Central Library, Logan Heights/San Diego Public Library, and the Valencia Park/ Malcolm X Branch Library. No public comments were received on the Draft EA.

The Final EA and Finding of No Significant Impact (FONSI) public notice was advertised in the San Diego Union Tribune on 30 May 2020, 31 May 2020, and 1 June 2020. The Final EA was also made available on the Navy Region Southwest website (https://www.cnic.navy.mil/navysouthwestprojects). No public review comments were received. The EA was finalized in May of 2020, and a Finding of No Significant Impact was signed on 26 May 2020.

In 2023 the Draft Supplemental EA was also made available for public review and Notices of Availability (NOA) were advertised in local newspapers. The project NOA was advertised for three consecutive days in the San Diego Union-Tribune (4, 5, and 6 Aug 2023) and for one week in the El Latino newspaper (4-10 Aug 2023) (Appendix G). The Notice of Availability described the Proposed Action, requested public comments on the Draft Supplemental EA, provided the project email address and closing date of the public comment period, and announced that copies of the Supplemental EA were available for review via the Commander, Navy Region Southwest (CNRSW) website (https://www.cnic.navy.mil/navysouthwestprojects) and three local public libraries (the San Diego Central Library, Logan Heights/San Diego Public Library, and Valencia Park/Malcolm X Branch Library). No public comments on the Supplemental Draft EA were received. The Navy also met with the Air Pollution Control District (17 Nov 2023) and with the Portside Steering Committee (28 Nov 2023) to discuss the project.

2 Proposed Action and Alternatives

The Navy proposes to construct the NBSD Mole Pier – South Berth Floating Dry Dock, which would include dredging (the dry dock basin, approach, and turning basin, totaling approximately 110,960 cy of dredge material and upland and aquatic dredge material disposal), demolition of existing facilities (including upland facilities and mooring wharf and in-water piling removal), new construction and upgrades (including waterfront facility upgrades to the ramp and decking, quaywall repairs, and a new electrical switch station building), and operations of the floating dry dock.

In May 2020, the Navy completed the "Final Environmental Assessment for the Floating Dry Dock Project at Naval Base San Diego." It addressed two Naval Base San Diego (NBSD) Floating Dry Dock (FDD) projects: the Commercial Outlease FDD and the Navy Mole Pier – South Berth FDD. In 2020 the Navy signed a Finding of No Significant Impact (FONSI) for the Commercial Outlease FDD, and then leased project lands to Marine Group Boat Works (MGBW) and later to Austal USA. The commercial outlease FDD is under construction as of 2023. A FONSI was not signed in 2020 for the Mole Pier – South Berth FDD because its Marine Mammal Protection Act consultation was not yet completed. Since then, the Mole Pier FDD design has progressed sufficiently to support updating the NEPA analysis, submission of an Incidental Harassment Authorization application to National Marine Fisheries Service, and renewal of other project consultations. In response, this Supplemental EA was prepared in compliance with OPNAVINST 5090.1E, to analyze needed revisions to the original environmental planning analysis since the Navy determined that one or more of the following conditions apply: 1) substantial changes made in the proposed action are beyond the scope of the original environmental planning document; 2) significant new circumstances or information are available that could affect the proposed action and its potential environmental impacts; or 3) Navy interests or the purposes of NEPA or Executive Order 12114 will be furthered by doing so.

2.1 Proposed Action

Floating Dry Dock at Mole Pier – South Berth (Preferred Alternative)

The scope of the Proposed Action includes all required dredging and sediment disposal as well as all required demolition and construction activities necessary to support the proposed berthing and operation of a floating dry dock at the Mole Pier South Berth. The Navy awards contracts for the construction of floating dry docks to private companies, who are responsible for complying with any federal, state, and local environmental, occupational safety and health laws and regulations. The construction of floating dry docks occurs at existing industrial facilities capable of the operation with current operational credentials and permitting that would allow them to conduct the construction based on established processes and techniques. Therefore, it is not anticipated that private contractors would need to obtain any regulatory permits in order to perform the requirements of the contract. Once constructed, the floating dry dock would be heavy-lifted from the contractor site in Mobile, Alabama to the Mole Pier – South Berth site. Additional specific information about the transport of the floating dry dock by heavy lift ship from the private contractor construction site in Mobile, Alabama to San Diego, and future dry dock operations, are included in this Supplemental EA.

The proposed action, the Mole Pier FDD remains essentially as described in the "2020 Final Environmental Assessment for the Floating Dry Dock Project at Naval Base San Diego" (hereby incorporated by reference) and this supplement focuses on the newly available design information with

any potential for environmental impacts and resulting regulatory consultation updates. This Supplemental EA does not include project aspects or resource topics unaffected by the project changes.

Construction at the Mole Pier – South Berth project site would start in approximately March 2024, and the floating dry dock would be delivered to the construction site and installed in approximately May 2025. The following list is a summary of the new project information that will be analyzed in this Supplemental EA:

1) Proposed dredge depths and dredge footprint have been revised. The floating dry dock sump proposed dredge depth increased from a depth of -53' to -56'. The FDD approach channel proposed dredge depth is unchanged at a dredge depth of -37'. The turning basin dredge depth has decreased from -36' to -35'. The resulting dredge volume changed from approximately 86,121 CY over 4.79 acres to a new dredge volume of approximately 110,960 CY over approximately 9.98 acres. In 2020 the project EA significantly overestimated the projected dredging duration to be 14 weeks. This estimate has been corrected with the estimated dredging duration being 90 days. The labor staffing level and dredging equipment requirements are not expected to change.

The project dredging Sediment Analysis Plan Results Report (Appendix D) was finalized in 2023, and submitted to the U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers. On 18 July 2023, the Navy received the agencies' Suitability for Unconfined Aquatic Disposal (SUAD) Determination (Appendix D). The current total dredge volume is 110,960 CY. The SUAD approved the disposal of 93,248 CY of material at LA-5 Ocean Dredged Material Disposal Site (ODMDS). 17,712 CY of material would be disposed of at an approved upland site. Of the total volume of SUAD material in the dredge footprint (93,248 CY), approximately 71,044 CY is composed of unconsolidated sediments, while 22,204 CY is composed of Native Formational Material. Any potential environmental impacts associated with dredge material disposal are analyzed in this Supplemental EA.

2) The design of the wharf, pile program, and ramp pier demolition and construction actions have changed since completion of the 2020 Final EA and now include:

- Mooring wharf actions include: partial mooring wharf demolition (decking, utilities, and new equipment sites, and 24-inch octagonal and/or 24-inch square concrete mooring wharf piles if it is determined that they interfere with structural support piles to be installed for the new mooring wharf improvements), followed by construction of new mooring wharf facilities (mooring attachments, pile driving, wharf-pier attachments, seismic upgrades and other upgrades, and a cast-concrete deck).

- Demolition activities are anticipated to occur over a total of 19 days (Table 2-1) and include: 1) complete removal of a Ramp Pier (providing quay wall vehicle access to the new FDD), including the removal of twenty-eighty 24-inch square concrete piles (Figure 1-3), and 2) removal of up to twenty-four 24-inch square concrete piles and seven 24-inch octagonal concrete piles associated with the mooring wharf. For pile extraction actions, the piles would be removed using any of a number of methods, including vibratory extraction, high-pressure water jetting, hydraulic pile clipper, dead pull or a via a

combination of methods. While any of these pile extraction activities may occur as part of the project-related activities, vibratory pile extraction is the only activity expected to generate noise that would cross MMPA Level B (behavioral) harassment threshold criteria. This is the only pile extraction method that will be analyzed for potential impacts to marine mammals. Throughout the demolition phase, the following equipment would likely be used to remove, collect, and transport the demolition debris: a spud-anchored barge, a materials barge, barge and wharf cranes, one tugboat, mobile construction equipment, transport trucks, and scows (Navy 2016).

- Pile installation activities are anticipated to occur over 40 days and include: 1) installation and extraction of six 24-inch octagonal concrete piles for a Test Pile Program (TPP); 2) installation of eighty 24-inch octagonal concrete piles at the mooring wharf; and 3) installation of twenty-one 24-inch octagonal concrete piles associated with the Ramp Pier and Intermediate Support Structure for personnel and vehicle access to the FDD. Pile installation will occur via an impact pile driver, high-pressure water jetting, or a combination of both methods. While vibratory pile installation is not expected, if it is required to install piles, then monitoring protocols identified for vibratory pile extraction will be implemented.

All appropriate Best Management Practices (BMPs) would be implemented during demolition activities. For example, a system of floating rafts would be maintained under the demolition locations to capture any debris (Navy 2016). Additionally, concrete slurry from the cut operation would be vacuumed as saw cutting occurs (Navy 2016).

The above project design changes warranted renewals of the 2020 regulatory concurrences under the Endangered Species Act, the Magnusson-Stevens Fisheries Conservation and Management Act (MSFCMA), and the Coastal Zone Management Act. The project also required a consultation for project compliance with the Marine Mammal Protection Act. The details of the project's compliance with these regulations and consultation outcomes are presented below and throughout this Supplemental EA.

Dredging. The proposed dredging area at the Mole Pier – South Berth is divided into three subareas: Turning Basin (1.49 acres), Approach (2.76 acres), and Sump (5.73 acres) (see Figure 1-3). Dredging would be completed to depths up to -35 feet MLLW in the Turning Basin, -37 feet MLLW in the Approach, and -56 feet MLLW in the Sump. The Mole Pier – South Berth was originally dredged to -55 feet MLLW to facilitate the berthing of the USS STEADFAST (AFDM 14) (Navy 2018a), a floating dry dock previously used to repair Navy ships before it was relocated in 1998. Currently, the depths in the proposed dredging area range from -19 to -55.5 feet MLLW. As such, it is anticipated that dredging would involve removal of approximately 110,960 CY of sediment over a 9.98-acre area using a barge-mounted clamshell dredge. Because of the potential presence of munitions, and associated Explosives Safety Quantity- Distance (ESQD) arcs, dredging activities would be limited to nighttime (6:00pm to 6:00am).

Dredging activities would take approximately 90 days, with an average daily dredge volume of approximately 1,000 cy. As conservatively estimated, 20 workers would be required for the duration of dredging activities to transport, set up, and operate dredging equipment and sediment transport tugs and barges (personal communication from Alberto Sanchez 2019).

Future maintenance dredging may be necessary to maintain operational depth requirements. (*Maintenance dredging* refers to routine removal of accumulated sediment to maintain a desired depth. Maintenance dredging would not include any expansion of the previously dredged area or increase in depth.) The frequency of maintenance dredging would depend on sedimentation patterns, and any such maintenance dredging would be evaluated as a separate action and permitted with the appropriate regulatory agencies accordingly.

Dredging and sediment disposal would adhere to pertinent regulatory programs, including the MPRSA, CWA Sections 404 and 401, and RHA Section 10.

Dredge Sediment Disposal. The Suitability for Unconfined Aquatic Disposal Determination (SUAD) has been issued by the USEPA and USACE (Appendix D) based on the project sediment characterization and chemistry results (Appendix D). The SUAD approved 93,248 cy of project sediments for unconfined aquatic disposal. 17,712 cy of proposed dredge material do not meet allowable parameters for unconfined aquatic disposal and so will be required to be disposed of at an approved upland facility.

Ocean Disposal of Dredge Material. Ocean Disposal of 93,248 CY of project dredge material would involve loading the dredged sediment into barges and transporting it to LA-5 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 that is 5.4 nautical miles off the San Diego Coast (Navy 2014b). Based on the proposed construction schedule, the average daily dredging and disposal production rate is expected to be approximately 1,000 CY. Two 1,000-cy barges would be used to transport the dredged sediment to LA-5 ODMDS. 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 ODMDS restrictions prohibiting more than one barge onsite at a time. Round trip from NBSD to LA-5 ODMDS is expected to take approximately 12 hours (Navy 2014b). The barges would not be filled to their 1,000-cy capacity to avoid the potential for material releases. Further, the barges would be equipped with electronic tracking devices to document that material releases occurred within the disposal site boundaries specified in the dredging permit. The ocean disposal of dredged sediment is regulated under Section 103 of the MPRSA, and disposal operations would be required to comply with all applicable permitting and dredging regulations published in 33 CFR Parts 320–330 and 33 CFR Parts 335–338.

Upland Dredge Material Drying and Disposal. Upland Disposal of 17,712 cy of dredge material, deemed not suitable for unconfined aquatic disposal, would involve transporting dredged sediment via barge to an upland confined drying facility (CDF) at NBSD (e.g., the area located on the northern side of the Mole Pier, which has previously been used to offload dredged sediment). The final CDF size and exact location on the north side of the Mole Pier would be determined by NBSD Public Works prior to construction. Dredge materials requiring upland disposal and considered to be potentially hazardous will be screened for munitions and explosives of concern and radiological commodities, as necessary. Once the dredge material is adequately dried, it 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, screened, and then transported via 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 6,700 tons per day, and it does not have a daily truck count limit (CalRecycle 2019).

Proposed upland dredge material drying and disposal activities would occur over approximately 4-5 months and would begin when dredge materials that are unsuitable for aquatic disposal begin to arrive at the Mole Pier CDF.

Wharf and Pier Demolition Activities. Following the relocation of the USNS CURTISS (T-AVB) and associated hoteling facilities and prior to any demolition activities, an initial mooring wharf hazardous material surveys would be conducted. The existing facility is comprised of the following elements: a Dry Dock mooring wharf, a mechanical pier, an access pier, an electrical pier, and an isolated ramp pier located southeast of the mooring wharf. With the Proposed Action, the Ramp Pier would be replaced with a new structure to support vehicular access to the floating dry dock via a steel bridge supported on the offshore end of the ramp pier. The wharf is approximately 588 feet long and 53 feet wide, the mechanical pier is approximately 75 feet long and 53 feet wide, the electrical pier is approximately 21 feet long and 53 feet wide, and the access ramp pier that will be replaced is approximately 105 feet long and 23 feet wide. There is a landside quaywall and a revetment that is at an approximately 2:1 (horizontal to vertical) slope below the pier.

Pile demolition activities would occur over a period of 19 days at two primary locations: 1) the Mole Pier mooring wharf and 2) the Ramp Pier. The piles potentially removed at the mooring wharf would only be removed if they interfere with piles to be installed, while the whole of the Ramp Pier would be removed and replaced with a new pier. At both locations, the concrete pier deck would be saw cut longitudinally and transversely at mid-span of every bent, allowing for removal in large but manageable sections, with weights of less than 50 tons. While the section is rigged to the derrick crane, a hydraulic shearing tool attached to a barge-mounted excavator would be used to cut the piles just below pile cap. Once freed from the piles, the sections would be set onto a barge. Following the removal of the pier deck, the piles could be removed via multiple methods, including vibratory extraction, high-pressure water jetting, hydraulic pile clipper, dead pull or via a combination of methods. Up to fifty-two 24-by-24-inch square concrete piles and seven 24-inch octagonal concrete piles would be removed from within the mooring wharf and the Vehicle Access Pier. Throughout the demolition phase, the following equipment would likely be used to remove, collect, and transport the demolition debris: a spud- anchored barge, barge and wharf cranes, one tugboat, mobile construction equipment, a barge mounted excavator, hydraulic cutter or pile clipper, transport trucks, and work floats (Navy 2016).

Hazardous material surveys would be conducted prior to demolition to include testing for asbestos (i.e., pipes, gaskets, roofing material) and PCBs in the electrical switch station. Typical pier demolition activities progress bay-ward to landward and from the top down (Navy 2016). First, fender piles and exterior appurtenances (e.g., utilities) would be demolished above and below the pier deck. Fender piles would be disconnected from the wharf, extracted or sheared, and processed onsite for disposal or recycling. The concrete pier deck would be saw cut longitudinally and transversely at mid-span of every row of piles, allowing for removal in large but manageable sections, with weights of less than 50 tons. While the section is rigged to the derrick crane, a hydraulic shearing tool attached to a barge-mounted excavator would be used to cut the piles just below pile cap. Once freed from the piles, the sections would be set onto a barge. Following removal of the pier deck, a hydraulic cutter (or pile clipper) would

be lowered over each of the existing piles, allowing the pile to be cut at the mudline, removed by the crane, and set onto a barge (personal communication from Alberto Sanchez 2019).

Proposed wharf and pier demolition activities would occur over approximately 60 days and concurrently with the proposed ramp pier demolition activities.

All appropriate best management practices (BMPs) would be implemented during demolition activities (see Table 2-2). For example, a system of floating rafts would be placed under the demolition locations to capture any debris (Navy 2016). Additionally, concrete slurry from the cut operation would be vacuumed as saw cutting occurs (Navy 2016).

Several types of debris would result from the demolition activities, including concrete, steel, and asphalt. The Navy would comply with the Low-Impact Development Initiative requiring that all demolition projects that take place after 2011 to recycle and divert materials from local landfills to the maximum extent practicable. Materials appropriate for recycling, including concrete, steel, and asphalt, would be recycled. Materials that could not be recycled would be transported to a permitted landfill.

Table 2--1. Proposed Pile Extraction/Installation Activities at the South Berth of the Mole Pier.

Pile Location	*Pile Size/Type*	*Pile Extraction/ Installation Method*	*Piles/ Day*	*Number of Piles*	*Total Estimated Days*
Demolition (Pile Extraction) [1]					
Mooring Wharf	24-inch Square Concrete	-Vibratory Extraction -High-pressure Water Jetting -Hydraulic Pile Clipper -Dead Pull	5	24	5
	24-inch Octagonal Concrete			7	2
Ramp Pier	24-inch Square Concrete			28	6
TPP[2]	24-inch Octagonal Concrete		1	6	6
			Total Piles Removed	**65**	**19**
Construction (Pile Installation) [3]					
TPP[2]	24-inch Octagonal Concrete	-Impact Hammer -High-pressure Water Jetting	1	6	6
Mooring Wharf			3	80	27
Ramp Pier & Intermediate Support Structure				21	7
			Total Piles Installed	**107**	**40**
			Total In-Water Pile Extraction/Installation Days		**59**

Notes:

[1]While other methods of pile extraction are possible, vibratory extraction is the most likely method that will be used to extract piles. No Level A/B take analysis conducted on the other pile extraction methods.

[2]The TPP piles will be installed via an impact hammer prior to the production piles, re-struck for testing approximately one week later, and then extracted prior to the start of production pile installation. Piles will likely be extracted via a vibratory pile remover or dead-pulled.

[3]Impact pile installation is the most likely method that will be used to install piles. High-pressure water jetting may be used either separately from, or at the same time as, impact pile installation.

Wharf and Pier Construction Activities. Wharf and pier construction activities that would occur under the Proposed Action include; installation of mooring attachments, a utility tower, upgrades at the mooring wharf, (demolition of the existing ramp pier and), and construction of a new ramp pier with vehicle access bridge from the quay wall southeast of the Mole Pier to the FDD. The mooring attachments, also known as "grippers" are a prefabricated steel assembly that connects the floating dry dock to the mooring beam. The mooring grippers are a series of plates and stiffener pieces that are connected by pins and bolts. They are built and shipped with the floating dry dock and installed upon arrival. The three different grippers are expected to be lowered in place by a crane and bolted together. The installation of each gripper is expected to take 1 day.

Along with the mooring attachments, three 35 square foot maintenance platforms would be constructed as access points for regular maintenance. Each maintenance platform would be prefabricated off site, and brought to the site in several pieces, and then assembled to form a finished platform consisting of frame, base plate, grating and handrail, and a ladder. The assembled platform would be bolted to the facility's mooring beam using a small crane, and finished by hand with standard hand tools. This assembly process would take up to one day for each of the three platforms.

A utility tower would be constructed to provide an elevated resting point for the utility lines running from the mooring wharf to the dry dock. This 5' x 25' x 25' utility tower would support the slack in the utility lines needed to accommodate changing tides and ballasting operations. The utility tower would consist of four main steel tube members connected by smaller tube members and forming a truss. The tower would be prefabricated off site, and brought to the site in several pieces, and then assembled on site with the help of a small crane. Assembly of the utility tower is expected to take 3-5 days.

Similar to pile extraction activities, pile installation activities for the Project are primarily broken up into separate generalized actions: 1) installation and extraction of six 24-inch octagonal concrete piles for a Test Pile Program (TPP); 2) installation of eighty 24-inch octagonal concrete piles at the mooring wharf; and 3) installation of twenty-one 24-inch octagonal concrete piles associated with the Ramp Pier and Intermediate Support Structure for personnel and vehicle access to the FDD. Pile installation will occur via an impact pile driver, high-pressure water jetting, or a combination of both methods. While vibratory pile installation is not expected, if it is required to install piles, then monitoring protocols identified for vibratory pile extraction will be implemented.

Proposed wharf and pier construction activities (including all pier improvements and pile installation) would occur over approximately 140 days and concurrently with the switchgear station construction and other construction activities.

Existing improvements and structures that are not designated to be removed or replaced would be protected, including electrical and mechanical services. Work plans would be developed for equipment and procedures for careful removal and disposition of any salvageable materials. Salvageable items that are to be reused would be subject to the item(s) being in good condition and complying with the design criteria. Regulatory and safety requirements would be followed, including local hauling and disposal regulations and safety requirements. Temporary environmental controls provided in the specifications would also be followed. Hazardous material abatement would occur prior to demolition activities. Abatement activities would be performed by a qualified subcontractor that is licensed to perform hazardous material abatement. Abatement efforts would comply with permit requirements. Dust control and traffic control would be provided as required.

Upland/Mechanical Utility Demolition and Construction. The Proposed Action would require demolition and new construction of some upland mechanical utilities. Those actions within the upland construction area would include: removal and replacement of existing sewer pipe for sanitary waste and wash water and potable water utilities, removal and replacement of oil waste, steam and steam condensate piping, removal and replacement of pavement, installation of a new compressed air piping system, removal of pipe penetrations and repair of reinforced quay wall, removal of conflicting standard bolt down bollards on the mooring wharf, removal of the abandoned fire suppressions pumps, concrete pads, and curb stops on the mechanical pier and mooring wharf, and removal of conflicting concrete k-rail on the mooring wharf.

All site demolition and construction of the proposed upland/mechanical utilities would occur over approximately 190 days and concurrently with the other upland facilities and the mooring wharf construction activities.

Upland/Electrical Switch Station Demolition and Construction. Electrical distribution at the Mole Pier area is currently fed from the South Cummings Substation, however, the Proposed Action would require construction of a new electrical switch station building. Upland demolition and construction to support the new switch station would include demolition actions such as removal of any conflicting portions of existing utilities, gutters, and pavement within the footprint of the proposed electrical switch station building, excavation for switch station foundation pad installation, and hauling and disposal of excavation materials

Construction of the new electrical switch station building would include the following: trenching within the proposed building footprint, installation of any required new or relocated utilities, constructing a new concrete curb and gutter, construction of a concrete driveway for vehicular and equipment access from existing parking lot to the east of the proposed building, construction of sidewalks for pedestrian building access, landscaping and irrigation.

Site demolition and construction of the proposed switchgear station facility would occur over approximately 115 days and concurrently with the other upland facilities and the mooring wharf construction activities.

Existing improvements and structures that are not designated to be removed or replaced would be protected, including electrical and mechanical services. Work plans would be developed for equipment and procedures for careful removal and disposition of any salvageable materials. Salvageable items that are to be reused would be subject to the item(s) being in good condition and complying with the design criteria. Regulatory and safety requirements would be followed, including local hauling and disposal regulations and safety requirements. Temporary environmental controls provided in the specifications would also be followed. Hazardous material abatement would occur prior to demolition activities. Abatement activities would be performed by a qualified subcontractor that is licensed to perform hazardous material abatement. Abatement efforts would comply with permit requirements. Dust control and traffic control would be provided as required.

Upland Facilities Construction. The Proposed Action would include construction of upland facilities to include a two-story 9,506 square foot administrative and shop building, and a 9,203 square foot general storage shed. These project elements would be built at the northeast corner of Kidd Street and Mole

Road. The first floor of the administrative/shop building would be dedicated to shop space for welding and wood work, and the second floor would be dedicated to office space for administrative personnel. Construction of this building would include: a new foundation, slab, interior finishing, and utilities connections. The Proposed Action would also include an open-air asphalt parking lot. Proposed upland facilities work would also include relocation of the Crane and Rigging yard to Channel Lane on the north side of the Mole pier. The Crane and Rigging yard is currently located where the proposed administrative and shop building would be constructed. This relocation will centralize the cranes for improved installation access as well as co-locate mobile crane and floating crane activities.

Construction of the proposed upland facilities would occur over approximately 240 days and concurrently with the other mooring wharf construction activities and upland improvements.

Mole Pier Floating Dry Dock Berthing. A floating dry dock is being procured by NAVSEA PMS 300. The dry dock would have no caissons and would be open at both ends allowing water to wash through the dry dock as it is lowered and raised.

The dry dock would be fabricated at a shipyard In Mobile, Alabama, and then heavy-lifted over an estimated maximum of 75-90 day period from the southern United States down around South America and then north to the waters off shore of San Diego, California. The weather window would be closely monitored prior to the dry dock's arrival to San Diego Bay. If there is an issuance of a Sea State Level 2 or greater, then the floating dry dock would not be allowed to enter San Diego Bay. An emergency contingency plan would be developed, and standby emergency equipment and/or materials would be readily available if required.

After arrival off shore of San Diego, it is expected that the dry dock would be floated off the heavy lift vessel outside of San Diego Bay but within approximately 1-3 miles of the bay approach buoy. Once floated off the heavy lift vessel, a single 6,000-10,000 hp tug would assume the role of towing the dry dock, and an additional 4 tugs, from 1,000-6,000 hp each, would provide ship assistance and escort services through San Diego Bay to the Mole Pier site. It is expected that 4-8 hours will elapse from the time the dry dock is floated off the heavy lift vessel until it arrives at the Mole Pier. Additional Coast Guard and Navy small boats will provide security and escort services and arrangements will be made to temporarily close the channel to commercial traffic as the dry dock is brought to NBSD.

Once the dry dock has arrived at the project site approximately one to two weeks of mobile crane support, minor welding and painting are expected to be required. The dry dock would arrive at the project site fully assembled but installation of the vehicle ramp, pedestrian ramps, and a few small platforms are expected to be required. A crew of approximately 12 staff (e.g., experienced ship handlers, riggers, dockhands, and crane operators) would be required for berthing activities at the Mole Pier project site.

2.2 Alternative Screening Factors

CEQ Regulations for Implementing NEPA provide guidance for considering alternatives to a Federal action and require rigorous exploration and objective evaluation of reasonable alternatives. The Proposed Action still meets the Alternative Selection Screening Factors presented in Section 2.2 of the

2020 Final EA, and those specific factors and their applicability to the Proposed Action are not re-analyzed in this Supplemental EA.

2.3 Alternatives Carried Forward for Analysis

This Supplemental EA will analyze one action alternative: Berthing and Operation of a Floating Dry Dock at the Mole Pier – South Berth. Three action alternatives plus the No Action alternative listed below were previously analyzed in the 2020 Final EA for the Floating dry Dock Project at Naval Base San Diego.

- No Action Alternative. No revisions to this action exist and this alternative is not re-analyzed in this Supplemental EA.
- Berthing of a Commercial Outlease (COL) floating dry dock at the south edge of NBSD near the existing MGBW maintenance piers. This alternative was already approved for construction and is under construction, and it is not re-analyzed in this Supplemental EA.
- Berthing of both the Navy's floating dry dock at the Mole Pier – South Berth site, and of a COL at the south edge of NBSD near the existing MGBW maintenance piers. The COL out lease dry dock near the existing MGBW maintenance piers was previously approved and is under construction as of 2023. While the two dry dock alternative isn't carried through the Supplemental EA, this Supplemental EA analyzes the Mole Pier - South Berth facility and presumes preceding construction impacts of COL floating dry dock facility.
- Berthing and Operation of a Floating Dry Dock at the Mole Pier – South Berth. This is the Proposed Action. Under this alternative dredging and aquatic and upland dredge material disposal would occur, followed by demolition and construction of the proposed dry dock facilities. In 2025 a floating dry dock would transit from Alabama to San Diego, California and then be berthed at NBSD, after which dry dock operations (ship maintenance) would start.

2.4 Best Management Practices Included in the Proposed Action

This section presents an overview of the Best Management Practices (BMPs)/Avoidance and Minimization Measures that are incorporated into the Proposed Action in this document. BMPs are existing policies, practices, and measures included in the action to reduce 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; 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. Additional avoidance and minimization measures specific to the Proposed Action are discussed separately in Chapter 3.

Table 2--2. Best Management Practices/Avoidance and Minimization Measures

BMP	*Description*	*Impacts Reduced/Avoided*
Pre-Construction *Caulerpa* Survey	A pre-construction *Caulerpa* survey will occur for sediment disturbing activities per the *Caulerpa* Control Protocol.	Potential spread of invasive *Caulerpa* associated with bottom-disturbing activities and/or transport of dredged sediments.
IR Site 2D Land Use Controls	Land Use controls for IR Site 2 D shall be followed including coordination with the Installation Restoration Program (IRP) prior to soil disturbance, adherence to contractor's site safety and health plans, and adherence to precautions related to contamination in shallow soil (HAZWOPER) training, Personal Protective Equipment (PPE), Photoionization Detector (PID), and dust suppression.	Potential uncontrolled contact with contaminants, potential release of contaminants.
FDD Transport: -Regulatory Coordination	Meetings will be held with the U.S. Coast Guard, and San Diego Bay Pilots to plan for the arrival of the floating dry dock in San Diego Bay. A Notice to Mariners will also be sent prior to the arrival of the floating dry dock	Potential transportation conflicts within San Diego Bay.
FDD Facilities Preparation: -Migratory Bird Surveys	Prior to construction a project area survey for migratory birds will be completed.	Potential airborne noise impacts on migratory bird species.
FDD Facilities Preparation (Dredging, Pile Extraction & Installation): -Compliance with Explosives Safety Requirements	Munitions may be present in the dredged bay sediments; these materials could present an explosives safety hazard. To mitigate this hazard, the contractor will comply with an ESS DR in accordance with Naval Ordnance Safety and Security Activity (NOSSA) requirements. Dredging would not begin without NOSSA and/or U.S. Department of Defense Explosives Safety Board approval of the ESS or ESS DR.	Potential public health and safety impacts associated with munitions.

BMP	*Description*	*Impacts Reduced/Avoided*
FDD Facilities Preparation (Dredging): -Water Quality Monitoring -Silt Curtain Controls Measures -Vessel Grounding Prevention	Water Quality Monitoring Measures During dredging work water sediment disturbing activities would comply with water quality monitoring standards per a standard operating procedure (SOP) established with the Regional Water Quality Control Board. If water quality exceedances occur silt curtains would be deployed as described below. If required, the following Silt Curtain Controls would be employed Deploy and maintain a continuous length of silt curtains, installed and maintained fully surrounding active dredging activities including any dredge equipment and scow, material loading, decanting discharges, and/or overnight storage of scow(s) containing dredge material in conformance with the following requirements: Silt curtains must be maintained as a full turbidity enclosure and supported by floating debris booms in open water areas such as along the bayward side of the dredging areas. Along pier edges silt curtains may be connected to the pier structure. The silt curtains would be comprised of Type III geotextile material to restrict the surface visible turbidity plume or surface debris to the area of dredging to control and contain the migration of re- suspended sediments or debris at the water surface and at depth. The bottom of the silt curtains would be weighted with ballast weights or rods affixed to the base of the fabric to resist the natural buoyancy of the silt curtain fabric and lessen its tendency to move in response to currents. The silt curtains would extend from San Diego Bay surface into the water column. Where feasible and applicable, the floating silt curtains would be anchored and deployed from the surface of the water to just above the substrate. If necessary, silt curtains with tidal flaps would be installed to facilitate curtain deployment in areas of higher flow. Air curtains may be used in conjunction with silt curtains to contain re-suspended sediment, enhance worker safety, and allow barges to transit into and out of the work area without the need to open and close silt curtain gates. Silt curtains must be monitored for damage, dislocation	Potential impacts to San Diego Bay water quality during dredging activities

BMP	*Description*	*Impacts Reduced/Avoided*
	or gaps and must be immediately repaired where it is no longer continuous or where it has loosened. Silt curtains would be monitored for damage, dislocation or gaps and be immediately repaired where it is no longer continuous or where it has loosened. Silt curtain would not be removed until visible turbidity plumes dissipate and/or surface debris is skimmed and removed. <u>Vessel Grounding Prevention</u> Vessel draft and movements will be controlled by the contractor to limit potential for grounding.	
FDD Facilities Preparation (Dredging): -Debris Control	A cable net and a system of floating rafts will be deployed to capture debris that could fall into the water during demolition activities and debris will be collected and disposed of at an approved on-shore location.	Potential water quality impacts associated with uncontrolled construction and demolition debris.
FDD Facilities Preparation (Dredging): -Nighttime Dredging	Dredging operations will take place between 6:00 p.m. and 6:00 a.m.	Potential impacts associated with munitions and ESQD arcs.
FDD Facilities Preparation (Dredging): -Dredge Material Screening	Dredge materials requiring upland disposal and considered to be potentially hazardous will be screened for munitions and explosives of concern and radiological commodities, as necessary.	Potential safety issues associated with upland dredge material disposal.
FDD Facilities Preparation (Dredging): -Dredge Depth Limit and Area Limits	Dredge passes will start near the shoreline and move toward deeper water to minimize suspended sediments by reducing sloughing toward open water. The contractor will not be allowed to excavate beyond the overdredge depth or outside of the project area limits. The contractor will not be allowed to overdredge beyond the designed side slopes. No bottom stockpiling or multiple bites of the clamshell bucket will be allowed.	Potential water quality impacts associated with dredge and transport of materials outside the project area.
FDD Facilities Preparation (Dredging & Dredge Materials Disposal): -Water Quality Controls	During transport and handling of sediment, containment measures will be used to minimize spillage. 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 impacts to water quality from releases during dredging and dredge material disposal actions.

BMP	*Description*	*Impacts Reduced/Avoided*
	Material will not be allowed to leak from the bins or overtop the walls of the barge/scow. The barge/scow will not be filled beyond 85 percent capacity. Spill control and response measures (e.g., spill kits) will be implemented during dredging, transport, and disposal. Sediment will be controlled when on board vessels to minimize spillage during transport. Dredge bucket depth of excavation, swing length, and fill amount will all be limited. The dredge bucket will be swung directly to the barge after it breaks the water surface using the minimal swing distance. Pumping equipment will be inspected prior to pumping to ensure that no leaks in pumping equipment or hosing exist. The contractor will use only clean construction materials suitable for use in the oceanic environment. The contractor will ensure that no debris, soil, silt, sand, sawdust, rubbish, cement or concrete washings thereof, pollutants, or oil or petroleum products from construction are allowed to enter into or be placed where they may be washed by rainfall or runoff into waters of the U.S. Upon completion of the project authorized, any and all excess material or debris will be completely removed from the work area and disposed of in an appropriate upland site. Uncured concrete will be poured into water-tight forms and not be allowed to overtop forms. Subject to the terms and conditions identified in all applicable project-specific permits, the Navy will deploy precautionary measures to alleviate turbidity associated with demolition and construction activities. The contractor will position a barge, where necessary, to capture and contain large debris associated with required demolition activities (e.g., concrete pier	

BMP	*Description*	*Impacts Reduced/Avoided*
	decking). A debris boom will be installed around active dredging to facilitate collection and proper disposal of any debris accidentally discharged during construction. 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. The contractor will be required to conduct a surface debris survey prior to dredging.	
FDD Facilities Preparation (Dredging & Dredge Materials Disposal): -Protected Marine Species Interactions	*Project Site* <u>General</u> Vessel operators will follow designated speed zones to and from the project site. The project would use qualified biological monitors during all Project activities to detect the presence of protected species and implement monitoring zones. To avoid direct contact between equipment and turtles and potential injuries, if a turtle is seen within 66 feet (20 meters) of the Project Area while any work is in progress, then all Project activities will immediately cease. Under this assessment, 66 feet (20 meters) represents the maximum range of direct contact with equipment and serves as the shutdown zone. Work will only commence once the turtle has left the Project Area out to appropriate zones for various activities or 15 minutes has elapsed from the last sighting in the area. If any protected marine species (e.g., marine mammal or sea turtle) is observed within the silt curtain, dredging activities will be delayed/halted, and the NBSD biologist (Michelle Maley [619-705-5567]) will be notified. If the animal cannot be freed, the NBSD biologist will notify the West Coast Stranding Response Team (Justin Viezbicke, California Stranding Network Coordinator [562-980-3230] or Justin Greenman, Assistant Stranding Network Coordinator [562-980-3264]). <u>Sea Turtles</u> Sufficient lighting will be used to illuminate the entire project area. A standard monitoring distance of 427 feet (130 meters)	Potential impacts on protected marine species during dredging and dredge materials disposal.

BMP	*Description*	*Impacts Reduced/Avoided*
	will be implemented 15 minutes before and during all dredging activities, and after a break of more than 30 minutes. The monitoring distance for dredging activities is 427 feet (130 meters). If a turtle is seen within 427 feet (130 meters) of the project area prior to dredging, the activity will not commence until the animal has moved out of the area or at least 15 minutes has passed since the last sighting. If a turtle is seen within 66 feet (20 meters) of the Project Area while dredging is in progress, then all Project activities will immediately cease. Work will only commence once the turtle has left the Project Area out to 427 feet (130 meters) or 15 minutes has elapsed from the last sighting in the area. <u>Marine Mammals</u> A 66 feet (20 meters) work shutdown zone will be implemented to minimize the potential for physical interaction with work-related activities. *Dredge Disposal Site (LA-5 Ocean Dredged Material Disposal Site)* <u>Marine Mammals and Sea Turtles</u> During dredge disposal, a monitoring distance of 328 feet (100 meters) will be implemented 15 minutes prior to, and during, sediment disposal If a protected marine species is observed within the 328 feet (100 meters) zone prior to release of the dredge spoils, the release will be delayed until either the animal has left the zone, or 15 minutes has elapsed from the last sighting in the area	
FDD Facilities Preparation (Dredge Materials Disposal): -GPS Barge Locator Requirement	The contractor will use a GPS to ensure that material is removed from and deposited in the correct locations.	Potential water quality impacts associated with dredge and transport of materials outside the project area.
FDD Facilities Preparation (Pile Extraction & Installation): -Protected Marine Species Interactions	<u>General</u> Vessel operators will follow designated speed zones to and from the project site. The project would use qualified biological monitors during all Project activities to detect the presence of protected species and implement monitoring zones.	Potential impacts on protected marine species during Pile Extraction and Installation.

BMP	*Description*	*Impacts Reduced/Avoided*
	Ramp-up procedures will be implemented to slowly increase the intensity of pile driving to allow undetected turtles in the area an opportunity to move away. Prior to the start of impact pile driving each day, or after each break of more than 30 minutes, a "soft-start" procedure will be used (i.e., three reduced energy hammer blows separated by 30 seconds). The procedure allows any animals in the area to voluntarily depart after brief exposures to Project-related noise. <u>Sea Turtles</u> A standard monitoring distance of 427 feet (130 meters) will be implemented before and during all pile driving activities and after a break in pile driving of more than 30 minutes. If a turtle is seen in the Project Area out to a distance of 427 feet (130 meters) prior to pile driving, the activity will not commence until the animal has moved out of the area or at least 15 minutes has passed since the last sighting. If a turtle is seen within the 427 feet (130 meters) zone after pile driving has commenced, the Navy may continue driving that pile to completion, as long as that turtle is not within 66 feet (20 meters) of the Project work area. The Navy may not initiate the driving of another pile until at least 15 minutes has passed since the last sighting or the turtle is observed outside of the 427 feet (130 meters) zone. <u>Marine Mammals</u> Monitoring zones will be established to identify whether a marine mammal has been exposed to noise that crosses regulatory thresholds and would constitute MMPA Level B Take. Shutdown zones of from 33 feet (10 meters) to 197 ft (60), depending on the species and the pile size/type, will be implemented to reduce the potential for exposure to noises that cross MMPA Level A regulatory thresholds. A 33 feet (10 meters) work shutdown zone will be implemented to minimize the potential for physical interaction with work-related activities.	

BMP	*Description*	*Impacts Reduced/Avoided*
FDD Operations: -Protected Marine Species Interactions	To reduce the potential for wildlife interaction in the FDD Prior to raising the FDD from a lowered position, and during the raising process, the inside of the FDD will be surveyed for any protected marine species (e.g., marine mammal or sea turtle). If any protected marine species (e.g., marine mammal or sea turtle) is observed inside of the FDD during operations, FDD personnel will immediately notify the NBSD biologist (Michelle Maley [619-705-5567]). If the animal cannot be freed, the NBSD biologist will notify the West Coast Stranding Response Team (Justin Viezbicke, California Stranding Network Coordinator [562-980-3230] or Justin Greenman, Assistant Stranding Network Coordinator [562-980-3264]); and the Navy will notify NMFS regional Protected Resources office of incidents within 24-48 hours, for awareness. The Navy will notify NMFS regional Protected Resources office of incidents within 24-48 hours, for awareness.	Potential wildlife Interaction risks to wildlife from FDD operations.
FDD Operations: -Reduction of impacts to Fish and EFH	Dry dock raising will be conducted in a manner that allows gravity evacuation of water from within the FDD without constraining netting or barriers that would entrain fish.	Potential impacts to fish and EFH associated with FDD operations.
FDD Operations: -Water Quality Protection Measures.	There will be no discharge of oils, fuels, or chemicals to surface waters, or onto land. Fuel hoses, oil drums, oil or fuel transfer valves, fittings, etc., will be checked regularly for leaks. Materials will be maintained and stored properly to prevent spills. No cleaning chemicals or solvents will be discharged onto land or surface waters. Dry docks will be swept to a broom clean condition and inspected prior to lowering into the water. Inspection of dry dock cleaning will occur prior to lowering into the water; this includes inspecting the dock for general cleanliness and inspecting the dry dock for any debris or materials that may become dislodged during maintenance and repair activities. Prior to flooding, Environmental Staff will inspect the dock for general cleanliness, and the Docking Officer and Dockmaster will inspect the dock for debris and anything that may become dislodged during maintenance and repair activities, (i.e., deteriorated concrete or piping along the dry dock walls).	Potential water quality impacts during dry dock evolutions.

BMP	*Description*	*Impacts Reduced/Avoided*
	Conduct routine inspection, at least annually, to ensure dry dock sumps and outfalls are cleaned (i.e., sediment removal), as necessary. After a vessel has been removed from the dry dock, if the keel and bilge blocks are repositioned, the remaining areas of the dry dock floor (which were previously inaccessible) must be cleaned prior to lowering the dry dock into the water.	

Abbreviations:

BMP = best management practice
ESQD = Explosives Safety Quantity-Distance
GPS = Global Positioning System

3 Affected Environment and Environmental Consequences

This chapter presents a description of the environmental resources and baseline conditions that could be affected by the implementation of the Proposed Action and an analysis of the potential direct and indirect effects.

All potentially relevant environmental resource areas were initially considered for analysis in this Supplemental EA. In compliance with NEPA, and CEQ and Navy guidelines, the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental 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 greater region 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 must be to be considered significant. Likewise, the less sensitive the context, the more intense a potential impact would be expected to be significant. In that sense context is also directly related to cumulative impacts.

The potential impacts on the following resource areas are considered to be negligible or nonexistent, so they were not analyzed in detail in this Supplemental EA:

Geological Resources: The berthing and operation of a floating dry dock, including all required dredging and sediment disposal as well as all required demolition and construction activities, would not result in adverse impacts on geological resources. Most of the proposed activities would occur within previously developed or disturbed areas of San Diego Bay and Naval Base San Diego. Dredging would not result in impacts on geology and topography, particularly at the south berth of the Mole Pier, because this area was previously dredged to -55 feet MLLW to support the USS STEADFAST (AFDM 14) (Navy 2018a). 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 berthing of a floating dry dock at the Mole Pier – South Berth would comply with all applicable provisions of the Unified Facilities Criteria and would incorporate BMPs, specifically addressing susceptibility to geological/seismic hazards (e.g., overdredge limit); therefore, with these design considerations incorporated, installation of a floating dry dock at Mole Pier – South Berth would result in negligible impacts on topography, geology, and soils.

Cultural Resources: The construction and operation of the Proposed Action would not affect any archaeological sites or other cultural resources, because none occur within the Area of Potential Effect, as defined under the Programmatic Agreement between the Commanding Officer Naval Base San Diego (CONBSD) and the California State Historic Preservation Officer regarding NBSD Undertakings, San Diego County, California (Navy 2014c). Consistent with Stipulation 6.A of the CONBSD Programmatic Agreement, because the Mole Pier – South Berth site is more than 325 feet (100 meters) from the nearest identified

historic properties, including the Naval Station San Diego Historic District (revised 2007) and individually eligible Dry Dock No. 1, the Area of Potential Effect is defined as the discrete site of the undertaking and any associated staging or laydown areas.

The Area of Potential Effect under the Proposed Action consists of an approximately 9.98-acre dredge area for the proposed FDD, an area of approximately 4.15 acres along the Mole Pier - South Berth for construction of utilities and upland facilities, and an area of approximately 3.0 acres for construction laydown. In addition, an area of approximately 4.0 acres on the north side of the Mole Pier would be used as a temporary confined drying facility for dredge material bound for upland disposal. The dredge area consists of disturbed bay bottom that was previously dredged to -55 feet MLLW to support the USS STEADFAST (AFDM 14) (Navy 2018a). Adjacent upland areas were created by backfilling tidelands with excavated material. Given the development history associated with the Mole Pier, the potential for presence of buried archaeological resources (including shipwrecks) to either occur or to be adversely affected by the Proposed Action is precluded.

Consistent with Stipulation 8.A of the CONBSD Programmatic Agreement, the Proposed Action qualifies for a determination of "No Historic Properties Affected," in accordance with 36 CFR Section 800.4 (d)(1). Therefore, the Proposed Action at the Mole Pier – South Berth would not result in a significant impact on cultural resources.

Land Use: The 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 under which participating states 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 are to be carried out in a manner that is consistent with the maximum extent practicable with the enforceable policies of the approved state management plans. 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 that are held in trust by the Federal government (16 U.S.C. Section 1453).

Although NBSD land is government-owned property, and is excluded from the coastal zone, the Navy has conducted an analysis of each alternative's reasonably foreseeable future direct and indirect effects on coastal uses and resources.

The Mole Pier is currently used for the transit, berthing, and repair of vessels among other general marine, industrial, and military uses characteristic of NBSD. Public access, including coastal recreation, is restricted at the Mole Pier site because it is within a Federal defense installation. Recreation within the surrounding areas of NBSD is similarly restricted because of safety and AT/FP concerns. As such, berthing and operation of a floating dry dock at the Mole Pier – South Berth would be consistent with existing and ongoing uses within the surrounding areas of NBSD and would therefore neither directly affect nor further restrict access to, or use of, the area to the public at large.

The effects to coastal resources in the coastal zone are further analyzed in Sections 3.2.3 (Water Resources) and 3.3.3 (Biological Resources). Effects to visual resources would be consistent with the surrounding industrial nature of the area. The construction and operation of a floating dry dock under the Proposed Action would have no adverse effects on coastal resources. The Navy has submitted a

renewal of the project's Coastal Consistency Negative Determination (ND-0031-19) (Appendix E) in compliance with CZMA and received the Coastal Commission's concurrence on 5 September 2023.

Berthing and operation of a floating dry dock at the Mole Pier – South Berth site would continue the existing naval operations and land use there. No land use compatibility issues or conflicts would occur. The proposed dredge material disposal locations, LA-5 ODMDS and the Otay Landfill, are permitted for and currently operate as receiving sites for dredged sediments. As such, potential use of any of these locations is consistent with current land use designations and is compatible with ongoing activities. No land use impacts would occur.

Visual Resources: There would be no significant changes to the existing views from the berthing and operation of a floating dry dock at the Mole Pier – South Berth. Views to and from NBSD would remain consistent with the military and industrial nature of the surrounding area. Dredging operations would last for a period of up to 90 days. Such activities are common and consistent with both existing military and civilian waterfront and in-water activities, which include frequent and ongoing dredging operations. Each of the proposed disposal locations, LA-5 ODMDS, and the Otay Landfill, are permitted for and currently operate as receiving sites for dredged sediments. As such, potential use of any of these locations is consistent with existing visual resources. Demolition and construction activities, including dredging, could last for a total of up to 15 months after which dredging equipment, demolition and construction equipment would all be removed. The visual character of the operational floating dry dock would be similar to its surroundings in terms of size and industrial character. As such, the Proposed Action would not introduce a new or conflicting visual element to the viewshed. Neither short- nor long-term impact on visual resources would occur as a result of installation of a floating dry dock at the Mole Pier – South Berth.

Airspace: There would be no changes to local air traffic in the vicinity of NBSD, including at Naval Air Station North Island and San Diego International Airport, from dredging, waterfront construction, and berthing of a floating dry dock at the Mole Pier – South Berth. Construction and operation of the floating dry dock facility would neither create any obstructions to the safe operation of aircraft nor necessitate substantial increases in military or civilian air traffic.

Infrastructure: The Proposed Action includes all utility and infrastructure upgrades and facilities needed to support operation of a floating dry dock at the Mole Pier - South Berth. Proposed mechanical and electrical utility upgrades are described in Chapter 2 of this Supplemental EA. It is anticipated that industrial power mounds would be installed, and electrical lines would be extended to the new mounds, so that contractors could bring in their own electrically powered equipment, including compressed air units during construction (Navy 2018a). The Proposed Action is designed to be self-supporting in terms of utilities and infrastructure and would not cause the need for increases in utility capacities or public services.

Otay Landfill, a permitted and existing dredged sediment disposal location where upland dredge material disposal would likely occur, has a maximum permitted disposal rate of 6,700 tons per day (CalRecycle 2019). Upland dredge material disposal, transport of suitably dried sediment from NBSD, would be metered to ensure that it would not exceed the Otay Landfill permitted disposal rate. No impacts on dredge disposal capacity at this facility would be caused by the Proposed Action's relatively small dredge volume.

Public Health and Safety: 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: 1) make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and 2) ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks (62 Federal Register 19885). The area to be dredged (located offshore of the Mole Pier) is not occupied by any residents (including children) or located within proximity of facilities where children congregate (e.g., schools, daycare centers, playgrounds, etc.). The demolition and construction phases would take place within a secure area not accessible to the general public and remote from facilities where children congregate. Given the secure location of the project site, the berthing of a floating dry dock at the Mole Pier – South Berth would not expose people – including children – to either environmental health risks or safety risks.

The contractor would be required to comply with safety requirements of the Occupational Safety and Health Administration, the most recent versions of USACE EM 385-1-1 Safety and Health Requirements (USACE 2014), and multiple other Naval Facilities Engineering Command Southwest and Navy health and safety instructions. Dredging would be completed to the required depth and would be sloped so that the structural integrity of the pier and quay walls would be maintained and would not affect the stability of the Mole Pier.

Munitions may be present in the dredged bay sediments; these materials could present an explosives safety hazard. To mitigate this hazard, the contractor will comply with established NBSD Explosive Safety Submission (ESS) requirements as mandated by the Naval Ordnance Safety and Security Activity (NOSSA):

- Explosives Safety Submission (ESS) Requirements Anticipated – Medium/High likelihood of encountering MEC/MPPEH.
- MEC Awareness Training (3Rs) required for all personnel
- Shielding required for essential (project) personnel
- Unexploded Ordnance (UXO) Technicians observe screening operations and debris handling
- Exclusion zones required to prevent non-essential personnel from entering explosive safety arcs on the dredge and at the CDF
- Dredging required at night to minimize non-essential personnel in exclusion zone
- All upland disposal sediment required to be screened to 0.75 inch to remove munitions 20 millimeters (mm) or greater (e.g., high explosives)
- All ocean disposal sediment required to be screened to 12 inches
- Third Party Quality Assurance required
- If munitions are found, project continues following the ESS and may include intentional detonation

Dredging would not begin without NOSSA and/or U.S. Department of Defense Explosives Safety Board approval of the ESS. These requirements and regulations address the potential risks to health and safety and would be followed; therefore, impacts on public health and safety would not be significant.

Socioeconomics and Environmental Justice: Dredging activities as well as demolition and construction activities associated with dredging, mooring wharf demolition and construction, and berthing of a floating dry dock at the Mole Pier – South Berth site would be temporary in nature and would generate short-term spending and employment opportunities. This work would result in beneficial impacts on the local economy; however, these impacts would negligible in the context of the regional San Diego economy. Similarly, over the long term, the floating dry dock would be staffed by up to 40 ship repair and maintenance workers, and upland dry dock facilities would be staffed by 41 personnel. This increase in employment would also be negligible on a regional scale.

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 on its programs, policies, and activities on minority populations and low-income populations" (59 Federal Register 7629). The berthing of a floating dry dock at the Mole Pier – South Berth would not substantively affect either human health or the environment. Proposed dredging would occur within NBSD property boundaries; and transport of dredged sediments would occur within San Diego Bay and the Pacific Ocean. Installation of the floating dry dock would occur on submerged Federal lands, and dredge material disposal would occur over open water. No permanent populations – minority, low-income, or otherwise – would be significantly affected. Therefore, there would be no disproportionate environmental or health impacts on low-income populations or minority populations per EO 12898 from berthing of a floating dry dock facility at the Mole Pier – South Berth.

3.1 Air Quality/Climate Change

This discussion of air quality includes criteria pollutants, standards, sources, permitting, and greenhouse gases (GHGs). 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 neither VOCs nor NO_x (other than nitrogen dioxide [NO_2]) have established ambient standards, they are important as precursors to O_3 formation.

The Region of Influence (ROI) for this air quality analysis is the entire San Diego Air Basin (SDAB), which encompasses San Diego County.

3.1.1 Regulatory Setting

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), NO_2, O_3, PM_{10}, $PM_{2.5}$, and lead. CO, SO_2, lead, and some particulates are emitted directly into the atmosphere from emissions sources. O_3, 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) for these pollutants (40 CFR Part 50). 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 both short- and long-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 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 Ambient Air Quality Standards (CAAQS) and NAAQS for the proposed floating dry dock.

3.1.1.2 Mobile Sources

Hazardous air pollutants 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 hazardous air pollutants that require regulation. A subset of six of the MSAT compounds was identified as having the greatest influence on health and consisted of benzene, butadiene, formaldehyde, acrolein, acetaldehyde, and diesel particulate matter. USEPA issued a second MSAT Rule in February 2007, which generally supported the findings in the first rule and provided additional recommendations of compounds with the greatest impact on health. The rule also identified several engine emission certification standards that must be implemented (40 CFR Parts 59, 80, 85, and 86; 72 Federal Register 8428). Unlike the criteria pollutants, there are no NAAQS for benzene and other hazardous air pollutants. The primary control methodologies for these pollutants for mobile sources involve 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 ton[s] 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 whether a Federal action must be supported by a conformity determination. This assessment is typically done by quantifying projected applicable direct and indirect emissions from implementation of the Federal action. Indirect emissions are those emissions caused by the Federal action and originating in the region of interest, but that 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 because of a continuing program responsibility of the Federal agency. Reasonably foreseeable emissions are projected future direct and indirect emissions that are identified at the time of the conformity evaluation. 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 review of 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--1. California and National Ambient Air Quality Standards.

Pollutant	*Averaging Time*	*CAAQS[1]*	*NAAQS[2]*	
			Primary	*Secondary*
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)	--	
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)	
NO_2	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	53 ppm (100 µg/m^3)	Same as Primary Standard
	1-hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	---
SO_2	Annual Arithmetic Mean	---	0.30 ppm (for certain areas)	---
	24-hour	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)	---
	3-hour	---	---	0.5 ppm (1,300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (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 µg/m^3	15.0 µg/m^3
	24-hour	---	35 µg/m^3	Same as Primary Standard
Sulfates	24-hour	25 µg/m^3	---	---
Lead	30-day average	1.5 µg/m^3	---	---
	Calendar quarter	---	1.5 µg/m^3 (for certain areas)	Same as Primary Standard
	Rolling 3-month average	---	0.15 µg/m^3	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	---	---
Vinyl Chloride (chloroethene)	24-hour	0.01 ppm (26 µg/m^3)	---	---

Notes:

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.

Not to be exceeded more than once a year except for annual standards.

Abbreviations:

--- = Not Applicable

µg/m^3 = microgram(s) per cubic meter

CAAQS = California Ambient Air Quality Standards

CO = carbon monoxide

mg/m^3 = milligram(s) per cubic meter

NAAQS = National Ambient Air Quality Standards

NO_2 = nitrogen dioxide

O_3 = ozone

$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter

PM_{10} = particulate matter less than or equal to 10 microns in diameter

ppb = part(s) per billion

ppm = part(s) per million

SO_2 = sulfur dioxide

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

Pollutant	*Area Type*	*Tons per Year*
O_3 (VOC or NO_x)	Extreme nonattainment	10
	Severe nonattainment	25
	Serious nonattainment	50
	Other areas outside an O_3 transport region	100
O_3 (NO_x)	Marginal and moderate nonattainment inside an O_3transport region	100
	Maintenance	100
O_3 (VOC)	Marginal and moderate nonattainment inside an O_3transport region	50
	Maintenance within an O_3 transport region	50
	Maintenance outside an O_3 transport region	100
CO, 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	All nonattainment and maintenance	25

Abbreviations:

CFR = Code of Federal Regulations
CO = carbon monoxide
NO_2 = nitrogen dioxide
NO_x = nitrogen oxides
O_3= ozone
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter
PM_{10} = particulate matter less than or equal to 10 microns in diameter
SO_2 = sulfur dioxide
VOC = volatile organic compound

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 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 (mg/m^3) or more. Navy installations are required to comply with applicable permit requirements under the PSD program per 40 CFR Section 51.166.

3.1.1.5 State Regulations

The California Air Resources Board enforces air pollution regulations and sets guidelines to attain and maintain the NAAQS and 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 practicable 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. The California Air Resources Board delegates the authority to regulate stationary source emissions to local air quality management districts and 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 San Diego Air Pollution Control District (SDAPCD) is the local agency responsible for enforcement of air quality regulations in the region.

3.1.1.6 Local Regulations

The SDAPCD is responsible for regulating stationary sources of air emissions in the SDAB. SDAPCD Rules and Regulations (SDAPCD 2018) establish emission limitations and control requirements for stationary sources based on source type and magnitude. The SDAPCD and the San Diego Association of Governments (SANDAG) 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 SDAPCD's input to the SIP. The federal Clean Air Act, enforced through US EPA Rules and SDAPCD Rule 1501, requires that Federal actions be consistent with the SIP, meaning that they do not interfere with achievement and maintenance of NAAQS.

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.

On August 1, 2016, CEQ, published Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Reviews (CEQ, 2016), which recommends that agencies consider both the potential effects of a proposed action on climate change, as indicated by its estimated GHG emissions, and the implications of climate change effects on a proposed action. The guidance counsels agencies to use the information developed during the NEPA review to consider alternatives that would make the actions and affected communities more resilient to the effects of a changing climate and outlines special considerations for agencies analyzing biogenic carbon dioxide sources and carbon stocks associated with land and resource management actions under NEPA.

EO 14008, Tackling the Climate Crisis at Home and Abroad (Federal Register Vol 86, No. 19, pp. 7619-7633, 2021) instructs agency heads to prepare Climate Action Plans for their agency operations. The Department of the Navy Climate Action Plan (Navy, 2022c) details the Navy goals to meet the requirements of EO 14008 and EO 14057, Catalyzing Clean Energy Industries and Jobs through Federal Sustainability (Federal Register Vol. 86, No. 236 pp. 70935-70943, 2021). These goals include 65 percent reductions in GHG emissions by 2030, acquiring 100 percent zero-emission light-duty vehicles by 2027, achieving a 50 reduction in GHG emissions from buildings by 2032, diverting at least 50 percent of non-hazardous solid waste from landfills by 2025, instituting nature-based resilience to reduce GHG emissions, and establishing energy resilience to ensure mission accomplishment.

In an effort to reduce energy consumption, reduce GHGs, reduce dependence on petroleum, and increase use of renewable energy resources, the Navy has implemented a number of renewable energy projects. The Navy has established FY 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 generation of electricity with wind energy. The Navy continues to promote and install new renewable energy projects.

3.1.3 Affected Environment

NBSD is located in San Diego County, within the SDAB. SDAPCD is responsible for implementing and enforcing state and Federal air quality regulations in San Diego County (refer to Section 3.1.1.6, *Local Regulations*). San Diego has been determined by USEPA to be a severe nonattainment area for 8-hour O_3 under the 2008 and 2015 standards. San Diego County is classified by USEPA as in attainment/unclassified for all other criteria pollutants. Nevertheless, because San Diego County is in nonattainment for O_3, a General Conformity evaluation is required.

Similar to the National Ambient Air Quality Standards, the California Ambient Air Quality Standards are generally more stringent.

In San Diego County, the SDAPCD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies. The SDAPCD's tasks include air pollution monitoring, preparation of the SIP for the SDAB, and the promulgation of rules and regulations. The SIP includes strategies and tactics to be used to attain the federal O3 standard within the SDAB. The SDAPD's rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts.

These regulations require that facilities constructing, altering, or replacing stationary equipment that may emit air pollutants obtain an Authority to Construct permit. Further, SDAPCD regulations require proponents of stationary sources of air pollutants to obtain and maintain Permits to Operate for all stationary sources subject to the requirements of Regulation II. The SDAPCD is responsible for the review of applications, and for the approval and issuance of these permits. Once a permit is issued, the facility is responsible for compliance with the conditions specified in the permit. While all relevant regulations will be followed, there could be a minor (de minimis) impact.

Per the California Air Resources Board (2023), the most recent emissions inventory (from 2017) for SDAB is as follows:

- NO_x = 79.5 tons per day;
- VOC = 188.5 tons per day;
- CO = 422.2 tons per day;
- SO_x = 1.6 tons per day;
- PM_{10} = 80.6 tons per day; and
- $PM_{2.5}$ = 21.0 tons per day.

Note that VOC and NO_x emissions are used to represent O_3 generation because they are precursors of O_3.

Emission sources associated with the proposed action are on-road and off-road vehicles, marine vessels, permitted sources by CARB and APCD, and permit exempt sources. The Title V Operating Permit Program consolidates all CAA requirements applicable to the operation of a source, including requirements from the State Implementation Plan, pre-construction 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. NBSD will be applying for Title V permit from the SDAPCD. Permitted sources include an electrical generator, emergency internal combustion engine fire pump, and two boilers. Recent annual criteria pollutants emissions for the closest proximity monitoring station to NBSD (San Diego-Beardsley Street Monitoring Station located just south of downtown San Diego near the intersection of I-5 and the Coronado Bridge) are shown in Table 3-3.

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

Air Quality Indicator	*2012*	*2013*	*2014*	*2015*	*2016*
Ozone					
Days State 1-hour Standard Exceeded (0.09 ppm)	0	0	0	0	0
Days Federal 8-hour Standard Exceeded (0.075 ppm)[1]	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	0.073	0.067	0.061
Carbon Monoxide[2]					
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	2.7	2.6	2.2
Maximum 8-hour (ppm)	1.81	NA	NA	NA	NA
Nitrogen dioxide					
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[3]					
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					
Days State 24-hour Standard Exceeded (50 µg/m^3)	0	6	0	5.7	NA
Days Federal 24-hour Standard Exceeded (150 µg/m^3)	0	0	0	0	NA
Maximum Daily – Federal (µg/m^3)	45	90	40	53	49
Maximum Daily – State (µg/m^3)	47	92	41	54	51
Federal Annual Average (µg/m^3)	21.8	24.9	23.3	23	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					
Days Federal 24-hour Standard Exceeded (35 µg/m^3)	1	1.1	1	0	NA
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	36.7	44.9	34.4
Federal Annual Average (µg/m^3)	11	10.3	10.1	9.3	NA
State Annual Average (µg/m^3)	NA	10.3	10.1	10.2	NA

Source: California Air Resources Board 2018; SDAPCD 2016

Notes:

On 1 October 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. 8-hour carbon monoxide averages are available at San Diego Beardsley Street Station between 2005 and 2012. The sulfur dioxide monitor was decommissioned on 30 June 2011.

More recent data is not available as this monitoring site is no longer active.

Abbreviations:

µg/m^3 = microgram(s) per cubic meter NA = Not Available

ppm = part(s) per million

3.1.4 Environmental Consequences

Effects on air quality are based on estimated direct and indirect emissions associated with the Proposed Action. The ROI for assessing air quality impacts is the SDAB.

This analysis compares projected emissions of criteria pollutants and regulated precursors to relevant Federal and state standards to assess the potential for significant increases in pollutant concentrations under NEPA. Comparison to *de minimis* thresholds associated with Federal CAA conformity requirements is the first step in assessing the significance of potential air quality impacts. They also determine whether conformity determination is required for Federal actions occurring in nonattainment or maintenance areas.

"Significant" air quality impacts could occur if implementation of the Proposed Action would directly or indirectly exceed screening criteria including: conformity *de minimis* thresholds for nonattainment and maintenance pollutants and/or PSD thresholds for major emitting facility standards for attainment pollutants. Criteria pollutant increases below those thresholds are presumed to be less than significant. The Proposed Action would not exceed these screening thresholds.

3.1.4.1 Avoidance and Minimization Measures

The Proposed Action would not require avoidance and minimization measures to further reduce air emissions within the NBSD region.

3.1.4.2 Proposed Action - Potential Impacts

Implementation of the Proposed Action would include demolition and construction activities at the Mole Pier – South Berth, dredging and sediment disposal activities, and transit, berthing and operation of a floating dry dock. Project elements are presented in Chapter 2 of this Supplemental EA. Construction related sources of air emissions would include the operation of a motorized dredge, crane, barge, and tractor-trailer trucks for sediment transport, and demolition and construction equipment. Dredge material suitable for unconfined aquatic disposal would be disposed of at the LA-5 ODMDS ocean disposal site, and material that is not suitable for aquatic disposal would be dried at a CDF and then transported via truck to a permitted upland disposal site such as the Otay Landfill. Dry dock transit air emissions sources would include the heavy lift relocation actions for the floating dry dock to San Diego, California. Waterfront operational sources of air emissions would include those from ship maintenance operations including welding, mobile sources, blasting, solvent usage, coating application, adhesives application, portable equipment, and stationary diesel emergency generators.

Construction Emissions Assumptions

Air quality impacts from dredging, transportation, and sediment disposal activities as well as demolition and construction activities would occur as a result of combustion emissions associated with fossil-fuel-powered equipment.

Because of the nature of the Proposed Action, only a de minimus amount of landside grading would be required for the proposed upland facilities and those sediments would be kept wet during grading operations to not generate fugitive dust. Dredging activities would not generate fugitive dust because the marine sediments would be wet. Dried dredge sediments transported via truck would be either

wetted or covered for transportation to the landfill. In the original 2020 Final EA it was assumed that all dredging and in-water disposal activities would be completed over a 14-week period. However, now that the project design has been refined it is understood that dredging and in-water disposal would instead only last for approximately 90 days. The duration of the upland dredge material drying and disposal is a function of the CDF size, and weather driven drying speed that can be achieved. However, it is still estimated that drying and upland disposal trucking operations would take approximately 4-5 months. In the 2020 Final EA, a worst case scenario calculation of upland dredge material truck trips was done and it was estimated that 7,177 trips would be generated. Since then sediment test results performed for the project site indicate that only 17,712 CY of dredge material would not be suitable for aquatic disposal and will need to be disposed of at an approved upland facility. The Navy has received a Suitability for Unconfined Aquatic Disposal (SUAD) Determination (Appendix D) from USEPA and USACE permitting sediment disposal at approved ocean disposal site ODMDS LA-5. Upland disposal of 17,712 CY of dredge material would also occur equating to only 1,704 truck trips.

The Navy would apply for and obtain any necessary permits required for emissions associated with the floating dry dock operation from the San Diego Air Pollution Control District (SDAPCD) prior to dry dock operation (vessel maintenance). Additionally, the contractor would be required to employ equipment that meets all applicable CARB standards. The new assumptions related to the Proposed Action's demolition and construction activities are presented in Chapter 2 of this Supplemental EA. The mooring wharf demolition activities would occur over a period of approximately 13 weeks, and construction activities would occur over a period of approximately 60 weeks.

Waterfront Emissions Assumptions

As described in Section 2.1, *Proposed Action,* following the completion of dredging and construction activities, vessel repair and maintenance activities at the proposed floating dry dock may include abrasive blasting, hydro-blasting, metal grinding, painting, tank cleaning, removal of bilge and ballast water, removal of anti-fouling paint, sheet metal work, electrical work, mechanical repair, engine repair, hull repair, shaft repair, propeller and rudder repair, repair/replacement of sea valves and fittings below the waterline, and sewage disposal. Future decisions about ship deployments to and from NBSD are programmatic in nature and are neither a part of this alternative nor addressed in this Supplemental EA.

Annual waterfront operations (ship maintenance) emissions estimates were developed for both the dry dock transit operations and a typical annual operations year. For purposes of General Conformity, the worst-case potential estimated annual emissions calculations include one year of estimated ship maintenance operations and usage combined with transit emissions within three (3) nautical miles of San Diego. NEPA considers and quantifies all reasonably foreseeable project emissions, including emissions from a diesel emergency generator. The diesel emergency generator will be required to obtain a SDAPCD permit and is considered in the SIP.

The emission calculation methodology was developed using the San Diego Air Pollution Control District Air Emissions Inventory Procedures, the U.S EPA Ports Emissions Inventory Guidance, and the Port of Long Beach Annual Air Emissions Inventory (San Pedro Bay Ports Emissions Inventory Methodology Report). Project specific data, such as the transit operations of the FDD from Mobile, Alabama to San Diego, California were based upon data provided by Navy staff for similar heavy lift vessels and expected tug needs. Annual operational data and other project specific details were based on recent years of

operations at similar Navy FDDs and approaches similar to those used in the Port of Long Beach Annual Air Emissions Inventory Emissions.

Once installed, annual emissions from the FDD would result from ship maintenance operations including welding, mobile and portable sources, blasting, solvent usage, coating application, adhesives application, and stationary diesel emergency generators. Diesel emissions were estimated based on diesel use at similar operations, however this is a conservative assumption because the project is planning on electrification of previously required portable diesel equipment. The remaining diesel emergency generator to be installed at the FDD will meet the emission requirements of the SD APCD.

Under the California Clean Air Act, the California Air Resources Board establishes California Ambient Air Quality Standards (CAAQS) for the criteria pollutants as well as sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. The CAAQS are generally more stringent than the NAAQS. Similar to the federal designations of attainment and nonattainment areas with respect to the NAAQS, the California Air Resources Board designates areas with respect to the CAAQS.

In San Diego County, the SDAPCD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies. The SDAPCD's tasks include air pollution monitoring, preparation of the SIP for the SDAB, and the promulgation of rules and regulations. The SIP includes strategies and tactics to be used to attain the federal O3 standard within the SDAB. The SDAPD's rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts.

These regulations require that facilities constructing, altering, or replacing stationary equipment that may emit air pollutants obtain an Authority to Construct permit. Further, SDAPCD regulations require proponents of stationary sources of air pollutants to obtain and maintain Permits to Operate for all stationary sources subject to the requirements of Regulation II. The SDAPCD is responsible for the review of applications, and for the approval and issuance of these permits. Once a permit is issued, the facility is responsible for compliance with the conditions specified in the permit.

The Navy will apply for and obtain any permits required for emissions associated with the floating dry dock operation from the San Diego Air Pollution Control District (SDAPCD) prior to dry dock operation (vessel maintenance). Under this permit(s), the Navy would comply with all required permit conditions for marine coating operations, crane(s), emergency standby engine(s), etc.

Impacts

2020 emissions calculations significantly overestimated the project's heavy equipment emissions and those assumptions were corrected in the new air emissions calculations presented in Table 3-4 and in Appendix A. Table 3-4 presents the estimated project emissions for construction and annual waterfront operations, as well as transit and unloading operations associated with the delivery of the FDD which could occur within the first year of operations. The calculations also incorporate both the revised project description, and the newest details of the dredge project as described in Chapter 2 of this Supplemental EA. The equipment mix and numbers presented in the 2020 Final EA have been determined to still be accurate, however, the 2020 horsepower settings for certain equipment have been determined to have been too high and have been adjusted downward in the new calculations. The longer project duration, and significantly reduced number of dredge material upland disposal truck trips have also been included

in the updated calculations. As shown in Table 3-4 the revised Proposed Action emissions are still calculated to be below the *de minimis* threshold levels for CAA conformity. Therefore, implementation of the Proposed Action would not result in significant impacts on air quality.

Table 3--4. Proposed Action Emissions with Evaluation of Conformity.

Emission Process	Annual Emissions (tons/year)					
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Dredge, Demolition, and Construction	0.4	3.6	2.7	0.1	0.3	0.3
Maritime Transit (Alabama to San Diego)	59.3	1,525.1	141.6	1,119.9	150.9	120.6
Maritime Transit (Greater than 12nm)	59.0	1,517.8	141.1	1,115.7	150.3	120.2
Maritime Transit (0nm and 12nm)	0.2	7.3	0.6	4.2	0.6	0.5
Maritime Transit (0nm and 3nm)	0.1	4.4	0.3	2.6	0.3	0.3
Worker Commute	<0.1	<0.1	0.3	<0.1	<0.1	<0.1
Welding	--	--	--	--	0.6	0.6
Blasting Operations	--	--	--	--	9.7	9.7
Solvent Operations	0.1	--	--	--	--	--
Marine Coating Application Operations	5.1	--	--	--	3.1	3.1
Adhesive Application Operations	<0.1	--	--	--	--	--
PERP Equipment	0.4	3.9	0.8	<0.1	0.3	0.3
Stationary Diesel Emergency Generator	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
General Conformity Emissions	**Annual Emissions (tons/year)**					
	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
2024 Demolition, Construction, Dredge and Combined Ocean & Upland Disposal	0.4	3.6	2.7	0.1	0.3	0.3
2025 Construction and Annual Operations	0.3	4.5	0.7	2.6	10.1	10.0
de minimis Thresholds/Major Source Threshold	25	25	100	100	100	100
Exceeds Threshold?	NO	NO	NO	NO	NO	NO

Operations

Once demolition and construction is completed, the proposed floating dry dock operations that would likely occur would involve mobile sources on an as-needed basis and would include the use of cranes and man lifts, and various sizes of forklifts and trucks. These pieces of equipment will comply with CARB's mobile source regulations. Mobile source emissions were estimated to be well below General Conformity de mimimis thresholds for all pollutants. Dry dock operations would intermittently require abrasive blasting, the use of marine coatings that may contain hazardous chemicals, and welding. Abrasive blasting, and marine coatings would go through New Source Review under SDAPCD rules and regulations and are therefore not included in the evaluation for General Conformity.

The USEPA has listed 188 substances that are regulated under Section 112 of the CAA, and the state of California has identified additional substances that are regulated under state and local air toxics rule. Emission factors for most Hazardous Air Pollutants (HAPs) from combustion sources are roughly three or

more orders of magnitude lower than emission factors for criteria pollutants. Trace amounts of HAPs may be emitted from sources during the demolition/construction and operational activities; however, the amounts that would be emitted would be small in comparison with the emissions of criteria pollutants. Emissions of HAPs would also be subject to dispersion due to wind mixing and other dissipation factors

General Conformity

Estimated emissions associated with the Proposed Action would be below *de minimis* threshold levels for CAA conformity. Therefore, implementation of the Proposed Action would conform to SDAPCD's input to the SIP that addresses the SDAB 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 in accordance with Office of the Chief of Naval Operations Instruction 5090.1E and the Navy guidance for compliance with the CAA General Conformity Rule, dated 21 December 2018 (Appendix A). The RONA demonstrates that project emissions would not exceed the *de minimis* threshold levels, and there would be no significant adverse impacts on air quality with implementation of the proposed project.

Greenhouse Gases

Implementation of the Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels during construction, transit, and operation. In 2020 the Final EA for the NBSD Floating Dry Dock project calculated the amount of dredging, transportation, and disposal, demolition and construction activity generated GHG emissions at approximately between 1,040 and 1,253 metric tons of CO_2e. This limited amount of GHG emissions were determined to be not likely to contribute to global warming to any discernible extent. Based on the revised project description GHG emissions were recalculated including routine operations of the FDD and transit of the FDD from Mobile to San Diego, within 12, and within 3 nautical miles of shore. GHG emissions were calculated using factors and procedures consistent with the U.S. Environmental Protection Agency Mandatory GHG Reporting Program and 40 CFR Part 98, as detailed in Appendix A. The annual emissions are estimated to be 466 metric tons of CO_2e for routine operations and 848 metric tons of CO_2e for dredging, disposal, demolition, and construction. The 2019 San Diego City-Wide GHG Emissions Inventory estimated 9.6 million metric tons of CO_2e for the city, which are projected to decrease to approximately 6 million metric tons of CO2e by 2035. The total combined annual emissions of operation, dredging, disposal, demolition, and construction of the Proposed Action would represent approximately 0.02% of the 2035 City-wide San Diego Emissions. As such the project's GHG contribution would not contribute to global warming to any discernible extent. Therefore, implementation of the Proposed Action would not result in significant impacts specific to GHG emissions. As previously described, future decisions about ship deployments to and from NBSD are programmatic in nature and are neither a part of this alternative nor addressed in this Supplemental EA.

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. Associated vegetation and wildlife 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 that 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 historical 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 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.

Discharges related to a floating dry dock's functions as a vessel are covered by the Uniform National Discharge Standards for Vessels of the Armed Forces (UNDS). UNDS specifies the standards applicable to discharges (other than sewage) incidental to normal operation of armed forces vessels. Subject discharges include, but are not limited to: seawater cooling, deck runoff, ballast water, surface vessel bilge water, and hull coating leachate. UNDS does not apply to air emissions resulting from the vessels propulsion system and motor driven equipment or discharges that require permitting under the National Pollutant Discharge Elimination System program.

The CWA establishes Federal limits, through the National Pollutant Discharge Elimination System (NPDES) permit 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 permit program regulates the discharge of point (i.e., end of pipe) and nonpoint sources (i.e., storm water) of water pollution.

The California NPDES stormwater permit program requires construction site operators engaged in clearing, grading, and excavating activities that disturb 1 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 (SWPPP) that is implemented during construction. As part of the 2010 Final Rule for the CWA, *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 U.S." Waters of the U.S. 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 U.S. Any discharge of dredge or fill into Waters of the U.S. 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 projects larger than 5,000 sf 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 RHA 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; deposit of fill and dredged sediments; filling of wetlands adjacent or contiguous to waters of the U.S.; construction of riprap, revetments, groins, breakwaters, and levees; and transportation of dredged sediments for dumping into ocean waters.

The National Wild and Scenic Rivers System was created by Wild and Scenic Rivers Act of 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 Wild and Scenic Rivers 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.

EO 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.

EO 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 1 percent chance of inundation by a flood event in a given year.

3.2.2 Affected Environment

This section presents existing conditions for bathymetry and circulation, upland surface waters, and marine waters at NBSD. There is no potential for direct or indirect impacts on other water resources (e.g., groundwater) and therefore they do not receive any further consideration within this Supplemental EA.

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; only the southernmost portion of the bay retains its natural shallow bathymetry (Merkel & Associates Inc. 2009). The bathymetry and bed form of San Diego Bay are defined by a main navigation channel that steps up to shallower dredged depths toward the sides and southern end of the bay (Merkel & Associates, Inc. 2009). USACE dredges the main navigation channel in San Diego Bay to maintain a depth of -47 feet MLLW and is responsible for providing safe transit for private, commercial, and military vessels within the bay (NOAA 2010). Outside of the navigation channel, the bay floor consists of platforms at depths that vary slightly (Merkel & Associates, Inc. 2009). Within the Central Bay, typical depths range from -35 to -38 feet MLLW to support large ship turning and anchorage (Merkel & Associates, Inc. 2009). Small vessel marinas are typically dredged to depths of -15 feet MLLW (Merkel & Associates, Inc. 2009).

Bathymetry at the Mole Pier – South Berth has been substantially altered by previously dredging activities, beginning with the construction of the Mole Pier in the early 1980s (refer to Section 1.1, *Introduction*). For example, the existing sump was originally dredged to a depth of -55 feet MLLW to

accommodate the USS STEADFAST (AFDM 14). The Mole Pier – South Berth was later modified in 2002 to accommodate berthing and mooring of the USNS CURTISS (T-AVB), which is currently stationed at the wharf.

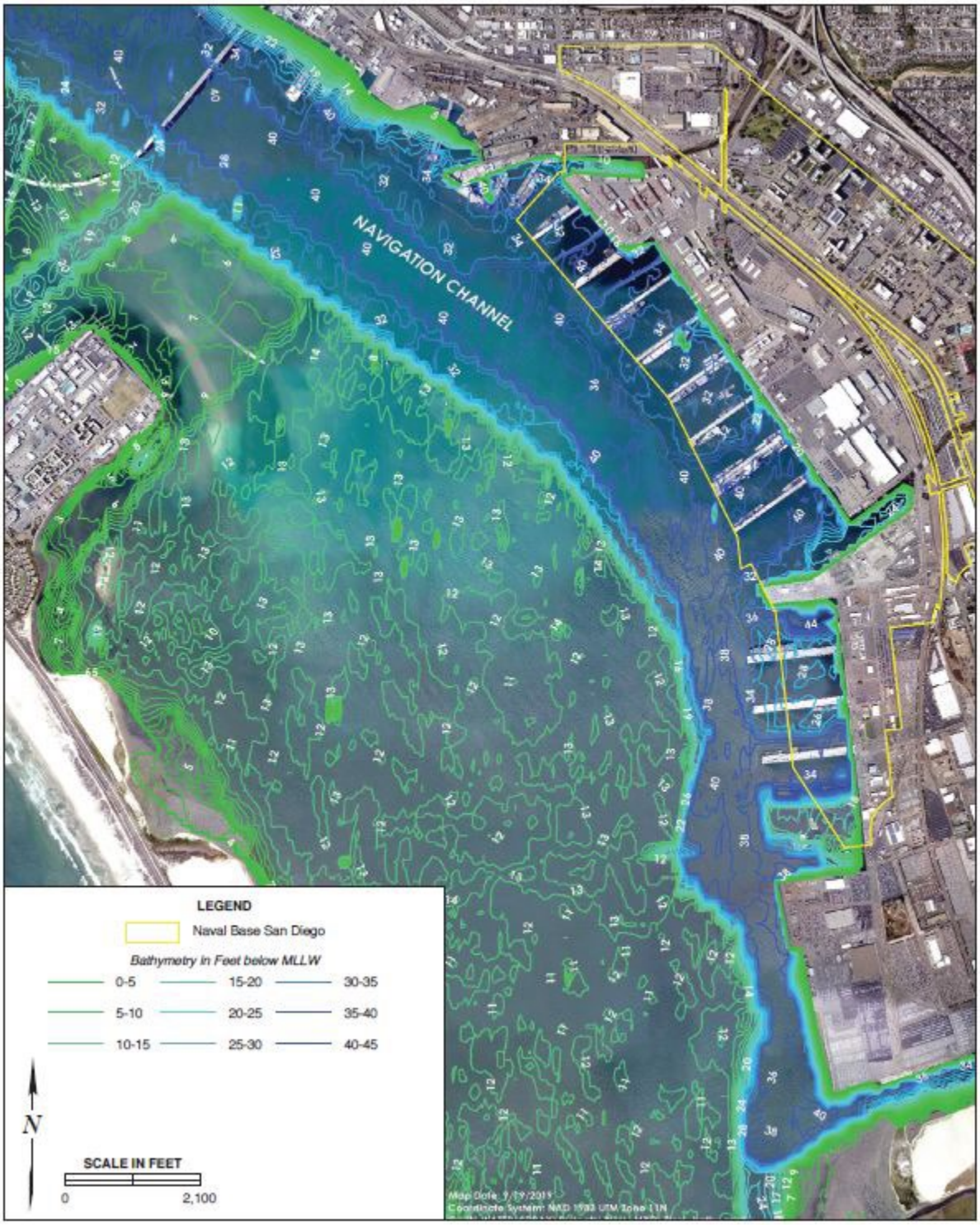

Figure 3--1. Bathymetric Contours Naval Base San Diego.

Circulation within San Diego Bay is affected by its crescent shape and narrow bay mouth, tides, and seasonal salinity and temperature variations (POSD 2007). San Diego Bay can be divided into four regions based on 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 (POSD 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 (POSD 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 (POSD 2007).
- The South-Central Seasonally Hypersaline Region (i.e., with higher salt content than seawater) occurs between Glorietta Bay and Sweetwater Marsh. Here, variations in salinity due to warm-weather evaporation at the surface separate the water into upper and lower zones driven by density differences (POSD 2007).
- The South Bay Estuarine Region, located south of Sweetwater Marsh, receives occasional freshwater inflows from the Otay and Sweetwater Rivers (POSD 2007). Residence time of bay water in the estuarine region may be greater than 1 month (POSD 2007). Common salinity values for the bay range from 33.3 to 35.5 practical salinity units for the bay mouth and the southern bay, respectively (Chadwick et al. 1999).

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 MLLW and mean highest high water) is approximately 5.5 feet (Largier 1995). In general, tidal currents are strongest near the bay mouth, with maximum velocities of 1.6 to 3.3 feet per second (Largier 1995). Tidal current direction generally follows the center of the channel (Chadwick et al. 1999). Residence time for water in San Diego 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, approximately 13 percent of the water in San Diego Bay mixes with ocean water and then moves back into the bay (POSD 2007). The complete exchange of all the water in San Diego Bay can take between 10 and 100 days, depending on the amplitude of the tidal cycle (POSD 2007). Tidal flushing and mixing are important in maintaining water quality within San Diego Bay. The tidally induced currents regulate salinity, moderate water temperature, and disperse pollutants (POSD 2007).

3.2.2.2 Upland Surface Waters

NBSD is located within the 60,007-acre San Diego Bay Watershed and within the 16,270-acre Chollas Creek Watershed. The Chollas Creek Watershed includes Chollas and Paleta Creeks, which cross NBSD (Navy 2002). The Mole Pier is located immediately south of the Paleta Creek Channel. Because of intense urbanization within the watershed, Chollas Creek is completely channelized on NBSD and lacks natural soil cover, and the stream bank along Paleta Creek is degraded (Navy 2014a). Water quality in Chollas Creek and Paleta Creek is highly degraded and the State Water Resources Control Board (SWRCB) lists both as “impaired” water bodies on the CWA Section 303(d) list. Copper, Lead, and Zinc TMDLs (SWRCB

2007) have been established for Chollas Creek and TMDLs will be established for Paleta Creek (SWRCB 2019).

3.2.2.3 Marine Waters

As described in Section 3.2.2.1, *Bathymetry and Circulation*, San Diego Bay is a narrow, crescent-shaped natural embayment oriented northwest-southeast, with an approximate length of 15 miles (POSD 2007). The width of the bay ranges from 0.2 to 3.6 miles, and depths range from -74 feet MLLW near the tip of Ballast Point to less than 4 feet at the southern end (Merkel & Associates, Inc. 2009). Approximately half of the bay is less than 15 feet deep and most of it is less than 50 feet deep (Merkel & Associates, Inc. 2009). Prior to 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 increased and San Diego 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 (POSD 2007).

Water temperature in San Diego Bay ranges from 59.1 to 78.9 degrees Fahrenheit (°F). This range can be attributed to thermoclines exhibited in deeper industrial/port waters, which are typical of this geographic region. 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 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 Environment & Infrastructure, Inc. [Amec Foster Wheeler] 2016).

Water quality is commonly assessed by measuring dissolved nutrients, dissolved oxygen, pH, turbidity, chlorophyll *a* (i.e., a measure of the amount of phytoplankton present in San Diego Bay), and coliform bacteria (Chadwick et al. 1999). Measured values for dissolved nutrients in the 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 for phosphorus in the winter, to 0.3 to 1.3 ppm for silicates and 0.2 ppm for 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 approximately 4 milliliters per liter (mL/L) during the summer to 8 mL/L during the winter (Chadwick et al. 1999). These oxygen levels are typically at or near atmospheric equilibrium levels.

Surface water chemistry is analyzed by the Regional Harbor Monitoring Program using primary and secondary indicators, including total and dissolved levels of copper (primary), and total and dissolved zinc and nickel (secondary). Copper concentrations in San Diego 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 the Regional Harbor Monitoring Program. All other dissolved and total metals are found at concentrations below their respective acute and chronic

CTR thresholds. Polycyclic aromatic hydrocarbon 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 man-made resuspension of bottom sediments. Increased turbidity reduces the amount of light available for plant growth underwater, so it can affect the ability of San Diego 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 North 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 RWQCB 2016).

Chlorophyll *a* concentrations range 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 microorganisms per milliliter in the South Bay (Chadwick et al. 1999). After these discharges ceased, bacterial counts have typically remained below 10 microorganisms per milliliter except during some winter storms. These levels are below Federal limits for water contact, indicating that San Diego Bay is generally safe for recreational use (Chadwick et al. 1999).

Current sources of pollution to San Diego Bay include underground dewatering, industries on the bay and upstream, marinas and anchorages, U.S. Naval activities, materials used for underwater hull cleaning and vessel antifouling paints, and urban runoff (Chadwick et al. 1999). Additional pollution sources include creosote-treated wood pier pilings, which are a source of polycyclic aromatic hydrocarbons, 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 polycyclic aromatic hydrocarbons (POSD 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 on 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/BMPs

The Navy would comply with all applicable avoidance and minimization measures/BMPs presented in Table 2-2. For example, the Navy would comply with the following avoidance and minimization measures with respect to water resources. The avoidance and minimization measures listed below would be followed during all required dredging and sediment disposal as well as all required demolition and construction activities to limit potential impacts on water quality:

1. Spill control and response measures (e.g., spill kits) will be implemented during dredging, transport, and disposal.
2. Sediment will be controlled when on board vessels to minimize spillage during transport.
3. Dredge bucket depth of excavation, swing length, and fill amount will all be limited.
4. Pumping equipment will be inspected prior to pumping to ensure that no leaks in pumping equipment or hosing exist.
5. The contractor will use only clean construction materials suitable for use in the oceanic environment. The contractor will ensure that no debris, soil, silt, sand, sawdust, rubbish, cement or concrete washings thereof, chemicals, or oil or petroleum products from construction are allowed to enter into or be placed where they may be washed by rainfall or runoff into waters of the U.S. Upon completion of the project authorized, any and all excess material or debris will be completely removed from the work area and disposed of in an appropriate upland site.
6. Uncured concrete will be poured into water-tight forms and not be allowed to overtop forms.
7. Subject to the terms and conditions identified in all applicable project-specific permits, the Navy will deploy precautionary measures to alleviate turbidity associated with demolition and construction activities.
8. The contractor will position a barge, where necessary, to capture and contain large debris associated with required demolition activities (e.g., concrete pier decking).

3.2.3.2 Proposed Action - Potential Impacts

The ROI for the analysis of effects on water resources includes the Approach Area, Turning Basin, and Sump, along with the surrounding marine waters of San Diego Bay and ocean disposal locations and associated transit lanes. Additionally, the ROI includes the adjacent upland areas on the south berth of the Mole Pier because construction of the Proposed Action would result in landside improvements to support the berthing and operation of a floating dry dock there.

Bathymetry and Circulation

Dredging operations would temporarily increase water movement in the area where dredging is actively occurring. However, this effect would be strictly limited to the 90-day duration of dredging and would not affect large-scale water circulation within San Diego Bay. Further, the minor changes in bathymetry resulting from dredge material removal would not be sufficient to affect circulation patterns within the immediate vicinity of the Mole Pier or in San Diego Bay. Therefore, dredging associated with the Proposed Action would not have a significant impact on bathymetry and circulation.

Upland Surface Water Quality

Potential surface water quality impacts associated with the Proposed Action include spills and releases of hazardous and nonhazardous materials, including materials involved with dredging as well as demolition and construction. In accordance with the SWRCB Construction General Permit CGP (NPDES

No. CAS000002, Order WQ 2022-0057-DWQ (going into effect on 01 September 2023), SWRCB Order No. 2009-0009-DWQ amended by 2010-0014-DWQ and 2012-0006-DWQ; SWRCB 2012), NPDES General Permit for Storm Water Discharges Associated with Construction and Land Use Disturbance Activities, the contractor would be required to develop a Navy approved site-specific construction SWPPP and then implement it. The SWPPP would specify BMPs to prevent construction pollutants from contacting stormwater, eliminate or reduce non-stormwater discharges, and perform inspections of all BMPs (SWRCB 2012). The SWPPP would also include BMPs to minimize potential impacts related to the on-shore construction components, such as preventing erosion; using sediment barriers; providing inlet covers; covering stockpiles; inspecting equipment and vehicles for drips; and placing drip pans beneath vehicles and equipment (SWRCB 2012).

Existing NPDES Permit for industrial and stormwater discharges at NBSD (Order R9-2013-0064 as amended by R9-2017-0009, CA0109169) is currently under an extension period until the San Diego RWQCB issues a new permit.

The SWPPP and basewide BMPs for preventing and minimizing contact of potential pollutants with stormwater would continue to be followed, including restricting access; providing regular cleaning and sweeping; controlling spills and reducing waste; permanently sealing drains in critical areas that lead to storm drains; and conducting regular inspection and maintenance of the storm drain system.

Operational permit requirements for industrial activities associated with the floating dry dock would likely be similar to those for the ARDM-5 Arco in the Naval Base Point Loma NPDES Permit, R9-2014-0037 as amended by R9-2017-0010. In addition, operational discharges from the proposed floating dry dock would be subject to the permit requirements of the Uniform National Discharge Standards for Vessels of the Armed Forces.

Operationally, contractors working at the floating dry dock would be required to develop and implement SWPPPs and/or spill prevention plans to manage their job-related debris and contaminants to minimize impacts on water quality. Therefore, there would be no significant impacts on water quality resulting from the implementation of the Proposed Action.

Marine Water Quality

A barge-mounted clamshell bucket dredge would likely be used during dredging activities. Potential sources of impacts on 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 re-suspended in the water column during the dredging process.

Increased turbidity may result in temporary decreases in light penetration and levels of dissolved oxygen. Sands tend to settle out quickly, and contaminants do not typically adhere to larger-grained materials, so contaminants would not be anticipated in the dredged sediments (USACE 2009). Most sediments re-suspended by dredging settle out of the water column near the dredge within several hours, 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 of the dredged sediments (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 of the dredging site and would end several hours after cessation of dredging activities, making a permanent decline in aquatic primary productivity unlikely (see

Section 3.3, Biological Resources). Because the material to be dredged is estimated to be mostly sand and silts, and previous sampling conducted in the vicinity and at the south berth of the Mole Pier 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. As described in Section 3.6, Hazardous Materials and Wastes project dredge sediments were tested through Tier II Green Book testing in accordance with regulations in 40 CFR Parts 220–228. Test results indicate that 93,248 CY of proposed dredge material meets requirements for unconfined aquatic disposal at ocean disposal site LA-5 ODMDS. The balance of the proposed dredge materials, 17,712 CY, would be taken to an approved upland disposal site. The Navy has received from USEPA and USACE the project Suitability for Unconfined Aquatic Disposal (SUAD) Determination (Appendix D). A construction and dredging Accident Prevention Plan would be required. Impacts on water quality due to increased turbidity, therefore, would not be significant.

The LA-5 ODMDS site is designated for disposal of dredged sediments that have been evaluated by the pursuant USACE and USEPA permitting criteria (33 CFR Parts 227 and 40 CFR Parts 220–225 and 227–228) and authorized for dumping under Section 103 of the MPRSA (USEPA 1987). Ocean disposal of dredged sediments would cause short-term impacts on marine water quality in the immediate vicinity of LA-5 ODMDS at the time of disposal (USEPA 1987). Offshore currents would disperse the dredged sediments into a plume cloud with increased turbidity, and possibly decreased dissolved oxygen, but the plume would dilute to negligible concentrations within 2 hours (USEPA 1987). Increased turbidity associated with ocean disposal of the dredged sediments would be short-term and spatially restricted. Thus, impacts associated with dredging and disposal would not be significant.

Demolition activities would involve partial removal of the Mole Pier infrastructure and pier deck, followed by removal of existing pier pilings with a crane. Potential sources of impacts on water quality associated with demolition activities would include debris and dust from disassembling the concrete and asphalt decks, petroleum products associated with the asphalt debris, vessel and equipment fuels, and bottom sediments re-suspended by the pile removal and demolition vessel movement. The contractor would be required to develop, receive Navy approval of, and implement a project-specific SWPPP that would include BMPs for minimizing and containing dust and debris. Debris from work on barges would be captured on board the barges. All captured material would be swept up and disposed of in accordance with the SWPPP. As a part of the BMPs outlined in the SWPPP, the contractor would be required to provide a floating boom around the project site to contain floating surface debris, and to use catch devices and sheeting. The contractor would also be required to prepare and implement a Construction Demolition Plan that would cover all phases of the work to be done and to specify materials, equipment, and procedures to be used to contain all construction and demolition waste and debris, including dust. Vessel movement associated with demolition activities and removal of the existing piles would cause disturbance of bottom sediments and increased turbidity from sediment resuspension. However, the sediment resuspension and increased turbidity would be short-term and limited to the areas of bottom disturbance and localized to the Mole Pier.

Construction activities, including installation of piles with an impact pile driver aided by jetting methods and other construction-related vessel activities, would also result in localized, short-term disturbances of bottom sediments. However, as with demolition activities, the impact on water quality from turbidity and suspended sediments would be short-term and limited to the areas of bottom disturbance and localized to the south berth of the Mole Pier.

In addition to the SWPPP, Construction Demolition Plan, and Spill Prevention Plan, the Navy will submit an application for a Section 401 Water Quality Certification from the San Diego RWQCB, and applications for a Section 404 permit and a Rivers and Harbors Act Section 10 permit from USACE. These permits would apply to all in-water components of Proposed Action and the Navy would comply with all permit conditions during demolition and construction activities. As with past in-water construction projects at NBSD, the Navy expects that monitoring for silt curtain deployment would need to occur during dredging operations. This would involve the Navy employing biological monitors to oversee silt curtain deployment.

As described in the 2020 Final Environmental Assessment for the floating dry dock evolutions (i.e., lowering and raising the floating dry dock) would be accomplished with integral ballast tanks. Electrical pumps would be used to pump seawater into the ballast tanks to submerge the floating dry dock, and then out of ballast tanks to raise the floating dry dock. Ballast water pumps would be powered from existing land-side electrical power sources. Ballast water pumps would be built into the floating dry dock and operated in compliance with the requirements of the Uniform National Discharge Standard for Vessels of the Armed Forces. These standards would dictate the Marine Pollution Control Device performance standards necessary to control the vessel's discharges. Dry docking evolutions would occur between an average of 4 and 6 times per year, and each event would take approximately 6 hours to complete, depending on the objective(s) of the specific dry-docking event. The dry dock ballast tanks would be filled with water, and the floating dry dock would remain stationary in the flooded position for a short period of time (mere minutes to an hour) before being raised after which vessel maintenance would occur. No vessel maintenance would occur while vessels are still in the water. While ship repair and maintenance is occurring, appropriate BMPs would control for environmental releases of process water and dust. Work-process related trash and debris would be controlled and be transported to appropriate municipal disposal facilities.

The pontoon deck of the floating dry dock would be designed to act as a large containment area. Specifically, the pontoon deck of the floating dry dock would feature a guttered drainage system for the collection and discharge of industrial waste (i.e. waterwash and blastwater) and environmental runoff (i.e. rainwater). Under normal operations when the dry dock is deballasted it will be moved forward to allow water on the pontoon deck to naturally drain to the forward end of the pontoon deck. The forward end of the pontoon deck would feature a raised border (gutter system) and collection tank(s) to collect all washwater, blastwater and rainwater that falls on the pontoon deck and prevent it from running off the dock and into the bay. The gutter system and collection tanks would feature mesh screens that would prevent solids from entering the tanks, as well as fiber filter mats that would further separate out any solids. The screens and mats would be easily accessible for cleaning and replacement. The collection tank(s) and their associated pumps would be sized sufficiently to provide storage and discharge of all water from the pontoon deck and wing decks from the worst case 50-year Rainfall Event at Naval Base San Diego per the "San Diego County Hydrology Manual." The collection tank(s) would feature submersible pumps with a maximum controlled discharge rate of 100 gallons per minute (gpm) to shore. The pumps would be marine rated and capable of handling solids. Two pumps would be provided per tank unless two or more tanks are cross connected in which case one pump would be provided for each tank to maintain redundancy. If the rainfall exceeds the maximum pumping capacity, sufficient storage space would be provided on the dock to store the excess water until it could be pumped to shore at a maximum rate. Any and all cross connect valves and discharge valve for the drainage system would be provided with remote actuators to the pontoon deck if not accessible from

the pontoon deck. The discharge piping would be provided with foot valves to prevent backflow from the discharge piping. The pumps would be located a distance above the bottom of the tank to allow for natural settling of any solids in the collected water. A bypass discharge pipe would be provided to facilitate draining of sea water from the collection tanks to the sea after the dry dock has been deballasted and before industrial activity takes place. The bypass discharge would also serve to pump collected rain water to the sea when industrial activity is not taking place. The tanks would not be confined spaces and would be accessible for cleaning and maintenance. Each tank would be provided with a tank level monitoring system featuring an automatic start and stop of the pump at preset high and low levels and a high level alarm at the control console. Pump run indication and manual pump operation would also be provided at the control console.

With regard to operational sediment disturbance potential, as described in the 2020 Final EA for the Floating Dry Dock Project at NBSD, dry docking evolutions (i.e., lowering and raising the floating dry dock) would be accomplished with integral ballast tanks. Gravity would flood seawater into the ballast tanks to submerge the floating dry dock, and then electric pumps would pump water out of ballast tanks to raise the floating dry dock with a volume and velocity of approximately 6000 gpm through a 12” pipe with an 18” bar strainer so the velocity of the water as it exits the dock would be about 18 feet per second. This scenario occurs at 28 individual places on the dry dock during the dewatering operations to raise the dry dock out of the water. Operation of the floating dry dock would result in minimal sediment resuspension since dry docking evolutions (i.e., lowering and raising the floating dry dock) occur relatively slowly and infrequently.

Accidental releases of petroleum and debris from vessels and equipment would be limited and prevented by proper maintenance, inspection, and operation of vessels and equipment, and implementation of a site-specific SWPPP and Spill Prevention Plan. Any petroleum release or petroleum sheen observed on the water surface would be reported to NBSD Port Operations and the U.S. Coast Guard National Response Center. In the event of an accidental release, cleanup procedures would take place; booms and other spill containment equipment kept on hand would be immediately deployed, the source of the release would be determined and secured, and the NBSD Fire Department would respond to clean up the spill. These procedures would prevent impacts on water quality from petroleum products associated with demolition activities.

Summary

Implementation of the Proposed Action would not result in significant changes and disturbance to bathymetry and circulation, improper release of wastewater, sedimentation and turbidity, upland surface water quality, or marine water quality at the Mole Pier – South Berth or farther offshore. Therefore, implementation of the Proposed Action would not result in significant impacts on water resources.

3.3 Biological Resources

Biological resources include living, native, or naturalized plant and wildlife species and the habitats within which they occur. Within this Supplemental EA, biological resources are divided into three major categories: 1) marine habitats and communities; 2) fish and wildlife; and 3) threatened and endangered species listed under the ESA.

3.3.1 Regulatory Setting

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 USFWS or the NMFS 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 U.S. Department of Defense (DoD) where an INRMP has been developed that, as determined by the U.S. 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 U.S. 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, including 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 authority to prescribe regulations to authorize the Armed Forces from 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 an action if it would have a significant negative effect on the sustainability of a population of a migratory bird species.

The MSFCMA provides for the conservation and management of the fisheries. Under this Act, EFH consists of the waters and substrate needed by fish to spawn, breed, feed, or grow to maturity.

3.3.2 Affected Environment

The following discussions describe the existing conditions for each of the categories under biological resources at the Proposed Action project site and other nearby areas that may be directly or indirectly affected by the Proposed Action.

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

- San Diego Bay Integrated Natural Resources Management Plan (Navy and POSD 2013);
- NBSD INRMP (Navy 2021);
- 2017 San Diego Bay Eelgrass Inventory Update (Merkel & Associates, Inc. 2018);
- 2010 Characterization of Essential Fish Habitat in San Diego Bay (Navy 2010);
- *Fish surveys conducted in San Diego Bay* by Allen et al. (2002), Pondella and Williams (2009), Williams et al. (2015, 2016), and Martinez-Takeshita et al. (2015);
- San Diego Bay Avian Species Surveys 2016–2017 (Tierra Data, Inc. 2018);
- California Least Tern and Western Snowy Plover Monitoring at Naval Base Coronado, 2017 (Post et al. 2018);

- Silver Strand Training Complex Environmental Impact Statement (Navy 2011b); and
- Final Environmental Assessment for Pier 8 Replacement, Naval Base San Diego (Navy 2016).

3.3.2.1 Marine Habitats and Communities

The project area consists of the developed shorelines and piers on NBSD and the surrounding waters of San Diego Bay (refer to Figure 1-1) The only undeveloped terrestrial habitat in the vicinity is along Paleta Creek (Navy 2014a), which is north of the Mole Pier and would not be affected by any of the action alternatives. The south-central portion of San Diego Bay is recognized as a distinct hydrodynamic region of the bay, with physical and biological characteristics that also differ from areas north and south within the bay (Navy and POSD 2013; Merkel & Associates, Inc. 2018; Tierra Data, Inc. 2018).

Habitats of San Diego Bay are differentiated by elevation or depth, substrate, and man-made or natural biological features. Habitats associated within the project area include developed shoreline and artificial substrates such as pier pilings, and marine benthic (bottom), water column, and surface water habitat. Depths in the project area vary from -9 to -55 feet MLLW except along artificial shorelines, which rise steeply from the subtidal to dry land (Navy and POSD 2013). The associated habitats and communities are described in the following sections.

Shoreline and Artificial Substrates

The shoreline of the affected environment at the Proposed Action site consists of developed adjacent upland and artificial substrates. Artificial substrates comprise pier pilings, bulkheads, rock riprap, floating docks, seawalls, mooring systems, artificial reefs, and derelict ships and ship parts. These substrates form extensive artificial habitat along the NBSD shoreline. From the intertidal zone to deep subtidal habitat, the man-made structures support abundant invertebrates and seaweeds. California spiny lobsters (*Panulirus interruptus*), along with a variety of crabs, worms, oysters, mussels, barnacles, echinoderms, sponges, hydroids, sea anemones, bryozoans, and tunicates (sea squirts), inhabit artificial substrates in San Diego Bay (Navy and POSD 2013; Merkel & Associates, Inc. 2014). 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 (Navy and POSD 2013). Approximately 74 percent (45.4 miles) of the shoreline of San Diego Bay is armored by man-made structures that protect developed sites (Navy 2011b).

Although a number of potential negative impacts have been attributed to overwater structures (Nightingale and Simenstad 2001), wharves, docks, and piers in San Diego Bay provide increased three-dimensional substrate and cover that locally increase the productivity of benthic organisms as well as the species richness and abundance of fish compared to more open waters (Merkel & Associates, Inc. 2014; Navy 2016). However, many of the species that inhabit artificial structures in San Diego Bay (e.g., the recently discovered bryozoan *Watersipora subovoidea*) are nonindigenous and may displace or have other detrimental effects on native species (Ruiz and Geller 2015).

A hardened shoreline typically produces a very steep shore profile that can provide elevated roosting sites for bay waterbirds, such as California brown pelicans (*Pelicanus occidentalis californicus*), cormorants, and gulls, which allow them to conserve energy and avoid harsh weather conditions (Navy and POSD 2013).

The surface roughness and complexity of a structure can affect its ability to provide refuge niches and allow water retention at low tides.

Subtidal Habitat

Subtidal habitats in San Diego Bay are differentiated by depth as follows (Navy and POSD 2013):

- Shallow subtidal (-2.2 to -12 feet MLLW);
- Moderately deep subtidal (-12 to -20 feet MLLW); and
- Deep subtidal (deeper than -20 feet MLLW).

The occurrence of each with respect to the project area is discussed below.

Shallow subtidal habitats are highly productive and important in San Diego Bay, in part due to the presence of eelgrass (*Zostera marina*) beds and algal mats on shallow sandy to muddy substrates in many areas of the bay (Merkel & Associates, Inc. 2018; Navy 2002, 2011b; Navy and POSD 2013). Both eelgrass habitats and unvegetated shallows in this depth range are important to invertebrates, fish, and birds that prey on them (Navy and POSD 2013). Shallow subtidal habitat in San Diego Bay supports 12 species of fish that are indigenous to the bays and estuaries of Southern California (Allen et al. 2002; Navy and POSD 2013). At the Mole Pier – South Berth, shallow subtidal habitat is limited to the near-vertical surfaces of artificial structures. Eelgrass is predominantly present along the western side and southern end of San Diego Bay, but has also been documented on the eastern side of the Bay to a lesser extent (Merkel & Associates, Inc. 2018; see Figure 3-2). Eelgrass is absent from the Mole Pier – South Berth.

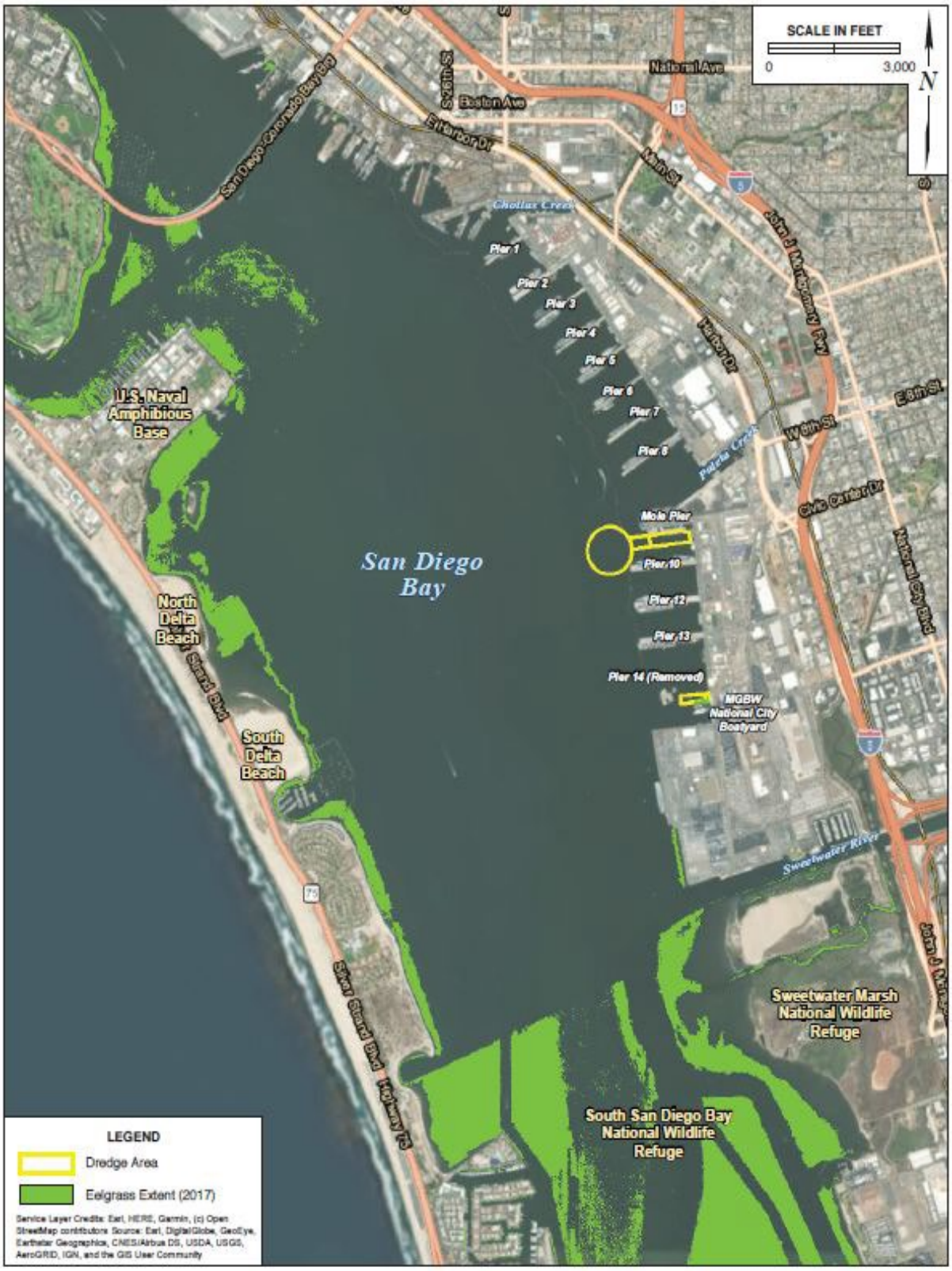

Figure 3--2. Eelgrass Beds at Naval Base San Diego.

Moderately deep subtidal habitat in the project area includes the near-vertical surfaces of artificial substrates within this depth range. All the remaining habitat is deep subtidal. For both the moderately deep and deep subtidal habitats, primary production by phytoplankton occurs in the overlying water column, but benthic primary production is limited because of low light penetration; algal mats and eelgrass beds are lacking. The base of the food chain for the benthic community is provided instead by organic detritus that originates in shallower water and drifts/sinks into deeper water. Fauna residing in subtidal benthic habitats (across all depths) include the warty sea cucumber (*Apostichopus parvimensis*) and a diversity of infaunal species, including suspension feeders, burrowers, and tube builders. Feeding by nematode and polychaete worms, clams, gastropod mollusks, brittlestars, crabs, isopods, and a wide variety of smaller crustaceans transforms detritus and small invertebrates into usable food for larger invertebrates and fishes. The soft bottom benthos provides other functional roles in addition to serving as a prey base for fish and birds. The less conspicuous mollusks, polychaete worms, small crustaceans, and other invertebrates living at the bottom of the bay mineralize organic wastes as it accumulates, consume algae, and return essential chemicals and organic matter to the water column (Navy and POSD 2013). Although a variety of organisms inhabit the waters of NBSD, the sediments in the area are historically known to be contaminated, and the associated biological communities have been considered degraded (Fairey et al. 1996, 1998). Typical deep subtidal fish species include round stingray (*Urobatis halleri*), spotted sand bass (*Paralabrax maculatofasciatus*), California halibut (*Paralichthys californicus*), barred sand bass (*Paralabrax nebulifer*), and bat ray (*Myliobatis californica*) (Navy and POSD 2013).

The deep subtidal water column is home to phytoplankton and zooplankton, including species that spend their entire lives (holoplankton), or only a portion of their life cycle (e.g., as eggs, larvae, or juveniles [meroplankton]) in the plankton. 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.

3.3.2.2 Fish and Wildlife

This section includes a description of fisheries and EFH; birds, most of which are protected under MBTA; and marine mammals, all of which are afforded Federal protection under the MMPA. All sea turtles are listed under the ESA and are discussed in Section 3.3.2.3, *Threatened and Endangered Species*.

Fisheries

Numerous surveys have been conducted over the last few decades in San Diego Bay to quantify fish diversity and abundance. The most comprehensive surveys of the bay have been conducted by the Vantuna Research Group (Allen et al. 2002; Williams et al. 2015, 2016) and Martinez-Takeshita et al. (2015). These surveys have generally found much lower abundance, biomass, and diversity of fishes in the South-Central Bay than in other parts of San Diego Bay. Shallow subtidal habitat in San Diego Bay, including the southern part of the bay, is highly productive and provides important habitat for 12 species of fishes that are indigenous to Southern California bays and estuaries (Allen et al. 2002; Navy and POSD 2013).

Note that the South-Central Bay sites sampled in these studies were across San Diego Bay from NBSD at Glorietta Bay and the Naval Amphibious Base, and probably are not representative of the fish community associated with the NBSD piers. The South Bay sites that have been sampled are in the southern end of the bay, which is virtually all shallow subtidal and intertidal and supports extensive eelgrass beds (Allen

et al. 2002; Merkel & Associates 2018). These and other works related to fish and EFH were characterized by Merkel & Associates, Inc. (2014) and the Navy (2010).

Approximately 109 species of bottom-living and open-water fishes occur in San Diego Bay. There is a greater variety of fish species in the North Bay area than in the South Bay, and the greatest fish diversity can be found at artificial reefs. Increased levels of flushing found in the North Bay also increases food availability, the supply of larval recruits, and water quality (Navy 2010). Eelgrass beds in particular are recognized as highly productive and important nursery habitat for a number of fish species in San Diego Bay (Allen et al. 2002; Navy and POSD 2013; Merkel & Associates, Inc. 2014, 2018). While there is no commercial fishing within San Diego Bay, seven fish species inhabiting the bay support commercial fisheries elsewhere in Southern California waters. Examples of notable fishery populations found in San Diego Bay include California halibut and white seabass (*Atractoscion nobilis*). At least 58 species are involved in the recreational catch (Navy and POSD 2013).

While no surveys have been conducted within the project area, Merkel & Associates, Inc. (2014) have provided lists of San Diego Bay fish species that are associated with deep subtidal versus man-made structural habitats, based on the surveys of Pier 2 and Pier 8 (just north of the Mole Pier). Despite much less intensive sampling than in the deep subtidal habitat, a large number of species have been documented around piers and other artificial structures, including most of the common species found in San Diego Bay. When comparably sampled, piers have been found to support a greater abundance and species diversity of fish than adjacent open water areas.

Fish species observed in transects along the edges of and/or underneath Pier 2 and Pier 8 included spotted sand bass (*Paralabrax maculatofasciatus*); barred sand bass (*P. nebulifer*); kelp bass (*P. clathratus*); black croaker (*Cheilotrema saturnum*); round stingray (*Urobatis halleri*); yellowfin croaker (*Umbrina roncador*); white sea bass (*Atractoscion nobilis*); midshipman (*Porichthys* sp.); sargo (*Anisotremus davidsonii*); slough anchovy (*Anchoa delicatissima*); giant kelpfish (*Heterostichus rostratus*); and bay blenny (*Hypsoblennius gentilis*) (Merkel & Associates 2014). The same species would be expected to occur along the Mole Pier. In contrast, in deep subtidal habitat away from the piers, only one fish species, black croaker, was observed (next to a tire on the bottom), although other species considered likely to use this habitat include spotted sand bass; round stingray; barred sand bass; midshipman; and gobies (family Gobiidae). California spiny lobsters were also observed under Pier 2, but were not observed, and are not likely to occur, in the open deep subtidal habitat. Similar results would be expected in open water away from the Mole Pier – South Berth because of a lack of suitable habitat.

Essential Fish Habitat

Many marine habitats are critical to the productivity and sustainability of marine fisheries. 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 MSFCMA directs each Federal agency to consult with 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 in 50 CFR Part 600. Because the project area is located within an area designated as EFH for two Fishery Management Plans (FMPs) – the Pacific Coast Groundfish (Pacific Fishery Management Council [PFMC] 2016) and the Coastal Pelagic Species (PFMC 2016, 2019) – and may affect EFH, the Navy is required to consult with NMFS.

Of the 109 species of fish previously identified in San Diego Bay, 10 are managed by NMFS (PFMC 2016). Four are managed under the Coastal Pelagics FMP: northern anchovy (*Engraulis mordax*); pacific sardine (*Sardinops sagax*); pacific mackerel (*Scomber japonicus*); and jack mackerel (*Trachurus symmetricus*). Six species are covered under the Pacific Groundfish FMP and occur, although not in abundance, in San Diego Bay: California scorpionfish (*Scorpaena guttata*); grass rockfish (*Sebastes rastrelliger*); English sole (*Parophrys vetulus*); curlfin sole (*Pleuronichthys decurrens*); leopard shark (*Triakis semifasciata*); and soupfin shark (*Galeorhinus galeus*) (Navy 2010; Navy and POSD 2013). These species are discussed briefly below.

Coastal pelagic species are those fish that live in the water column in contrast to groundfish species that live near the sea floor. The coastal pelagic species fishery includes four finfish (Pacific sardine, Pacific [chub] mackerel, northern anchovy, and jack mackerel) and the invertebrate, market squid (PFMC 2019). Pelagic species can generally be found anywhere from the surface to a depth of 3,300 feet. San Diego Bay is entirely within the boundary of EFH for coastal pelagic species finfish. All except market squid are likely to occur in the bay. Finfish are highly transient and two, northern anchovy and Pacific sardine, can be found throughout the bay. Jack mackerel and Pacific mackerel are typically found in the North, North-Central, and South-Central Ecoregions of the bay (Allen et al. 2002). All the coastal pelagic fish species have been documented to occur in deep subtidal habitat, and all but the jack mackerel – which is less common and hence less likely to have been detected in the few surveys conducted – have been documented around man-made structures (Merkel & Associates, Inc. 2014).

The Pacific Coast Groundfish FMP manages 86 species over a large ecologically diverse area covering the entire West Coast of the continental U.S. Although groundfish are those fish considered demersal (fish that live on or near the seabed), they occupy diverse habitats at all stages in their life histories. EFH areas may be large because a species' pelagic eggs and larvae are widely dispersed, for example, or comparatively small, as is the case with the adults of many nearshore rockfishes, which show strong affinities to a particular location or type of substrate. However, the species rarity in all or parts of San Diego Bay makes it unlikely that any will occur the project area (Merkel & Associates, Inc. 2014). These species are curlfin sole, English sole, California scorpionfish, grass rockfish, leopard shark, and soupfin shark.

In addition to designating EFH, the PFMC is also responsible for identifying Habitat Areas of Particular Concern (HAPCs) for Federally-managed species. EFH that is 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, also may be identified by NMFS as a 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-induced environmental degradation;
- Whether, and to what extent, development activities are, or will be, negatively impacting the habitat type; and
- The rarity of the habitat.

HAPCs include seagrass (eelgrass), canopy kelp, rocky reef, and estuarine habitats along the Pacific coast (PFMC 2016). HAPCs may also 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 PFMC has designated HAPC for groundfish only. Eelgrass is absent at the Mole Pier – South Berth site (refer to Figure 3-2). Estuarine habitat is associated with the Sweetwater Marsh (south of NBSD) and, to a very limited extent, upstream of the bay in the Paleta Creek channel (north of the Mole Pier (Navy 2014a; Navy and POSD 2013). NBSD is in a part of San Diego Bay characterized as seasonally hypersaline due to evaporation and reduced tidal flushing (Navy and POSD 2013). The project area does not provide estuarine habitat because freshwater inflows are limited to temporary runoff from the developed surroundings, and salinities average about 30 parts per thousand (Navy 2016). It is recognized, however, that Southern California bays, including San Diego Bay, are classified as estuarine HAPC by NMFS because of their importance as nursery habitat.

Birds

The MBTA prohibits the taking, killing, or possession of migratory birds or the parts, nests, or eggs of such birds, unless permitted by regulation. The MBTA protects nearly all wild birds that may be encountered on NBSD and in San Diego Bay. Species that are not protected are limited to the rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*).

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

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 INRMPs;
4. Managing military lands and activities other than military readiness in a manner that supports migratory bird conservation;
5. Avoiding or minimizing impacts on migratory birds, including incidental take and the pollution or detrimental alteration of the environments used by migratory birds; and
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 project area is located on the mainland side of the Central Bay and includes man-made structures and open-water habitat. Bird abundance and diversity are relatively low in the project area compared with the opposite (Coronado) shore and the South Bay (Navy and POSD 2013; Tierra Data, Inc. 2018). A number of species covered by the MBTA are found within the project area, including the species listed below. A number of the species covered under the MBTA are also Federally-listed or state-listed as threatened or endangered. However, there are also many other species that occur in and around San Diego Bay and the project area that are not otherwise listed as threatened or endangered that would fall under the MBTA. These include species that are transiting or migrating through the area.

San Diego 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, with over 300 migratory and resident bird species documented to use the bay (Navy and POSD 2013; Tierra Data, Inc. 2018). The most common birds along the developed NBSD shoreline and adjacent deep subtidal waters are waterfowl (ducks) and seabirds (gulls and terns), and would likely include the following species: surf scoter (*Melanitta perspicillata*), eared grebe (*Podiceps nigricollis*), brant (*Branta bernicla*), scaup species (*Aythya* spp.), bufflehead (*Bucephala albeola*), elegant tern (*Thalasseus elegans*), western gull (*Larus occidentalis*), California gull (*Larus californicus*), Forster's tern (*Sterna forsteri*), California brown pelican (*Pelecanus occidentalis*), Heermann's gull (*Larus heermanni*), double-crested cormorant (*Phalacrocorax auritus*), mallard (*Anas platyrhynchos*), and great blue heron (*Ardea herodias*) (Tierra Data, Inc. 2018). Several species, as noted below, are considered sensitive by USFWS or the California Department of Fish and Wildlife (CDFW). (For more detailed information on the California least tern, see Section 3.3.2.3, *Threatened and Endangered Species*.)

Bird species that are not threatened or endangered but are of state or Federal concern that have the potential to occur in the vicinity of the proposed project include the common loon (*Gavia immer*), double-crested cormorant, osprey (*Pandion haliaetus*), gull-billed tern (*Gelochelidon nilotica*), California gull, black skimmer (*Rynchops niger*), great blue heron, black-crowned night heron (*Nycticorax nycticorax*), Forster's tern, and elegant tern. Most of these species are considered sensitive only where breeding or nesting occurs. These birds use intertidal flats, shallow-water habitat, or man-made structures for foraging or resting, similar to areas adjacent to the project area. In the most recent, comprehensive bird surveys of San Diego Bay, a diversity of birds were observed at the Mole Pier – South Berth (Tierra Data, Inc. 2018).

Marine Mammals

Marine mammals are protected from taking under the MMPA. The Take is defined under the MMPA as "to 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 that has the potential to do one or both of the following:

- Injure a marine mammal or marine mammal stock in the wild; 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.

The most frequently observed marine mammals in San Diego Bay are the California sea lion (*Zalophus californianus*), which often rest on buoys and other structures throughout San Diego Bay; coastal bottlenose dolphins (*Tursiops truncatus*), which are regularly visitors to San Diego Bay; harbor seals (*Phoca vitulina*), which frequently enter the North Bay, but are less common in the southern portions of San Diego Bay; and common dolphins (*Delphinus* spp.), which are rare visitors in the North Bay, but are not known to regularly occur south of Coronado Bridge. California gray whales (*Eschrichtius robustus*) are occasionally sighted near the mouth of San Diego Bay during their winter migration (Navy and POSD 2013) and occasionally enter the bay (personal communication with Todd McConchie, 2019). Of those marine mammal species, the California sea lion, harbor seal and bottlenose dolphin are the three

species most likely to be observed in the Project area. Therefore, the Navy obtained an MMPA IHA for these three species to address the potential for Level A (injury) or B (behavioral) Harassment.

3.3.2.3 Threatened and Endangered Species

Two Federally listed species may occur in the project area: green sea turtle (*Chelonia mydas*) and California least tern (*Sterna antillarum browni*). Each species is discussed below.

Green Turtle

The green turtle is the only species of marine reptile found in San Diego Bay. The San Diego Bay green turtle population is part of the East Pacific distinct population segment (DPS), which is listed as Federally-threatened under the ESA. Critical habitat has not been designated for the East Pacific DPS.

The Bay represents one of the green turtles' northernmost foraging habitats (MacDonald et al. 2012). Because this species is considered rare along the California coast, the resident turtles in San Diego Bay are considered both "noteworthy" and "extremely interesting" by members of the scientific community (Macdonald et al. 1990). The number of turtles using the bay is estimated to range between 40 and 60 animals most months of the year, increasing to 100 animals during peak migratory periods (Eguchi 2017). Based on the number of juveniles observed during the late 1980s and early 1990s, there appears to be some recruitment into the population (MacDonald and Dutton 1992). Additionally, an unknown number of green turtles have also been occupying habitats in Long Beach, and Seal Beach, California, for at least the past 50 years (Crear et al. 2016, 2017). This aggregation of green turtles has been primarily observed in the highly-urbanized San Gabriel River, which bisects two electricity- generating plants, and their numbers seem to have increased in recent years (Crear et al. 2017). Although it was previously accepted that green turtles were not historical residents of San Diego Bay, scientists have now concluded that green turtles would naturally have sought out the bay, especially during the summer months (Macdonald et al. 1990).

During the day, green turtles in San Diego Bay reside in the deeper portion of the now-defunct south bay power plant discharge channel, whereas at night, they feed in the south bay eelgrass beds, including those near Coronado Cays (Navy and POSD 2018; Stinson 1984). Green turtles are carnivorous from hatching until they reach juvenile size, at which point they gradually transition to a primarily herbivorous diet; they have also been described as opportunistic feeders, feeding on jellyfish, ctenophores, bivalves, and gastropods, if such prey items are readily available (Lemons et al. 2011). Adult sea turtles around the world are primarily herbivorous grazers of marine algae and grasses. Recent stable isotope diet analysis suggests that the San Diego Bay population also consumes various invertebrates, making this population predominantly omnivorous (Lemons et al. 2011). Stomach content analysis has revealed that San Diego Bay green turtles also consume red algae (*Polysiphonia* sp.), sea lettuce (*Ulva* sp.), and various species of invertebrates found in the south bay (MacDonald and Dutton 1992; Lemons et al. 2011). A study by Seminoff et al. (2006), has broadened the understanding of green turtle foraging in San Diego Bay, indicating that adult green turtles in this population are likely more omnivorous than previously thought.

Between 2009 and 2011, the Navy, POSD, NMFS, and San Diego State University initiated tracking efforts to determine the movement patterns of green turtles in San Diego Bay. Using a combination of manual and automated acoustic telemetry, turtles' home ranges and movements throughout the bay

were recorded and analyzed. Results from this study indicated at the time that the South Bay serves as important green turtle habitat. The study also found individual home range areas tend to be 0.8 and 3.4 square miles in size, and that each turtle primarily uses one or two areas (MacDonald et al. 2012). The home ranges of all turtles in the study were found to be exclusively located in the South Bay, near abundant eelgrass pastures and the power plants' warm water effluent (MacDonald et al. 2012).

In 2009, the San Diego Bay power plants decreased operations by 50 percent, shutting down two of four units, and were fully decommissioned by December 31, 2010 (Hill 2011). In an effort to evaluate how turtle behavior may have changed as a result of the power plant closures, the Navy and the Marine Turtle Ecology & Assessment Program at the NMFS Southwest Fisheries Science Center initiated a satellite tagging effort to detect fine-scale movements of turtles in the bay. The data collected since the inception of the post-closure program in 2011 indicate that turtles' movements in the bay are changing. Turtle home ranges increased in size by 12 percent when comparing pre-closure tags (2007–2010) with post-closure tags (2011–2016). The 50 percent utilization distribution (UD), which generally shows the most utilized areas or core home range, increased in size by 0.2 square kilometer and shifted to the northern side of outflow jetty. Overall, there was a trend of northern movement of home ranges following the power plant closure.

Additionally, it was determined that turtles in the bay may associate with or seek out thermal refugia, when possible, to avoid low water temperatures. The cold-water temperature inactivity threshold for East Pacific green turtles may be lower than previously thought (Madrak et al. 2016). In a recent study, there was a significant negative relationship between turtle size and water temperature after power plant closure, which led researchers to conclude that East Pacific green turtles exhibit clear responses in habitat use to changes in water temperature (Madrak et al. 2016).

In the aforementioned telemetry study, turtle home ranges were found to extend from the southern end of San Diego Bay northward to approximately to the Sweetwater River (Navy and POSD 2018). Occurrence of sea turtles at the south berth of the Mole Pier would likely be limited to migratory or wandering individuals. Because eelgrass is present within the existing MGBW maintenance piers location, sea turtles may forage within that habitat.

A Federal recovery plan for the species lists the following threats as pertinent to the San Diego Bay population (NMFS and USFWS 1998):

- Limited information concerning turtles' home range and foraging patterns impedes habitat delineation and subsequent protection.
- Persistent marine debris, including plastic and other anthropogenic waste, remains a concern with respect to potential mortalities through entanglement or blockage of turtles' digestive tracts.
- Foraging habitat is subject to reduction and/or fragmentation caused by dredging and shoreline development.
- Disturbance and/or behavior modification results from various anthropogenic activities, most notably dredging and construction involving pile driving. Little information is available on defined thresholds or potential population-level impacts.
- Mortalities are caused by collisions with motorized vessels transiting the bay.

California Least Tern

The California least tern has been a Federally-listed and state-listed endangered species since 1970; however, there is no designated critical habitat for this species.

The California least tern breeds on sandy beach habitats of the California coast. California 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 (Caffrey 1993). During the nesting season, adult terns and their young feed almost entirely on small marine fish in the surface waters (i.e., the top 6 feet) of bays, river mouths, and near-shore ocean waters (Massey 1974; Collins et al. 1979; Massey and Atwood, 1981, 1984; Atwood and Minsky 1983; Atwood and Kelly 1984; Bailey 1984; Minsky 1984). The parents continue to feed and teach their young how to forage for some time after fledging. The peak of the topsmelt spawning season (April and May) occurs at the same time that least terns return from their southern wintering grounds (April) and begin nesting at Fiesta Island (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).

California least terns are residents in San Diego Bay from late spring to early fall, with the breeding season beginning 1 April and ending 15 September. The least tern nesting population in the bay has increased dramatically from 187 in 1993 to an estimated 1,314 in 2016 (Navy 2006; Frost 2017) because of coordinated management strategies with USFWS and the Navy (2018).

The least tern nesting colonies closest to the project area are located approximately 2 miles across San Diego Bay at North Delta Beach, South Delta Beach, and Naval Amphibious Base Ocean Beach, all of which are on Navy land. All three nesting sites have foraging areas nearby on the western side of San Diego Bay. Other nesting colonies within the Central and South Bay are found at “D” Street, Chula Vista Wildlife Reserve (approximately 2 miles south of the project area), and South Bay Refuge (approximately 4 miles south of the project area), with the foraging areas located at the southwestern-most portion of the South Bay (USFWS and Navy 2004).

The foraging area nearest to the project area is located approximately 1.3 miles west of the Mole Pier on the other side of San Diego Bay. Previous studies suggest that abundance of California least tern prey species is low in the project area and California least terns are not expected to occur within the project area (Tierra Data, Inc. 2011; Navy and POSD 2013).

3.3.3 Environmental Consequences

This analysis focuses on fish and wildlife or habitat types that are important to the function of the ecosystem or are protected under Federal or state law or statute. Regulatory requirements to be satisfied for the Proposed Action prior to completion of the NEPA process include: informal ESA Section 7 consultation with NMFS (see Appendix C); consultation with NMFS regarding project effects on EFH (see Appendix F); issuance of a Suitability for Unconfined Aquatic Disposal with USEPA and USACE (see

Appendix D), issuance of a Coastal Consistency Negative Determination from the California Coastal Commission (see Appendix E), and receipt of an IHA from NMFS (see Appendix B).

The Navy prepared and submitted an ESA consultation letter to NMFS on 11 February 2020. After reviewing the consultation letter, NMFS provided a response on 25 March 2020 concurring with the Navy that the Proposed Action may affect but is not likely to adversely affect Federally-listed species and/or Federally-designated critical habitats (see Appendix C). Based on the refined project design, on 28 June 2023 the Navy re-initiated an informal ESA consultation with NMFS and presented the Navy's finding that the revised Proposed Action may affect but is not likely to adversely affect Federally-listed species and/or Federally-designated critical habitats (see Appendix C). NMFS provided a response on 6 September 2023 concurring with the Navy that the Proposed Action may affect, but is not likely to adversely affect federally listed species and/or federally designated critical habitats.

In conformance with the Navy Policy Regarding EFH Assessments and Consultations (Navy 2011b) under the MSFCMA, the Navy prepared and submitted an EFH Assessment for consultation with NMFS. On 14 April 2020, NMFS stated that it had no objection to the Navy's proposed compensatory mitigation and no additional EFH Conservation Recommendations for the Proposed Action at the time. Based on the subsequent refined project design, in 2023 the Navy is processing with NMFS an EFH Assessment Consultation Re-initiation for the project (see Appendix F). The Renewal Request presents and analyzes project design revisions, and analyzes potential impacts to Essential Fish Habitat resources related to the dry dock facilities preparation (dredging and pile extraction/installation), dry dock transit from Mobile, Alabama (elevated noise and vessel strike), and dry dock waterfront operations. Further, the document presents updated compensatory mitigation recommendations. On 6 September 2023, NMFS provided a concurrence that, as long as the proposed conservation measures are implemented, including the compensatory mitigation, then no additional mitigation measures beyond those from the 2020 EFH consultation are required.

The Navy processed a Final IHA with NMFS. The Navy's IHA application was submitted to NMFS on 16 February 2023. After reviewing the Navy's IHA application package, on 21 July 2023 NMFS issued public notice advertising a draft IHA in the Federal Register and starting a 30-day public review period. No public comments were received during that review period, and on 26 September 2023 NMFS issued a Final IHA for the Proposed Action.

Because the Proposed Action would involve dredging and sediment discharge, a CWA Section 401 Water Quality Certification(s) from the San Diego RWQCB and a CWA Section 404 and RHA Section 10 permit(s) from USACE would be obtained before implementation of the Proposed Action.

3.3.3.1 Avoidance or Minimization Measures

A full list of Best Management Practices for the project appears in Table 2-2. The following avoidance and minimization measures would be followed during the proposed dredging and sediment disposal activities as well as demolition and construction activities:

1. A pre-dredging survey for *Caulerpa*, an invasive alga, would be conducted for dredging activities 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.

2. Buffered shutdown Zones of Influence (ZOI) will be implemented to reduce the potential for injury to marine mammals and green sea turtles.
3. If a marine mammal approaches to within 66 feet (20 meters) of the dredging activities, dredging would be stopped until the individual(s) has left the zone of its own volition, or has not been sighted for 15 minutes.
4. 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.

3.3.3.2 Noise Impact Methodology

Underwater Noise Propagation

Transmission loss (TL) underwater is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source until the source becomes indistinguishable from ambient sound. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, bottom composition and topography. A standard sound propagation model (i.e., practical spreading loss) was used to estimate the range from pile-driving activity to various expected sound pressure levels (SPLs) at potential project structures. This model follows a geometric propagation loss based on the distance from the driven pile, resulting in a 4.5-dB reduction in level for each doubling of distance from the source. In this model, the SPL at some distance away from the source (e.g., a driven pile) is governed by a measured source level, minus the TL of the energy as it dissipates with distance. Practical spreading loss is generally used to estimate TL where bathymetry varies and empirical measurements are not available, as is the case in south-central San Diego Bay. The equation for TL with practical spreading loss is:

$$TL=15\log10*(R1/R2)$$

where

TL is the transmission loss in dB,
R_1 is the distance of the modeled SPL from the driven pile, and
R_2 is the distance from the driven pile of the initial measurement.

The degree to which underwater noise propagates away from a noise source is dependent on a variety of factors, most notably by bathymetry and the presence or absence of reflective or absorptive conditions, including the sea surface and sediment type. The TL model described above was used to calculate the expected noise propagation from each installation method, using representative source levels to estimate the ZOI or area exceeding the noise criteria.

Underwater Noise from Dredging

Underwater noise associated with dredging activities has been estimated based on a previous study that used a bucket dredge in soft substrate in Cook Inlet, Alaska. Underwater noise associated with dredging operations measured up to 124 decibels (dB) at 493 feet (150 meters) (Dickerson et al. 2001).

Underwater Noise from Pile Driving and Extraction

The intensity of pile driving sound is greatly influenced by factors such as the type of pile, the type of driver, and the physical environment in which the activity takes place. To determine reasonable SPLs from pile driving, studies with similar properties to the proposed project were evaluated. Multiple pieces or equipment may be used to install and/or remove piles, including: 1) impact pile driver; 2) use of high-pressure water jetting to install concrete piles; 3) a vibratory pile extractor for the removal off concrete piles; and 4) pile clippers for removal of concrete pile. The noise levels presented in Table 3-5 and Table 3-6, along with the variables identified in the notes of the tables, were used to evaluate the potential for Level A/B Harassment.

Injury and behavioral effects thresholds for marine mammals (as well as for sea turtles and fish) are based on peak or root mean square (RMS) SPL, and on the SEL_{cum}, which is calculated as follows:

- For impact pile driving,
  SEL_{cum} = single-strike SEL (dB) + 10 $\log_{10}$ (number of strikes)

- For vibratory driving or extraction, or other non-impulsive sound sources,
  SEL_{cum} = one-second SEL + 10 $\log_{10}$ x number of seconds the source operates.

Table 3-5 presents received SPL at a distance of 33 feet (10 meters) from the pile, with root mean square (RMS) and peak levels relative to 1 microPascal (µPa; dB re 1 µPa) and cumulative Sound Exposure Level (SEL_{cum}) relative to 1 µPa squared second (dB re 1 μPa^2-sec) during impact pile driving. Both peak and RMS represent relatively instantaneous sound measurements, while the SEL_{cum} represents an accumulation of noise over time. For SEL_{cum}, multiple factors may be used to assess the potential for effects based on the exposure to prolonged noise. For impact pile driving, the metric is evaluated using either the number of blows per pile or the duration of a pile strike. For vibratory pile extraction/driving, the duration of the activity is evaluated relative to the piles.

Table 3--5. Underwater Noise Source Levels Modeled for Impact Pile Driving.

Pile Type	*Peak SPL[1] (dB re 1 µPa)*	*RMS SPL (dB re 1 µPa)*	*SEL (dB re 1 μPa^2-sec)*
24-inch Concrete Octagonal	188	176	166

Data Source: CALTRAN (2020; Berth 22 Reconstruction, Port of Oakland).

Note:

[1]All SPLs are unattenuated; single strike SEL are the proxy sources levels presented for impact pile driving and were used to calculate distances to permanent threshold shift (PTS); Source levels for 24-inch concrete square and octagonal piles are assumed to have the same source level.

Abbreviations: dB re 1 µPa = decibels referenced to a pressure of 1 microPascal (measures underwater SPL); dB re 1 μPa^2-sec= decibels referenced to a pressure of 1 microPascal squared per second (measures underwater SEL); RMS = root mean square; SEL = sound exposure level; SPL = sound pressure level.

Pile driving can also generate airborne noise that could potentially result in disturbance to marine mammals that are hauled out; however, due to the absence of haul outs in the project area, the potential for acoustic harassment by airborne noise is considered negligible.

While there are multiple potential continuous noise sources associated with pile removal, only noise from a vibratory pile extractor is expected to exceed regulatory thresholds. Therefore, analyses for potential harassment will only focus on the use of a vibratory pile extractor (Table 3-6). Data from similar activities (Navy 2022) were used as a proxy for the proposed activities associated with the FDD Project. The vibratory pile extractor was assumed to operate for 20 minutes; this is a conservative assumption given that the contractor would be allowed flexibility to combine and use the most efficient methods. For the purpose of generating Level B take estimates, the maximum RMS SPL is the only relevant criterion; peak SPLs and SELs for continuous noise sources are not usually measured and would only exceed thresholds less than a meter from the source.

Table 3--6. Underwater Noise Source Levels Modeled for Pile Extraction.

Pile Size/Type	*Method*	*RMS SPL[1,2] (dB re 1 µPa)*	*Assumed Duration of Pile Extraction*
24-inch Octagonal Concrete OR 24-inch Square Concrete	Vibratory extraction	162	20:00

Data Source: NAVFAC SW (2022)

Note:

[1] In the absence of information on vibratory extraction of 24-inch square and octagonal concrete piles, source data from 20-inch concrete square piles was used as a proxy source level.

[2]Data were not collected at source (33 feet [10 meters]) due to safety concerns. The source value of 162 dB RMS value is based on a calculated source level, assuming practical spreading loss, using the average of the maximum RMS values (161.97 dB RMS) collected at from 49 to 79 m (161 to 259 ft.). The Peak SPL and SEL values are not available for the calculated data.

Abbreviations: dB re 1 µPa = decibels referenced to a pressure of 1 microPascal (measures underwater SPL); RMS = root mean square; SPL = sound pressure level.

The TL model described above was used to calculate the expected noise propagation from pile extraction/driving. For vibratory and impact behavioral zones and peak injury zones, a representative source level was used to estimate the area exceeding the noise criteria. For vibratory and impact behavioral zones and peak injury zones, a representative source level (refer Table 3-5 and Table 3-6) was used to estimate the area exceeding the noise criteria. For impact pile-driving distances to the permeant threshold shift (PTS) onset thresholds, the TL model described above incorporated frequency weighting adjustments by applying the auditory weighting function over the entire 1-second SEL spectral datasets from impact pile driving. For vibratory pile-driving distances to the PTS thresholds, the TL model described above incorporated the auditory weighting functions for each hearing group, using a single frequency as described in the NMFS Spreadsheet (NMFS 2018). For impact pile-driving distances to the PTS thresholds the TL model described above incorporated frequency weighting adjustments by applying the auditory weighting function over the entire 1-second SEL spectral datasets from impact pile driving.

To quantitatively assess exposure of marine mammal s to pile extraction/driving noise levels over the NMFS threshold guidance, the potential number of the three marine mammal species most likely to be in the project area for all pile extraction/driving activities were multiplied by the number of days of noise generating activities (refer to Table 2-1 for the number of days per activity).

Estimate of Level B Exposure = N × D

where

N is the expected average individual marine mammals per day potentially exposed to Project-related noise, and

D is the total days of pile extraction/installation.

The following assumptions were used to calculate potential exposures to impact and vibratory pile extraction/driving noise for each threshold:

- Each animal can be "taken" via Level B harassment once every 24 hours.
- Density estimates were not available for analysis. Therefore, observation data from previous surveys and monitoring efforts were used to calculate the potential for Level B take.
- There are three species (California sea lions, harbor seals and bottlenose dolphins) with the highest likelihood of presence in the project area.

California Sea Lions

California sea lions are present in northern San Diego Bay year-round and are by far the most common and numerous marine mammal in the Bay, as reported in the first IHA monitoring period at the Pier 6 Replacement Project. The San Diego Bay population comprises adult females and sub-adult males and females, with adult males being uncommon (Merkel and Associates, Inc. 2008; Navy 2010; Tierra Data, Inc. 2012b; NAVFAC SW 2014, 2022). California sea lions occur year-round in San Diego Bay (NAVFAC SW and POSD 2013). During monitoring efforts associated with Pier 6 Replacement Project (NAVFAC SW 2022), individuals were observed all eight months of monitoring effort, with the highest number of individuals observed during the month of January. The Navy believes that this data provides the best estimate of likelihood of presence in the general Project area for this Project.

Based on the observations presented in the interim report for the Pier 6 Replacement Project (NAVFAC SW 2022), an average of 1.74 California sea lions were observed per day (rounded to 2 per day). This expected daily individual count was used to calculate the Level B take for California sea lions over the expected 59 days of pile extraction activities under the Project. Estimated total Level B take for California sea lions is 118 (Table 6-8).

Harbor Seals

Based on eight months of monitoring effort for the Pier 6 Replacement Project (NAVFAC SW 2022), harbor seals are infrequent visitors to the area south of the San Diego-Coronado Bridge, with only two individuals observed. These individuals were both observed in January near the Naval Amphibious Base (NAVFAC SW 2022). The Navy believes that this data provides the best estimate of likelihood of presence in the general Project area for this Project.

Based on the observations presented in the interim report for the Pier 6 Replacement Project (NAVFAC SW 2022), an average of 0.02 harbor seals were observed per day (rounded up to 1 per day). This

expected daily individual count was used to calculate the Level B take for harbor seals over the expected 59 days of pile extraction activities under the Project. Estimated total Level B take for harbor seals is 59.

Coastal Bottlenose Dolphins

Coastal bottlenose dolphins occur year-round in San Diego Bay, but during the Pier 6 Replacement Project (NAVFAC SW 2022), individuals were observed during five of the eight months of monitoring effort, with the highest number of individuals observed during the month of January.

Based on the observations presented in the interim report for the Pier 6 Replacement Project (NAVFAC SW 2022), an average of 0.73 coastal bottlenose dolphins were observed per day (rounded up to 1 per day). This expected daily individual count was used to calculate the Level B take for coastal bottlenose dolphins. Estimated total Level B take for coastal bottlenose dolphins is 59 (Table 6-8).

3.3.3.3 Proposed Action - Potential Impacts

The ROI for the analysis of effects to biological resources associated with the Proposed Action includes the footprints of demolition and construction necessary to install the floating dry dock, the areas of sediment dredging and disposal necessary to accommodate vessel traffic, the area of the dry dock itself, and operational impacts. Project activities may affect biological resources as a result of increased noise, turbidity, shading, and other direct disturbances. Detailed descriptions are provided below. Because the Proposed Action would involve dredging activities, a CWA Section 401 Water Quality Certification from the San Diego RWQCB and a CWA Section 404 and RHA Section 10 permit from USACE would be obtained prior to the initiation of any in-water construction activities. The Navy processed a Final IHA with NMFS for the proposed floating dry dock at the Mole Pier – South Berth. After reviewing the Navy's IHA application package, on 21 July 2023 NMFS issued public notice advertising a project draft IHA in the Federal Register and starting a 30-day public review period. No public review comments were received, and on 26 September 2023 NMFS issued a Final IHA for the Proposed Action.

Impacts on biological resources associated with the Proposed Action would occur during dredging, sediment transport and disposal, demolition and construction activities, including partial demolition and replacement of mooring wharf, and pile removal and pile driving. Operational activities may affect biological resources as a result of increased turbidity, and shading impacts to marine habitats. A detailed description as it relates to potential impacts on species is provided below.

Turbidity

Construction related turbidity is expected to increase short-term during pile removal, dredging, and disposal of dredged sediments as well as pile installation. The size and shape of the turbidity plume from pile driving and dredging and disposal are difficult to quantify because of variability in naturally occurring conditions, such as wind and currents, and type of dredging equipment. Consequently, it is difficult to predict the specific areas that may be influenced by the plume.

Dredging activities for the Proposed Action would cause minor and short-term impacts on existing unvegetated soft-bottom benthic communities and any marine species within the immediate areas through 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 several hours after dredging activities cease (USACE 2009, 2012).

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. Increased turbidity may result in temporary decreases in light penetration and levels of dissolved oxygen. 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 (i.e., mainly sand) of the dredged 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. Toxicity testing within the area has shown that chemical concentrations of material near the dredge prism are not toxic.

Therefore, acute toxicity, bioaccumulation, or sublethal chronic impacts on marine organisms associated with remobilization and resuspension of chemicals would be negligible.

Pile removal and installation activities are likely to increase turbidity in the immediate vicinity, for example, when high-pressure water jetting is used. Turbidity monitoring during jetting to remove caissons for the NBPL Fuel Pier Replacement project revealed relatively minor, if any, changes, with only localized decreases in water clarity that dissipated within 11 minutes or less (NAVFAC SW 2017). Turbidity associated with pile removal and installation would have localized, intermittent negative effects on the quality of habitat and impacts on marine organisms throughout the areas of pile removal and installation at the proposed dry dock locations.

As described in Section 3.2, *Water Resources*, following berthing, floating dry dock operations causing sediment resuspension would be minimal; dry docking evolutions (i.e., lowering and raising the floating dry dock) are slow (approximately 6 hours) and do not substantially disturb the underlying sediments. Therefore, long-term impacts to biological resources would be less than significant.

As described in the 2020 Final Environmental Assessment for the floating dry dock evolutions (i.e., lowering and raising the floating dry dock) would be accomplished with integrated ballast tanks. Electrical pumps would be used to pump seawater into the ballast tanks to submerge the floating dry dock, and then out of ballast tanks to raise the floating dry dock. Ballast water pumps would be built into the floating dry dock and operated to comply with the permit requirements of the Uniform National Discharge Standards for Vessels of the Armed Forces. These standards would dictate the Marine Pollution Control Device performance standards necessary to control the vessel's discharges.

Dry docking evolutions would occur between 4 and 6 times per year, each event would take approximately 6 hours to complete, depending on the objective(s) of the specific dry docking event. When hosting a vessel, ballast tanks are filled with air, and the floating dry dock would remain stationary while maintenance and repair work is undertaken on a vessel. While ship repair and maintenance is occurring, appropriate BMPs would control for environmental releases of process water and dust. Work-process related trash and debris would be controlled and be transported to appropriate municipal disposal facilities.

The pontoon deck of the floating dry dock would be designed to act as a large containment. Specifically, the pontoon deck of the floating dry dock would feature a guttered drainage system for the collection

and discharge of industrial waste (i.e. washwater and blastwater) and environmental runoff (i.e. rainwater). Under normal operations when the dry dock is deballasted it will be moved forward to allow water on the pontoon deck to naturally drain to the forward end of the pontoon deck. The forward end of the pontoon deck would feature a raised border (gutter system) and collection tank(s) to collect all washwater, blastwater and rainwater that falls on the pontoon deck and prevent it from running off the dock and into the bay. The gutter system and collection tanks would feature mesh screens that would prevent solids from entering the tanks, as well as fiber filter mats that would further separate out any solids. The screens and mats would be easily accessible for cleaning and replacement. The collection tank(s) and their associated pumps would be sized sufficiently to provide storage and discharge of all water from the pontoon deck and wing decks from the worst case 50-year Rainfall Event at Naval Base San Diego per the "San Diego County Hydrology Manual."

The collection tank(s) would feature submersible pumps with a maximum controlled discharge rate of 100 gpm to shore. The pumps would be marine rated and capable of handling solids. Two pumps would be provided per tank unless two or more tanks are cross connected in which case one pump would be provided for each tank to maintain redundancy. If the rainfall exceeds the maximum pumping capacity, sufficient storage space would be provided on the dock to store the excess water until it could be pumped to shore at a maximum rate. Any and all cross connect valves and discharge valve for the drainage system would be provided with remote actuators to the pontoon deck if not accessible from the pontoon deck. The discharge piping would be provided with foot valves to prevent backflow from the discharge piping. The pumps would be located a distance above the bottom of the tank to allow for natural settling of any solids in the collected water.

A bypass discharge pipe would be provided to facilitate draining of sea water from the collection tanks to the sea after the dry dock has been deballasted and before industrial activity takes place. The bypass discharge would also serve to pump collected rain water to the sea when industrial activity is not taking place. The tanks would not be confined spaces and would be accessible for cleaning and maintenance. Each tank would be provided with a tank level monitoring system featuring an automatic start and stop of the pump at preset high and low levels and a high level alarm at the control console. Pump run indication and manual pump operation would also be provided at the control console.

Marine Habitats and Communities

In-water construction activities would cause minor and short-term impacts on existing unvegetated soft-bottom benthic communities within the Approach Area, Turning Basin, and Sump. 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 several hours after dredging activities cease (USACE 2009, 2012). Potential impacts on 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 demolition, dredging, and pile driving are expected to persist for several hours following disturbance. Therefore, the increased turbidity would not significantly affect benthic or water column habitats in the project area.

As described in Section 2.3.2.1*, Dredging,* dredging activities necessary to accommodate the proposed floating dry dock at the Mole Pier – South Berth would largely include dredging to a depth of -37 feet MLLW within the Approach Area, to a depth of -35 feet MLLW within the Turning Basin, and to a depth –56 feet MLLW within the Sump area. There would be limited areas within the outer radius of the Turning Basin that would extend into the shallower portions of the channel shoulders that are due for and would require maintenance dredging. Additionally, the Sump area would be expanded. This change in bathymetry would not result in long-term impacts to the productivity of the affected marine habitats (Merkel and Associates, 2023).

Following the completion of in-water construction activities, the berthing of the floating dry dock would shade approximately 2.62 acres. Until 1998, the Mole Pier – South Berth was the site of the USS STEADFAST (AFDM 14) (approximately 528 feet by 118, shading 1.43 acres), and since 2002 has provided a berth for the USNS CURTISS (T-AVB) (approximately 600 feet by 100, shading 1.4 acres). The new proposed floating dry dock would be approximately 83 percent larger than the USS STEADFAST (AFDM 14), resulting in long-term shading of marine habitats.

In 2020 an ecological Function Loss Equivalency Assessment was prepared to analyze the effects of the proposed floating dry dock at the Mole Pier – South Berth (Marine Taxonomic Service, Ltd [MTS] 2020). The analysis focused on the loss of habitat value with increasing depth within the shallow bay and incorporates bay coverage effects on reduction of benthic productivity based on diminished light levels. The loss of ecological value with depth has been noted in prior impact assessments and mitigation programs within developed bays. Differing value of habitat by depth range is also recognized in the San Diego Bay INRMP (U.S. Navy and Port of San Diego 2013). In most instances, the difference in value by depth is reflected as functional lift being generated by increasingly shallow submergence in subtidal environments. Thus, shallow water is considered to be of greater ecological value than deep water. This is principally related to increasing benthic primary productivity at shallow depths, increasing circulation due to wave and swell surge influence, and increasing temperature in shallow waters (Merkel & Associates, Inc. 2020).

The mitigation for anticipated ecological function impacts is proposed to be addressed following the methodology outlined by MTS (2020), Merkel & Associates, Inc. (2020b), and Merkel & Associates, Inc. (2023). This mitigation is based on providing offsetting ecological lift equivalent to the quantified loss through replacement with eelgrass habitat through the Navy Eelgrass Mitigation Bank.

After project design changes were implemented, a new 2023 Functional Loss Assessment was prepared for the project. Per the project design changes the dredge area is increasing from 4.79 acres to 9.98 acres, but the same basic principles behind the analysis of potential effects to habitat in the project area identified in the 2020 EFHA (Navy 2019) still apply. Per the 2020 EFHA, given the depth and lack of recent dredging in this area, the community of invertebrates is presumed to be more diverse and productive than that which occurs in surrounding dredged areas. Impacts to the community of invertebrates are considered adverse effects to EFH under the MSA and require consultation with NMFS. The benthic community would be expected to recover fairly rapidly based on studies conducted in association with deepening of the San Diego Bay channel. Specifically, in this study conducted 2.5 miles north of the proposed FDD project, demersal fish took between 14 and 22 months to recover. Benthic infauna recovered within five months relative to density and biomass, but examination of community indices indicated that full benthic recovery required 17 to 24 months. Epibenthic invertebrates

recovered within 29 to 35 months in terms of density and biomass and were still recovering community composition at the end of the three year study (Merkel & Associates 2010).

The proposed dredge area in the Approach Area, the Turning Basin, and the Sump is, and would remain, deep subtidal habitat at depths greater than –20 feet (-6 meters) MLLW at the south berth of the Mole Pier. As such, no permanent change in habitat type would result from the proposed dredging activities. Similar to habitat impacts during dredging, the analysis that identified impacts to fish from dredging (i.e., due to sediment re-suspension) would remain the same, albeit for a longer duration. 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.

Noise levels during dredging would not change relative to what was previously presented in the 2020 EFHA (Navy 2019). The noise levels identified in Dickinson et al. (2001) would still apply. Extrapolating back to the source (assuming the same rate of transmission loss as discussed previously for pile driving) suggests a 33-foot (10-meter) source level of approximately 142 dB, well below the hypothetical 150 dB disturbance threshold. Impacts to fish from underwater noise would have a limited geographic and temporal scale, and fish species would be displaced, if at all, only a very short distance during dredging activities. While the dredge equipment would be used for a longer duration that was previously analyzed, the impacts from noise would not change from what was previously analyzed.

To evaluate the changes in the Project design, Merkel and Associates used the same methods and criteria as was used in 2020 (Merkel and Associates a, b), but with updated information for bathymetry, dredging, and shade structures (Merkel and Associates, 2023). The dredge footprint would increase from 4.79 acres to 9.98 acres, and the over-water structures in the updated design specifications would increase shading in the Project area from 0.014 to 0.027 acres (610 to 1,176 sf), depending on whether certain structures are kept or removed. Based on the updated analysis (Merkel and Associates, 2023), the changes in dredge depth would not have a significant impact on the eelgrass equivalency mitigation amount. Furthermore, though the current design includes increased coverage from that analyzed in the 2020 EFHA, however, these cover changes also would be in waters deeper than -8.8 m (-29 ft.) and thus no additional benthic functional loss would occur, and the loss would remain at 0.00 acre equivalency. The water column functional loss rises very slightly due to the expanded shading. Based on the Merkel and Associates (2023) analysis, the eelgrass equivalency of the Project would increase from 0.084 acres (3,659 sf) to 0.137 acres (5,968 sf), or an additional 0.053 acres (2,309 sf). This analysis is based on an evaluation of the associated shade structures, including: the Ramp Pier, the intermediate support bridge, the vehicle access bridge, the gripper bump outs, the FDD. Navy Region Southwest has agreed to let the Project use the Navy's San Diego Bay Eelgrass Mitigation Bank to offset the additional impacts associated with the conversion of shallow water habitat to deeper water, and shading impacts from the new FDD and the associated structures.

All project-related impacts would be mitigated using approximately 0.137-acre worth of the Navy's eelgrass bank credits – including additional mitigation need from water column functional loss – released from the U.S. Navy's San Diego Bay eelgrass habitat credits (Merkel & Associates, Inc. 2020a, 2020b, 2023). With the implementation of the proposed mitigation, impacts to marine habitats would be less than significant. Given that water depths in the project area are generally greater than -35 ft.

MLLW, the Navy does not believe that eelgrass surveys are required. However, given that sediment will be disturbed as part of the project-related activities, a pre-construction survey for invasive algal species in the genus *Caulerpa* will occur prior to the start of sediment-disturbing activities. All applicable surveys will follow procedures identified in *Caulerpa* Control Protocol (NOAA 2021). If *Caulerpa* is found in the project area during this survey, NMFS-approved *Caulerpa* Control Protocols would be followed. Therefore, implementation of this alternative would not result in significant impacts on special aquatic sites associated with the spread of *Caulerpa*.

With more piles being extracted, there is a potential for impacts to the sediment as the piles would leave more voids once they are extracted; however, similar to dredging impacts, while these are considered adverse effects to EFH under the MSA, the benthic community would gradually be colonized by the same organisms that inhabit the surrounding deep subtidal habitat. This process would be slow, probably requiring several years, because of the low productivity of deep subtidal habitat and poor circulation in the southern part of San Diego Bay (Navy and POSD 2013).

During the removal of the deck, all appropriate best management practices (BMPs) would be implemented during demolition activities. For example, a system of floating rafts would be used under the demolition locations to capture any debris (Navy 2016). Additionally, concrete slurry from the cut operation would be vacuumed as saw cutting occurs (Navy 2016).

The potential noise impacts identified in the 2020 EFHA (Navy 2019) for pile extraction are still valid. While more piles will be extracted, the noise associated with pile extraction methods would not change relative to the previous analysis. Depending on the activity the onset of mortality or injury would stay at 3.3 feet (1 meter) or less, the potential for temporary threshold shift would occur at from 33 to 49 feet (10 to 15 meters) and the behavioral threshold of 150 dB would be crossed at from 112 to 177 feet (34 to 54 meters). Based on these distances, acoustic effects on EFH would be relatively minor in terms of behavior, hearing impairment, or the potential for injury or mortality, and temporary, being limited to the duration of sound-generating activities.

Piles being driven into the sediment may generate a turbidity plume that could have a minor impacts to fish species; however, fish are mobile and would likely temporarily leave the area during any pile installation activities. Furthermore, avoidance and minimization measures may include turbidity monitoring or other alternative measures developed during the CWA permitting process. A turbidity threshold would be adopted, or alternative measures identified during the project-specific CWA permitting process would be completed and BMPs for the CWA permit requirements would be adopted.

The potential noise impacts identified in the 2020 EFHA (Navy 2019) for pile installation are still valid. While more piles will be installed than were previously analyzed, the noise associated with the use of an impact hammer would not change relative to the previous analysis. Depending on the activity the onset of mortality or injury would stay at 6.6 feet (2 meters) or less, the potential for temporary threshold shift would occur from 33 to 108 feet (10 to 33 m) and the behavioral threshold of 150 dB would be crossed at 112 to 1,775 feet (34 to 541 m). Based on these distances, acoustic effects on EFH would be relatively minor in terms of behavior, hearing impairment, or the potential for injury or mortality, and temporary, being limited to the duration of sound-generating activities.

The FDD is built to accommodate multiple classes of ships with multiple hull designs. For ships with sonar domes that may strike the deck of the FDD after it is raised, there is one depressed location in the FDD that is lower than the rest of the FDD. While it is expected to be rare, there is a potential for pelagic fish to remain in this area after it has been lowered to accommodate a ship entering the FDD and then raised. However, dry docking evolutions would typically occur between four and six times per year, but up to a maximum of eight times, with each event lasting approximately six hours. Furthermore, the FDD is open on both ends, and water would leave the FDD via the open ends and any fish that may be in the FDD during this process would be expected to be "flushed" out with the water as it leaves the FDD. While some fish may be caught in the FDD, the numbers would not be expected to harm the populations in San Diego Bay. To further reduce the potential for impacts to fish and EFH, BMPs will be implemented.

Fish and Wildlife

Birds

Project activities would result in increases in noise and human activity and decreases in water quality in the project area during demolition, dredging, pile-extraction/driving, and sediment transport and disposal. These activities could disturb marine birds, and nonmarine birds that may forage in the project area, including California least tern, osprey, and California brown pelican. Dredging activities would occur within a 9.98-acre area, less than 0.1 percent of San Diego Bay, and would last a maximum of approximately 90 days; pile driving is estimated to take up to 40 days and in-water demolition activities are estimated to take no more than 45 days of in-water and over-water construction duration. 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 water birds would move to other nearby, similar habitats if disturbed and then return when the Proposed Action is completed.

Sediment disposal at LA-5 ODMDS would occur offshore and would not affect any western snowy plover habitats along the coast. Therefore, implementation of this alternative would not have a significant adverse effect under the MBTA and there would be no significant impacts on other non-migratory marine bird habitat or populations.

Marine Mammals

Potential impacts on marine mammals associated with the Proposed Action would be primarily from noise generated during dredging and pile-extraction/driving activities or vessel movement during sediment transportation. Dredging and pile-extraction/driving operations would result in the generation of noise from dredge engine and exhaust, crane engine and exhaust, vibratory and impact pile driver, high-pressure water jetting, pile clipping, rope and bucket water operations, and various boom and grab actions, including the bucket hitting the bottom during dredging, and the bucket closing and opening during construction. As described in Section 3.3.3.2, *Noise Impact Methodology*, underwater noise associated with dredging operations was measured up to 124 dB at 493 feet (150 meters) (Dickerson et al. 2001), which is just below the average range of normal background noise levels expected in San Diego Bay (Dahl and Dall'Osto 2019).

For the analysis of underwater acoustic impacts from pile driving and extraction under the Proposed Action, the ZOIs for sound-generating activities are depicted in Figure 3-3. As shown in the figure, land and man-made barriers limit the transmission of sound in various directions. Marine mammals could be subject to two types of harassment under the MMPA: Level A (i.e., injury consisting of hearing loss in the form of PTS onset); and Level B (i.e., behavioral disturbance and/or temporary hearing impairment in the form of a temporary threshold shift [TTS]).

The representative source levels in Table 3-5 and Table 3-6 were used to estimate the distance to noise levels that exceeded regulatory thresholds. Table 3-7 summarizes the calculated distances to the underwater marine mammal thresholds during pile extraction/driving methods at the Project site. Representative pile locations were chosen to model the greatest possible affected areas; typically these locations would be at the seaward end of a pier that extends the farthest into the marine environment. Table 3-8 illustrates the extent and area of each ZOI for a pile representing the "worst-case" extent of noise propagation (furthest from the shore). Level A ZOIs that are less than 33 feet (10 meters) (Table 3-8); are not depicted in the figures. However, a 33 feet (10 meter) shutdown zone would be implemented for these ZOIs (Table 3-8). It should be noted that if it is determined that smaller piles of the same material are required at the time of construction, the most applicable ZOI areas as presented in Table 3-8 would be referenced for the sake of being conservative.

To address the potential for MMPA Level A/B impacts, the Navy used National Marine Fisheries Service (NMFS) promulgated thresholds (NMFS 2018) to estimate the number of Level B (behavior) takes that would result from pile extraction and installation. The two models used to assess the potential distances to regulatory thresholds (Dall'Osto and Dahl 2019; NMFS 2018, 2020) use Practical Spreading Loss (PSL) to evaluate the potential for Level A/B harassment. Dall'Osto and Dahl (2019) developed acoustic models using point sources at three locations (Pier 1, Pier 6 and Pier 13) along the eastern extent of the south-central San Diego Bay on NBSD. Due do the similar bathymetry and location with respect to the channel, the Navy believes that the Pier 13 modeling location, which is roughly 725 m (2,379 ft.) to the south of the Project location, represents the best location to approximate the sound propagation profile from a notional source at the Mole Pier mooring wharf FDD location. Key to this profile is the dampening effect of sound due to the western slope of the dredged navigation channel, as well as channelization of sound to the north and south within the channel. While the Pier 13 point is not in the exact project location, we have used the site-specific model to identify sound propagation in the general project area rather than a generic PSL model, which would not account for environmental variables. We believe that this is the most realistic approach and is based the best available science for the area.

Harbor seals and coastal bottlenose dolphins were not included in the site-specific modeling effort for Level A distance calculations. As a result, the NMFS user spreadsheet (NMFS 2020) was used to determine Level A zones for these species. To determine zones for potential Level B harassment, the site-specific model was used for all species because the threshold criteria for Level B impacts are based solely on continuous or impulsive noise source and are not frequency, and therefor species, dependent.

For those activities with Level A ZOIs larger than 33 feet (10 meters), the shutdown ZOIs were rounded up to the next tens of meters (Table 3-8). Acoustic analyses are limited to the potential for Level A (injury due in the form of PTS) and Level B (behavioral responses and possible temporary hearing threshold shift) harassment. However, with the implementation of the applicable shutdown ZOIs, no Level A takes are anticipated.

Table 3--7. Calculated Distance(s) to Underwater Noise Thresholds from Pile Extraction/Installation at the Project Site.

Activity Description	Pile Size/Type & Source Levels[1]	Level A ZOIs[2] (feet [meters])			Level B ZOIs[2] (feet [meters])
		California sea lions	Harbor seals	Coastal bottlenose dolphins	All Species
Vibratory Extraction[3]	24-inch octagonal/square concrete (Production) (162 RMS)	0.0 (0.0)	22.3 (6.8)	3.3 (1.0)	11,565 x 3,353 (3,525 x 1,055)[5]
	24-inch octagonal concrete (TPP)[4] (162 RMS)	0.0 (0.0)	7.5 (2.3)	1.0 (0.3)	
Impact Driving[6]	24-inch octagonal concrete (TPP)[4] (188 Peak, 176 RMS, 166 SEL)	0.0 (0.0)	91.9 (28.0)	6.2 (1.9)	1,230 (375)
	24-inch octagonal concrete (Production) (188 Peak, 176 RMS, 166 SEL)	0.0 (0.0)	190.9 (58.2)	12.8 (3.9)	

Notes:

[1] Sound source levels at 33 feet (10 meters) distance. Units for Peak and RMS are dB re 1 µPa. The unit for SEL is dB 1 μPa^2-sec.

[2] Level A distances are based on a site-specific model for California sea lions (Dall'Osto and Dahl 2019) and a generic PSL model (NMFS 2018, 2020) for harbor seals and coastal bottlenose dolphins. No Level A thresholds are crossed for California sea lions based on the site-specific model (Dall'Osto and Dahl 2019). Level B distances are based on the site-specific model (Dall'Osto and Dahl 2019). No Level A take is requested.

[3] Assumes 20 minutes of vibratory pile extraction, Weighting Factor Adjustment of 2.5 kHz, with 5 piles/day for Production, and 1 pile/day for the TPP. While vibratory pile installation is not expected, if it is required to install piles, then monitoring protocols identified for vibratory pile extraction will be implemented.

[4] The TPP Piles will be installed via an impact hammer prior to the production piles, re-struck for testing approximately one week later, and then removed prior to the start of production pile driving.

[5] The distances represent the maximum north/south and east/west distance from the pile being driven. These distances are represented by the green line in Figure 3-3.

[6] Assumes 600 strikes per pile, 0.01 second single-strike duration, Weighting Factor Adjustment of 2.0 kHz, with 3 piles/day for Production, and 1 pile/day for the TPP.

Abbreviations: m = meters; RMS = root mean square; SEL = sound exposure level.

Table 3--8. Distance(s) to Underwater Shutdown Zones for Pile Extraction/Installation.

Activity Description	Pile Size/Type & Source Levels	Shutdown ZOIs (feet [meters])		
		California sea lions	Harbor seals	Coastal bottlenose dolphins
Vibratory Extraction	24-inch octagonal/square concrete (Production) (162 RMS)	33 (10)	33 (10)	33 (10)
	24-inch octagonal concrete (TPP) (162 RMS)	33 (10)	33 (10)	33 (10)
Impact Driving	24-inch octagonal concrete (TPP) (188 Peak, 176 RMS, 166 SEL)	33 (10)	98 (30)	33 (10)
	24-inch octagonal concrete (Production) (188 Peak, 176 RMS, 166 SEL)	33 (10)	197 (60)	33 (10)

Figure 3--3. Underwater Sound from Impact Pile Driving Using a Site-Specific Model.

The Navy has obtained a Final IHA authorizing the potential take of small numbers of California sea lions, harbor seals, and coastal bottlenose dolphins in the Project area because of pile extraction and driving during demolition and construction activities associated with the FDD Project. California sea lions, harbor seals, and coastal bottlenose dolphins are present in San Diego Bay year-round, but as previously discussed, the species are not as common south of the Coronado Bay Bridge (NAVFAC SW 2022). The takes requested are expected to have no more than a minor effect on individual animals and no effect on the populations in general. Any effects experienced by individual marine mammals are anticipated to be limited to short-term disturbance of normal behavior or temporary displacement of animals near the source of the noise.

Potential Level B takes would likely occur if marine mammals are present within any of the ZOIs identified in Table 3-8. Based on data from NAVFAC SW (2022), sea lions are known to haul out on the security barrier to the west of the Project site. Sea lions, harbor seals, and coastal bottlenose dolphins observed in the area would likely be swimming and/or foraging. As such, potential takes by disturbance will have a negligible short-term effect on individual animals and would not result in population-level impacts.

California Sea Lions. Potential takes would likely involve California sea lions that are loafing on or in the vicinity of structures or moving through the area in route to foraging areas or structures where they haul out. California sea lions that are taken could exhibit behavioral changes such as increased swimming speeds, increased surfacing time, or decreased foraging. Most likely, California sea lions may move away from the sound source and be temporarily displaced from the areas of pile extraction. Minimal reactions were observed from animals that were observed swimming or resting on structures within the Level B ZOIs during exposure to project-related noise (NAVFAC SW 2014, 2015, 2016). As such, potential takes by disturbance would be expected to have a negligible short-term effect on individual California sea lions and would not result in population-level impacts.

Harbor Seals. Potential takes would likely involve harbor seals that are swimming in the vicinity. Harbor seals that are taken could exhibit behavioral changes such as entering the water in response to airborne noise, increased swimming speeds, increased surfacing time, or decreased foraging. Most likely, harbor seals may move away from the sound source and be temporarily displaced from the areas of pile extraction. With the absence of any major rookeries and only a few isolated haul-out areas near or adjacent to the Project site, potential takes by disturbance will have a negligible short-term effect on individual harbor seals and would not result in population-level impacts.

California Bottlenose Dolphins. Potential takes could occur if coastal bottlenose dolphins move through the area on foraging trips when pile extraction or installation would occur. Coastal bottlenose dolphins that are taken could exhibit behavioral changes such as increased swimming speeds, increased surfacing time, or decreased foraging. Most likely, coastal bottlenose dolphins may move away from the sound source and be temporarily displaced from the areas of pile extraction. There are no indications that coastal bottlenose dolphins use or regularly occur in the area near the Mole Pier. Hence, any exposure to Project-generated sound is likely to be transient and at relatively large distances, and potential takes by disturbance will have a negligible short-term effect on individual coastal bottlenose dolphins and would not result in population level impacts.

Table 3--9. Expected Daily Species Presence in the Project Area and Requested Level B Takes.

Species[1]	*Expected Average Individuals Per Day*[2]	*Requested Level B Take*
California sea lion	2	118
Harbor seal	1	59
Coastal bottlenose dolphin	1	59
	TOTAL	**236**

Note:

[1] If the number of takes may be exceeded in any year, NMFS will be notified as early as possible of a potential need to modify the authorized takes.

[2] Individuals per day based on observations during Pier 6 Replacement Project Monitoring interim report (NAVFAC SW 2022).

Given the short daily duration of noise associated with individual pile extraction/driving, seasonal limitations on the in-water activities that have the greatest potential to disturb marine mammals and their prey, and the relatively small areas being affected, pile extraction/driving activities associated with the Proposed Action are not likely to have a permanent, adverse effect on any Essential Fish Habitat, or population of fish species. Therefore, pile extraction/installation is not likely to have a permanent, adverse effect on California sea lion, harbor seals, or coastal bottlenose dolphin foraging habitat in the Project Area.

As discussed in Section 3.5, *Transportation*, minimal increases in marine vessel traffic would result from implementation of the Proposed Action. Further, vessels would follow speed limits and BMPs, including visual scanning for marine mammals, to avoid vessel strikes. All measures described in Section 3.3.3.1, *Avoidance or Minimization Measures*, would be implemented to avoid or minimize potential impacts on marine mammals. Short-term disruptions to pre-dredge foraging or movement behaviors would be temporary, restricted to the 90-day dredging activity duration, and not significant, and wildlife activities would return to normal upon dredging completion. Therefore, with the incorporation of all applicable BMPs and avoidance and minimization measures, impacts to marine mammals under the Proposed Action would be less than significant.

Green Turtles

Green turtles in San Diego Bay are more common in the South Bay where larger areas of eelgrass are present. Demolition, dredging, and pile-extraction/driving have the potential to disturb green turtles in the immediate vicinity because of vessel movement, construction-related noise, and water quality degradation. Vessel movement is associated with transportation of the floating dry dock, in-water construction and demolition, and 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 green turtles. However, given the slow speed of dredgers, this type of collision is unlikely. Further, other support vessels (e.g., 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 green turtles resting on the bottom; however, clam shell dredgers

have been found to be loud enough that green turtles are alerted to their presence and can move to avoid the dredge (NOAA 2010).

Potential impacts on green turtles from implementation of the Proposed Action would primarily be from impact pile driving. The threshold value for injury to green turtles from impact pile driving is 204 dB re 1 μPa^2-sec SEL, or 232 dB re 1 µPa peak (Navy 2017). The peak SPL and cumulative SEL thresholds would not be approached at a distance more than 46 feet (14 meters) from the source during any activity. With the imposition of monitoring and shutdown zones zone for green turtles (see Table 2-2), the potential for acoustic injury would be avoided.

During impact pile driving, green turtles are expected to avoid exposure to SPL of 175 dB re 1 µPa RMS or greater (Navy 2017). Behavioral reactions would not rise to the level of take under the ESA unless they result in a significant curtailment of feeding, movement, and other activities affecting fitness. Regardless of in-water activity, the 66-foot (20-meter) shutdown zone will be monitored for green turtles, with a larger 427- foot (130-meter) monitoring zone. Given the lack of feeding areas (i.e., eelgrass) in the project area and ample space for green turtles to move through the area at a distance of greater 66-feet (20 meters) from construction, behavioral avoidance would have minor, inconsequential effects that would not rise to a level of take under the ESA. As a result, the Navy has determined that the action may affect, but is not likely to adversely affect, green turtles, and the Navy has consulted (informally under Section 7 of the ESA) with NMFS on that basis; the Navy prepared and submitted a consultation letter to NMFS on 11 February 2020. The consultation letter provided a description of the Proposed Action, including background information and proposed avoidance and minimization measures, as well as potential impacts to species listed under the ESA. After reviewing the consultation letter, NMFS issued a letter on 25 March 2020 concurring with the Navy that the Proposed Action may affect, but is not likely to adversely affect Federally-listed and/or Federally-designated critical habitats. After analysis of the new project description details presented in Chapter 2 of this Supplemental EA, the Navy reinitiated its consultation with NMFS (see Appendix C) based on the finding that the new project description is not expected to have different or greater potential impacts on green turtles. NMFS responded on 6 September 2023 and concurring with the Navy that the Proposed Action may affect, but is not likely to adversely affect federally listed species and/or federally designated critical habitats.

Underwater sound levels associated with impact pile driving the concrete piles would be 176 dB re 1 µPa RMS at 33 feet (10 meters). As such, the Navy will incorporate the BMPs as described in Section 2.4, *Best Management Practices Included in the Proposed Action,* to survey for the presence of green turtles before and during pile removal activities. If green turtles are found in the 66-foot (20-meter) safety buffer zone, pile-extraction/driving would be halted until the green turtles be allowed to have voluntarily left the shutdown zone. As such, green turtles would likely hear noise associated with the proposed impact pile-extraction/driving but would not be injured or disturbed.

As stated above, sound pressure levels of dredging operations (measured up to 124 dB re 1 µPa at 493 feet [150 meters]) would be less than or equal to background noise in an industrial harbor (126 dB RMS re 1 µPa), depending on proximity to the activity. Further dredging activities would occur within a 9.98-acre area in San Diego Bay and would last for a period of 90 days and would occur at night (6:00 p.m. to 6:00 a.m.), therefore, these impacts would be temporary and limited in their geographic scope and would be less than significant. All appropriate BMPs described in Section 2.4, *Best Management*

Practices Included in the Proposed Action, would be implemented to ensure no significant impacts on turtles.

Transit Vessel Strikes

The FDD would be transported using a heavy-lift ship with an approximate length of 800 to 1,000 feet (244 to 305 meters). Heavy-lift ships allow large objects to be transported without the use of a barge. These types of ships are lowered into the water, the object is floated into a holding area, and then the ship is raised prior to leaving port. The FDD transit will follow established shipping lanes, leaving from Mobile, Alabama traveling through the Gulf of Mexico, along the western Atlantic coastline of South America, around Cape Horn at the southern tip of South America, and then up the eastern Pacific coast of South and Central America to San Diego Bay. The full trip is expected to last a maximum of 75 to 90 days, and will include multiple stops for supplies and fuel. Arrival in San Diego is anticipated for approximately in May or June 2025. During the transit, average speeds would be maintained at approximately 8 to 10 knots (9.2 to 11.5 miles/hour), with a maximum speed of 14 knots (16.1 miles/hour).

During the FDD transit, different species including ESA-listed species would be encountered in the different water bodies; however, the potential for, and types of, impact would remain the same regardless of the water body. Potential stressors during transit include elevated noise and vessel strike.

The heavy-lift vessel will remain in established shipping lanes during the transit from Mobile, Alabama to San Diego, California. The noise generated by the vessel would be consistent with other large vessels that would also use the same shipping lanes. Considering that the FDD transit will occur only once, the vessel will not remain in one place for any extended length of time, and noise generated by the heavy-lift vessel will be consistent with other ships in the shipping lanes, the Navy finds that any effects from elevated noise may affect, but is not likely to adversely affect ESA-listed turtles or marine mammals.

Vessel strikes can result in lethal and sub-lethal injuries to marine species (Laist et al 2001; Redfern et al 2017). If a marine species were to be struck during the FDD transit, impacts could include injury due to broken bones, or death as a result of the strike. Per Laist et al (2001), a majority (89%) of the lethal of severe injuries were a result of ships traveling 14 knots (16.1 miles/hour) or faster.

While there is a potential for encountering ESA-listed marine mammals and sea turtles during transit, the anticipated speeds of the heavy-lift vessel would generally be less that what would be expected to cause severe or lethal injury (Laist et al 2001). The vessel will generally be moving at 8 to 10 knots (9.2 to 11.5 miles/hour), which is slower than the speed of most lethal or severe strikes. It is also a single trip, rather than a program of repeated trips, which makes any strike very unlikely to occur. Therefore, the Navy finds that vessel strikes associated with the FDD transit may affect, but are not likely to adversely affect ESA-listed turtles or marine mammals, and NMFS has concurred with this finding. There would be no significant impact on turtles or marine mammals from FDD transit.

Wildlife Interactions with the FDD

To accommodate ships with sonar domes that could theoretically strike the deck of the dry dock after it is raised, one location in the dry dock is lower than the rest of the FDD and therefore poses a potential site for green sea turtles to enter the FDD. However, the dry dock is open on both ends, and water

would leave the dry dock via the open ends. Any animals that may be in the dry dock during this process would be expected to be "flushed" out with the water as it leaves the dry dock.

The number of turtles using the bay is estimated to range between 40 and 60 animals during most months of the year, increasing to 100 animals during peak migratory periods (Eguchi 2017). During recent monitoring efforts for the NBSD Pier 6 replacement project, monitors were routinely stationed at Pier 1, Pier, 5 or Pier 7 on NBSD and in a small vessel adjacent to the Naval Base Coronado Naval Amphibious Base. During the eight months of monitoring efforts, green sea turtles were observed a total of six times in a large eelgrass patch off the eastern end of the Naval Base Coronado Naval Amphibious Base. No green sea turtles were observed in/among the piers.

While there is a potential for a green sea turtle to be present in the vicinity of the dry dock after it has been lowered to accommodate a vessel, there is no known habitat (e.g., eelgrass) that would be considered as an attractant to adult green sea turtles in the Project Area, and their presence in the Project area is not expected. Furthermore, the Project Area is inside of a floating security fence and is adjacent to active piers to both the north and south. As a result, any green sea turtles in the vicinity of the dry dock would likely be transitory and are not anticipated to spend any amount of time in the Project Area. Regardless, BMPs identified in Table 2-2 will be utilized to reduce the likelihood of a green sea turtle entering the FDD while it is lowered or before it is raised. These BMPs would also apply to other protected marine species (e.g., marine mammals) that have the potential to occur in the Project Area.

Dry docking evolutions would typically occur between four and six times per year, but up to a maximum of eight times, with each event lasting approximately six hours. The duration of each evolution would depend on the objective(s) of the specific dry docking event. When the FDD is not being used or while maintenance and repair work is undertaken on a dry-docked vessel, the dry dock ballast tanks are filled with air, and the FDD would remain stationary in the raised position. During the lifetime of the FDD, there would be an expected maximum use of the FDD eight times per year, but typical use would be from four to six times per year.

There is no habitat that would attract green sea turtles to the Project Area, and observation data indicates that the species presence is unlikely. However, given that green sea turtles are known to occur in the general vicinity of the proposed FDD, there is still potential for green sea turtles to interact with the FDD while it is in its lowered position. While an interaction may occur, in the unlikely event a green sea turtle entered the FDD before it was raised, it would be expected to be "flushed" out with the water as it leaves the FDD. Therefore, the Navy finds that FDD operations may affect, but are not likely to adversely affect green sea turtles. The NMFS has issued a Letter of Concurrence. There would be no significant impact on green turtles from operation of the FDD.

Fisheries

Impacts on fish communities in the project area would be primarily associated with noise and with disturbance of bottom sediments and unvegetated soft bottom habitat during demolition, dredging, and pile-extraction/driving. Sediment resuspension and increased turbidity would be limited to the areas of bottom disturbance and would persist for several hours 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. Subject to the terms and conditions identified in the project-specific CWA Section 404 and RHA 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 dredge operator, 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 on fish species would be temporary and limited in nature because of the focused duration of dredging activities and the quantity of sediment (110,960 CY) dredged in a 9.98-acre area of San Diego Bay. Therefore, implementation of this alternative would not result in significant impacts on 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 reach up to 124 dB at 493 feet (150 meters) when the bucket contacts the bottom (Jones et al. 2015). Based on these noise levels, the potential for acoustic disturbance from dredging is negligible (see below).

Thresholds for fish mortality, injury, and TTS from pile driving are shown in Table 3-10. These thresholds are used in the *Hawaii-Southern California Training and Testing Final EIS/OEIS* (Navy 2018b) and represent best available science (Popper et al. 2014). Use of a threshold dB value for behavioral responses is not supported, although a threshold of 150 dB has been used (Caltrans 2015). The likelihood of behavioral responses is qualitatively considered to be high within tens of meters, intermediate within hundreds of meters, and low at thousands of meters (Popper et al. 2014). Fish monitored visually and with acoustic tags during the Fuel Pier Replacement Project exhibited only brief startle responses and no habitat displacement during pile driving (NAVFAC SW 2014).

Table 3--10. Sound Exposure Criteria for Fish Mortality, Injury, and TTS from Impact Pile Driving.

Fish Hearing Group	*Onset of Mortality*		*Onset of Injury*		*TTS*	*Behavior*
	SEL_{cum}	SPL_{peak}	SEL_{cum}	SPL_{peak}	SEL_{cum}	*RMS*
Fishes without a swim bladder	> 219	> 213	> 216	> 213	NC	150
Fishes with a swim bladder not involved in hearing	210	> 207	203	203	> 186	150
Fishes with a swim bladder involved in hearing	207	>207	203	> 207	186	150
Fishes with a swim bladder and high-frequency hearing	207	> 207	203	> 203	186	150

Source: Navy 2018b

Notes: SEL_{cum} = Cumulative sound exposure level (decibel referenced to 1 microPascal squared seconds [dB re 1 μPa^2-s]). SPL_{peak} = Peak sound pressure level (decibel referenced to 1 microPascal [dB re 1 µPa]); ">" indicates that the given effect would occur above the reported threshold. TTS = temporary threshold shift; NC = effects from exposure to sound produced by impact pile driving is considered to be unlikely; therefore, no criteria are reported.

Table 3-11 presents the calculated impact ranges on mortality, injury, and TTS for each pile type. These ranges apply to fishes with swim bladders, with minor differences between the different groups in Table 3-10. For fishes without a swim bladder (e.g., sharks), no thresholds are exceeded beyond 3 feet (1 meter) from the pile. The table also provides the distances within which the nominal behavioral disturbance threshold of 150 dB would be exceeded. Threshold distances from impulsive and non-impulsive sources are also summarized in the bullets that follow.

Table 3--11. Mortality, Injury, TTS, and Behavior Impact Ranges (meters) for Fish from Impulsive and Non-Impulsive Underwater Noise Construction Methods.

Pile Size and Type	*Onset of Mortality (feet [meters])*		*Onset of Injury (feet [meters])*		*TTS (feet [meters])*	*Behavior (150 dB RMS) (feet [meters])*
	SEL_{cum}	SPL_{peak}	SEL_{cum}	SPL_{peak}	SEL_{cum}	
Impulsive Sources						
24-inch Octagonal Concrete	1 (<1)	<1 (<1)	6.6 (2)	<1 (<1)	108 (33)	1,775 (541)
Non-impulsive Source						
Vibratory Pile Driver/Extractor (all)	<1 (<1)	NA	<1 (<1)	NA	43 (13)	151 (46)
Water Jetting (all)	0 (0)	NA	1	NA	33 (108)	112 (34)

Notes:
Distances represent maximum theoretical distances from the source within which thresholds would be exceeded, except where sound transmission is blocked by natural or manmade barriers.

SEL_{cum} = Cumulative sound exposure level (dB re 1 μPa^2-s). SPL_{peak} = Peak sound pressure level (dB re 1 µPa).

TTS = temporary threshold shift, based on a maximum of 600 pile strikes per day, or 10 minutes' use of non-impulsive source, and 1 pile installed/day; ranges are for fish with a swim bladder. For fish with swim bladders not involved in hearing, the TTS would be less than the reported range(s).

For impact pile driving the 24-inch octagonal concrete piles, the potential for mortality would only exist at less than 3 feet (1 meter) from the pile, and potential injury thresholds would not extend more than 6 feet (2 meters) from the pile. The potential for TTS would exist within 108 feet (33 meters) from the pile. Threshold distances are less for all of the non-impulsive sources, with the potential for TTS existing within 43 feet (13 meters) during use of the vibratory pile diver/extractor. Behavioral effects may be anticipated at 1,775 feet (541 meters) from the pile during impact driving, but only within 112 feet (34 meters) to 151 feet (46 meters) from the pile during the use of non-impulsive noise sources.

As the foregoing calculations indicate, relatively small portions of the project area would be affected, and the effects on fisheries would be temporary and limited to the duration of sound-generating activities. These impacts are considered less than significant.

While it is expected to be rare, there is a potential for pelagic fish to remain in the dry dock after it has been lowered and then raised again for a ship entering for repairs. However, dry docking evolutions would typically occur between four and six times per year, but up to a maximum of eight times, with each event lasting approximately six hours. Further, the FDD is open on both ends, and water would

leave the FDD via the open ends and any fish that may be in the FDD during this process would be expected to be "flushed" out with the water as it leaves the FDD. While some fish may be caught in the FDD, the numbers would not be expected to harm the populations in San Diego Bay. To further reduce the potential for impacts to fish and EFH, BMPs identified in Table 2-2 will be implemented.

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 (Navy 2000; Allen et al. 2002; Pondella and Williams 2009, and Williams et al. 2016). Northern anchovy and Pacific sardine can be found throughout San Diego Bay. Jack mackerel were found only on 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 San Diego Bay. Impacts from demolition, dredging, and pile-extraction/driving of Proposed Action would be the same as described for other fish communities in the fisheries discussion above. Namely, noise associated with these 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 demolition, dredging, and pile-extraction/driving. These impacts would result in minimal adverse effects per the MSFCMA and are not considered significant under NEPA.

As discussed previously, turbidity plumes would be expected to persist for several hours 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.

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 and are not closely tied to artificial substrates. If present, such species would likely leave the immediate project area during demolition, dredging, and pile driving, and would 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 be expected to begin almost immediately, and development of the invertebrate prey base would proceed naturally.

Dredge material disposal would take place at the LA-5 ODMDS dredge material ocean disposal site. 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 MSFCMA, which would not be significant under NEPA.

As previously described, on 14 April 2020, NMFS stated that there is no objection to the Navy's proposed compensatory mitigation and NMFS has no additional EFH Conservation Recommendations for action proposed at the time (see Appendix E). Based on the revised Project Description the Navy

processed a revised EFH Assessment with the NMFS. On 6 September 2023 NMFS provided a concurrence stating that there is no objection to the Navy's EFH Assessment and NMFS had no additional EFH Conservation Recommendations.

Benthic Invertebrates

The loss of benthic organisms within the dredging site footprint is an expected and unavoidable impact. Most invertebrates within the 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 dredging areas. 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 implementation of Proposed Action would result in minor and short-term impacts on 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 several hours following disturbance. The proposed dredge area is, and would remain, deep subtidal habitat. As such, no permanent change would result from dredging. Demolition, dredging, and pile-extraction/driving would not result in significant impacts on 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 on marine biota from sediment disposal would be temporary and less than significant. Therefore, implementation of this alternative would not result in significant impacts on habitats and communities and no significant effects on marine communities or special aquatic sites would occur.

Invasive Species

As previously described the floating dry dock would be procured by Naval Sea Systems Command PMS 300 (refer to Section 2.1, *Proposed Action*) and then heavy-lifted to Mole Pier – South Berth site (refer to Section 2.3.2.8, *Floating Dry Dock Berthing*). Prior to transport the floating dry dock would be cleaned and coated with antifouling paint/coating.

The operation of the floating dry dock would not result in any known impact related to the introduction of invasive species. Although there is a potential for invasive species (e.g., *Undaria pinnatifida*) to be introduced via attachment on boat hulls, the increase in ship traffic attributable to the floating dry dock would be negligible as it is anticipated that the floating dry dock would be used by the Pacific Fleet. The Navy would continue to comply with the *Regional Biosecurity Plan for Micronesia and Hawaii* as well as all implementation strategies regarding ballast water, hull fouling, and invasive species detection and response from the *Final Integrated Natural Resources Management Plan Naval Base San Diego (June 2014) and San Diego Bay Integrated Natural Resources Management Plan (March 2013).*

With implementation of all applicable BMPs and avoidance and minimization measures, no significant impact on biological resources would result under the Proposed Action.

3.4 Airborne Noise

This discussion of airborne noise includes the types or sources of airborne noise and the associated sensitive receptors in the human environment. Airborne and underwater noise in relation to biological resources and wildlife species is discussed in the Section 3.3, *Biological Resources*.

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. The perception and evaluation of sound involves three basic physical characteristics:

- Intensity – the acoustic energy, which is expressed in terms of sound pressure, in dB
- Frequency – the number of cycles per second the air vibrates, in Hertz
- 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 the 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 Supplemental 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 Hertz. To mimic the human ear's nonlinear 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 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. In this discussion and analysis of airborne noise, the dB unit refers to A-weighted decibels (dBA). The human ear perceives changes in loudness on the logarithmic scale:

- 3 dB: Barely perceptible;
- 5 dB: Quite noticeable;
- 10 dB: Dramatic – twice or half as loud; and
- 20 dB: Striking – fourfold change.

Figure 3-4 (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 such as 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.

3.4.2 Noise Metrics

A "metric" is defined as a system for measuring or quantifying a particular characteristic of a subject. Because 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 DoD has been developing additional metrics (and analysis techniques). These supplemental metrics and analytical 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 10:00 p.m. and 7:00 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 U.S. Department of Housing and Urban Development, Federal Aviation Administration, 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. Most people are exposed to sound levels of 50 to 55 dB 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).

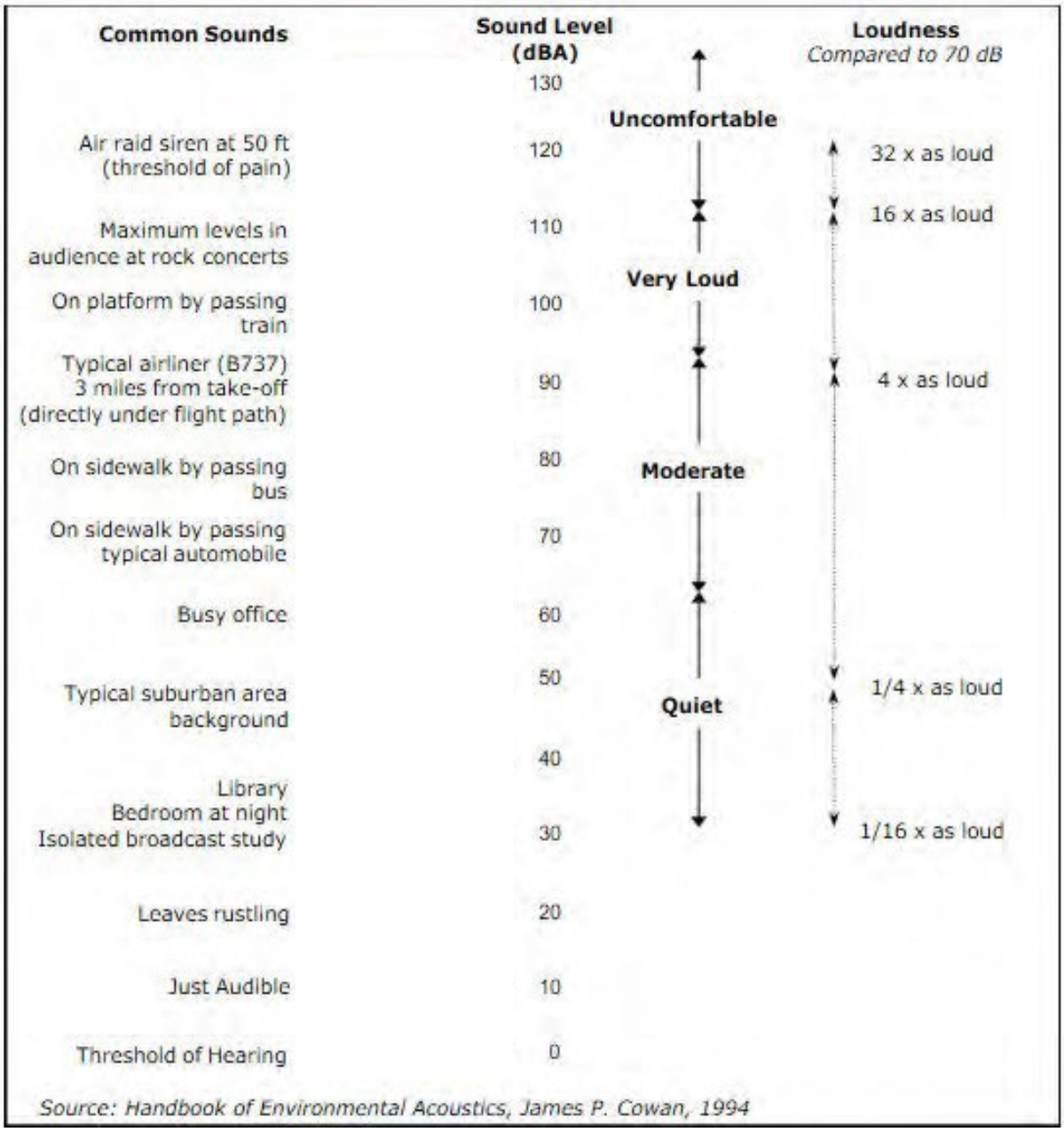

Figure 3--4. A-Weighted Sound Levels from Typical Sources.

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 10:00 p.m. to 7:00 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.

3.4.2.3 Sound Exposure Level

The SEL metric is a composite metric that represents both the intensity of a sound and its duration. Individual time-varying noise events 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 event, but it does not directly represent the sound level heard at any given time. SEL captures the total sound energy from the beginning of the acoustic event to the point when the receiver no longer hears the sound. It then condenses that energy into a 1-second period of time and the metric represents the total sound exposure received. The SEL has proven to be a good metric to compare the relative exposure of transient sounds, such as aircraft overflights, and is the recommended metric for sleep disturbance analysis (DoD Noise Working Group 2009).

3.4.2.4 Maximum Sound Level

The highest A-weighted sound level measured during a single event where the sound level changes value with time is called the maximum A-weighted sound level or Lmax. During time-varying noise events, the noise level starts at the ambient or background noise level, rises to the maximum level to the receptor, and returns to the background level as the noise recedes into the distance. Lmax defines the maximum sound level occurring for a fraction of a second. SEL is usually greater than the Lmax because it occurs over a longer period of time and the Lmax occurs instantaneously.

3.4.2.5 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, Lmax or SEL, the Number of Events Above metric is symbolized as NAXXmetric (NA = number of events above, XX = dB level, metric = Lmax or SEL). For example, the Lmax and SEL Number of Events Above metrics are symbolized as NA75Lmax and NA75SEL, respectively, with 75 dB as the example dB level.

3.4.2.6 Equivalent Sound Level

A cumulative noise metric useful in describing noise is the equivalent sound level (Leq). Leq 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 Leq(24). Other typical time periods for Leq are 1 hour and 8 hours.

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

The primary effect of noise exposure on 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), which is 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 a 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 Supplemental 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, Leq(24) is recommended for calculating potential hearing loss since hearing loss is a physical phenomenon because of 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 Supplemental EA calculates potential hearing loss using Leq(24) to achieve the accuracy necessary for the larger amount of nighttime and evening operations.

3.4.3.3 Speech Interference

Speech interference 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 Supplemental EA, speech interference is measured by the number of daily indoor events (from 7:00 a.m. to 10:00 p.m.) that exceed 50 dB Lmax 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 Lmax, but also has the added restriction of using an outdoor equivalent noise level of 60 dB Leq(9). This value 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 noise. In this Supplemental EA, sleep disturbance uses the SEL noise metric and calculates the probability of awakening. 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 dB 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 noise, especially at higher levels, may experience an increased risk of hospitalization for cardiovascular disease (BMJ 2013). In particular, 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 Regulatory Setting

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

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 FICUN Land Use Guidelines, residential areas and schools are considered compatible up to 65 dB DNL; outdoor recreational activities such as fishing and golfing are compatible with noise levels up to 70 dB DNL; and parks are compatible with noise levels up to 75 dB DNL (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, 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, childcare 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 (Leq) of 75 dB or less during the 12-hour period from 7:00 a.m. to 7:00 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 on 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 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 (American National Standards Institute [ANSI] 2002). As such, provided that the average adult male or female voice registers a minimum of 50 dB Lmax in the rear of the classroom, the American National Standard Institute standard

requires that the continuous background noise level indoors must not exceed a Leq of 35 dB (assumed to apply for the duration of school hours).

3.4.6 Affected Environment

Many components 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, *Biological Resources*.

NBSD can generally be characterized as an urban environment because of its location within and adjacent to the City of San Diego, City of National City, and POSD. The installation is surrounded by various noise sources, including marine terminals and industrial shipbuilding and repair facilities to the north and south; industrial, commercial, and residential uses to the east; and naval and POSD activities in San Diego Bay to the west. Harbor Drive (four-lane roadway) as well as railroad and light rail tracks also traverse the installation. The ambient noise environment at the NBSD waterfront area is affected by a variety of industrial activities, but the primary noise sources are ship repair equipment used on the piers; marine terminal operations; ship and vehicular traffic associated with NBSD and the surrounding Port District; and air traffic associated with Naval Air Station North Island, the U.S. Coast Guard Air Station, and San Diego International Airport. Navy and civilian personnel at NBSD are exposed to a diverse range of sounds associated with support of the NBSD mission.

Residences, schools, parks, hospitals, religious facilities, recreational facilities, open space, and parks are considered noise sensitive. NBSD is divided into two sections, referred to as the “wet side” and “dry side.” Most noise-sensitive land uses are on the dry side of the installation, including residences and a childcare center (i.e., NBSD Child Development Center), which are within 0.5 mile and north of the piers. The closest religious facility (i.e., NBSD Chapel), on the western side of the installation, is within 0.5 mile and north of the piers. There are several parks, picnic areas, and outdoor recreational facilities scattered throughout NBSD. Mariner Park, which includes an outdoor amphitheater, is approximately 3,200 feet to the north of NBSD. The nearest school, Balboa Elementary School, is approximately 1 mile northeast, on the eastern side of I-5. The Naval Station San Diego Historic District is approximately 1,550 feet to the northwest of NBSD. In addition, there are residences, parks, and recreational facilities along the shores of San Diego Bay.

3.4.6.1 Installation Noise Environment

Airborne Noise

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

The NBSD 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 are up to 67 dB. Although the project site is located on Navy property and is not subject to municipal requirements; for comparison, the City of San Diego allows ambient noise levels up to 75 dB in industrial areas (City of San Diego 2007).

Six sensitive receptors to the east of the Mole Pier were identified as potential sensitive receptors. These points – including three residential areas, two schools, and a park located in National City – represent areas with a range of land uses that could be sensitive to elevated noise levels. In general, the points describe an arc to the southeast, east, and northeast around the Mole Pier.

Typical ambient noise levels range from 40 dB (quiet residential area) to 84 dB (diesel truck traveling at 40 miles per hour at a distance of 50 feet [15 meters] from the receptor) in urban areas (City of San Diego 2015). Vehicle traffic on roadways that provide the main access to NBSD (e.g., Harbor Drive and I-5) is the main source of ambient noise in the residential neighborhood of National City. Periodic aircraft noise from San Diego International Airport and military aircraft on Naval Air Station North Island is audible. Noise from trucks, along with periodic construction and repair of Navy vessels in the area (north of NBSD), also contributes to the ambient sound levels. The City of San Diego exterior and construction noise ordinances apply at the NBSD property boundary, which is approximately 1 mile northeast of the Mole Pier. The proposed dredge footprint extends from the shoreline and ends before entering the Federal channel where barges and other ships routinely transit. The project site is also in the environment of a military waterfront where barges, military ships, ship and facility maintenance operations routinely occur. As such, the proposed nighttime dredging is consistent with current dredging standards in San Diego Bay and area military land uses. Because significant nighttime noise is currently not experienced, it will also not be experienced after the addition of this proposed dredging operation.

3.4.7 Environmental Consequences

Analysis of potential airborne noise impacts includes estimating likely airborne noise levels from the action alternatives and determining potential effects to nearby 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 on humans and wildlife. Significant noise impacts would occur if implementation of the alternatives would have one or both of the following direct or indirect effects:

- 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 (e.g., residential, education, health care uses, places of worship, etc.) in areas exposed to outdoor ambient noise levels that are higher than the 65-dB CNEL land use compatibility standard.

Less stringent guidelines are applied to temporary noise sources that are restricted to daytime hours (e.g., 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.

Impact analysis in this section is limited to airborne noise and its impact on sensitive receptors. The significance of noise impacts on marine biological resources is considered in Section 3.3, *Biological Resources*.

3.4.7.1 Avoidance and Minimization Measures

Airborne noise associated with berthing and operation of a floating dry dock would be generally consistent with the industrial waterfront area and would not significantly alter the overall airborne noise environment. Noise from dredging is relatively quiet in comparison with San Diego Bay's ambient sound levels and the duration of the activity would be temporary. Similarly, demolition and construction noise would be generally consistent with the industrial nature of NBSD and would not significantly alter the overall noise environment. Therefore, the Proposed Action would not require avoidance and minimization measures to further reduce airborne noise within the NBSD region.

3.4.7.2 Proposed Action - Potential Impacts

Airborne Noise

Dredging activities at the south berth of the Mole Pier would produce noise from the dredging equipment, tugboats and barges, and human activity associated with the estimated 20 workers onsite for dredging operations and 40 workers for demolition and construction. 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 at might between 6:00 p.m. and 6:00 a.m. 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 noise from dredging activities, data (based on the use of a backhoe and clamshell shovel) were obtained from the Federal Highway Administration Roadway Construction Noise Model program, which identified noise levels from an operating backhoe as 73.6 dB Leq at 50 feet (15 meters) and 43.5 dB Leq at 1,600 feet (U.S. Department of Transportation [USDOT] 2006). With the occasional occurrence of a clamshell shovel dropping, the noise levels increased to 80.3 dB Leq at 50 feet (15 meters) and 51.0 dB Leq at 1,600 feet (488 meters) (USDOT 2006).

Demolition and construction activities, including pile driving, required under Proposed Action would occur during daylight hours and would involve the use of standard construction equipment ranging from trucks and cranes to pile drivers, all of which would create noise. The tugboat used to move and position the crane barge would also generate some noise, but the noise would be consistent with the ambient noise environment characteristic of NBSD. The sound level of the impact pile driver during construction would dominate and would almost exclusively determine the total sound level emanating from the Mole Pier – South Berth. While the maximum sound level of a piece of construction equipment may vary considerably depending on factors such as maintenance, age, activity, and load, most impact pile drivers

generally produce a peak noise level of approximately 114.4 dB at a distance of 50 feet (15 meters) (NAVFAC SW 2018). Thus, when the impact pile driver is operating, it would be the predominant noise source, and it would determine the maximum noise levels in the project vicinity.

Noise levels decrease with increasing distance from the source. Under normal conditions when sound propagation is unhindered by intervening terrain, noise decreases approximately 6 dB with each doubling of the distance. This means that at a distance of approximately 100 feet (30 meters) from the pile driver location, the peak noise level would be approximately 108.4 dBA; at 200 feet (60 meters), it would be 102.4 dBA; and so on. At a distance of 6,400 feet (1,951 meters) or about 1.2 miles (1.9 kilometers), the peak noise level would be reduced to approximately 73 dB.

To consider potential noise impacts resulting from the berthing of a floating dry dock at the Mole Pier – South Berth, three residential areas, two schools, and a park located in National City were identified for assessment. These sensitive receptors are located in a southeastern, eastern, and northeastern arc around the Mole Pier and reflect representative sensitive land uses in the immediate vicinity of NBSD (see Table 3-12).

Based on noise attenuation from distance alone, intermittent, exterior noise levels noise associated with impact pile driver use would be approximately 78 dB Leq at the nearest sensitive receptor. Additionally, with the intervening structures located between and blocking the line-of-sight between the project site and the nearest sensitive receptor, noise levels would be further reduced by between 5 and 10 dB (USDOT and Federal Transit Administration [FTA] 2006). Therefore, demolition, dredging, and construction, including overnight work, would result in intermittent noise levels above 65 dB. However, given the intermittent and temporary nature of these noise levels, no sensitive receptors would experience ambient outdoor noise levels greater than 65 dB DNL (i.e., over a 24-hour period). Further, construction activities would not conflict with the City of San Diego construction noise ordinance places a restriction of an average sound level (Leq) of 75 dB or less during the 12-hour period from 7:00 a.m. to 7:00 p.m. (City of San Diego 2010a). Therefore, noise-related impacts would be less than significant.

Table 3--12. Noise Levels at Representative Receptor Points in National City.

Receptor Point	*Distance*		*Construction-Related Noise (dB)*
	Miles	*Kilometers*	
Residential (W 20th St & Wilson Ave)	0.8	1.3	75.86
Residential (W 17th St & Wilson Ave)	0.7	1.1	77.02
Residential (W Plaza Blvd & Hoover Ave)	0.8	1.3	75.86
National City Middle School	1.2	1.9	72.34
Kimball School	0.9	1.4	74.84
Kimball Park	1.0	1.6	73.93

Source: Navy 2016; Navy and POSD 2013

Barges transporting dredged sediments to an aquatic disposal site (e.g. 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. Ambient noise in San Diego Bay is characterized by commercial shipping, military vessel movement, and private vessel movement. The addition of one to two daily barge round trips to LA-5 ODMDS for in-water disposal or to NBSD for drying and upland disposal 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 San Diego Bay. Further, any noise resulting from the sediment transport barges would be transitory and temporary. As such, overall impacts from transporting the dredge material to LA-5 ODMDS would not be significant. Sediment disposal at LA-5 ODMDS would occur offshore and out of range of perception of noise-sensitive receptors. Therefore, sediment disposal at LA-5 ODMDS would not generate significant noise to affect sensitive receptors along the transportation route or at the selected disposal site.

Upland sediment disposal would involve transporting dredge material to the CDF at NBSD, allowed it to dry, and then be transported via truck to an approved upland disposal site such as the Otay Landfill located approximately 12.2 miles (19.6 kilometers) from NBSD via the San Diego regional road network. The most likely route from NBSD would include Harbor Drive, I-5, State Highway 54, and Interstate 805 (I-805). Each of these roadways is used by personal and commercial/industrial traffic and transportation of dredged sediments via truck to the Otay Landfill would be consistent with existing roadway airborne noise generation and would not create a substantial increase in the number of vehicles (see Section 3.5, *Transportation*) or the sound levels associated with traffic on the regional road network. This conclusion is consistent with the findings from the NEPA analysis for the NBSD Pier 12 Replacement Project (Navy 2011a), which assessed the generation and transport of approximately 13,000 cy of demolition waste and 479,455 cy of dredged sediment, more than seven times the amount of material that would be generated and potentially transported under the Proposed Action. 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 affect sensitive receptors along the transportation route or at the Otay Landfill.

Operationally, noise associated with ship maintenance at the floating dry dock would be consistent with the ambient noise environment of an industrial waterfront area. Noise generated at the Mole Pier – South Berth would be consistent with that produced from various ship support services, such as supplies and minor repair or maintenance, at NBSD. As such, given the context of the existing noise environment, the implementation of the Proposed Action would result in neither a long-term adverse impact on noise nor a significant increase in noise exposure at nearby sensitive receptors.

3.5 Transportation

This discussion of transportation includes all of the air, 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, bus routes, railways, subways, bikeways, trails, waterways, airports, and taxis, and can be looked at on a local or regional scale.

Marine vessel circulation in San Diego Bay is regulated by the U.S. Coast Guard 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.

3.5.1 Affected Environment

NBSD is located in downtown San Diego, close to I-5 and Interstate 15 (I-15) and can be accessed by an intercity and commuter rail line, the San Diego Trolley, Coaster Commuter Rail, Amtrak Intercity Rail, and local/express buses (Navy 2014a). The installation is situated on the eastern side of San Diego Bay, and landside access to the NBSD is provided by Harbor Drive, – a two-lane public road connecting the installation as it extends south along the eastern side of the bay.

Between I-5 and Navbase Way (near the NBSD entrance gate), Harbor Drive has 17,000 average daily trips (ADT) (City of San Diego 2010b). Within NBSD, Harbor Drive also serves as the main roadway along San Diego Bay, while 32nd Street extends along the uplands of the installation and is connected to Main Street. Landside access to the south berth of the Mole Pier is provided via Senn Street off of Surface Navy Boulevard. Parking for personal vehicles is available along Harbor Drive at designated lots.

San Diego Bay is actively used by commercial, recreational, and military vessels, and it has multiple facilities to serve boaters, including 18 public marinas, four private yacht clubs, 55 boat yards, over 8,280 recreational boat slips, and four naval complexes (Naval Base Point Loma, 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 San Diego 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 POSD; 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, Naval Base Point Loma, 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 San Diego 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 feet MLLW and width that ranges from 600 to 2,000 feet (183 to 607 meters) from the San Diego Bay entrance to berthing areas on

Naval Air Station North Island; a depth of -47 feet MLLW and widths varying from 600 to 1,900 feet (183 to 579 meters) from the berthing areas on Naval Air Station North Island to the Tenth Avenue Marine Terminal; and a depth of -37 feet MLLW and a width varying from 600 to 1,350 feet from the Tenth Avenue Marine Terminal down to National City Marine Terminal (POSD 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 feet (1.8 to 6.7 meters) in depth and provide access to the more remote areas of San Diego Bay. These channels are generally too shallow and too narrow to accommodate larger ships.

The remaining open waters of San Diego Bay are quite shallow, ranging in depth from 2 to 17 feet (0.6 to 5.2 meters), 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 San Diego 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.

Ocean Disposal

Ocean disposal of project dredge material would involve loading dredged sediment into barges and transporting it using a single tug to LA-5 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 100 fathoms (600 feet), 5.4 nautical miles from Point Loma, off the San Diego Coast.

Upland Disposal

Truck transportation between NBSD and the Otay Landfill would most likely proceed south along Harbor Drive to I-5, to Highway 54, to I-805, and finally to Main Street. Of this route, the portion of I-5 between Harbor Drive and Highway 54 and a portion of I-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 ADT for the section of I-5 operating at LOS F and 252,667 ADT for the section of I-805 operating at LOS F (Caltrans 2018).

3.5.2 Environmental Consequences

Impacts on ground traffic and transportation are analyzed by considering the possible changes to existing traffic conditions and the capacity of area roadways from proposed increases in commuter and construction traffic.

For the purpose of this analysis, a significant impact on landside vehicle transportation would be one that reduces the LOS of a roadway to "LOS F," or one that permanently adds vehicle trips to a roadway currently assigned to LOS F that would demonstrate exacerbation of traffic congestion. A significant impact on vessel transportation would occur if implementation of the Proposed Action would result in substantial reduction in current safety levels in terms of vessel maneuvering, vessel congestion, recreational boat access, or commercial fishing activity.

3.5.2.1 Avoidance and Minimization Measures

Traffic associated with berthing and operation of a floating dry dock would be generally consistent with the existing conditions at NBSD and the surrounding vicinity. In particular, construction equipment/materials delivery trucks would be similar to the existing industrial waterfront character and associated truck traffic at NBSD. In the 2020 EA for the Floating Dry Dock Project at NBSD, San Diego, California noted that the Proposed Action's upland dredge material disposal would generate a worst case scenario total of 7,177 truck trips. Based on project sediment test results, the USEPA and USACE issued a Suitability for Unconfined Aquatic Disposal (SUAD) Determination (Appendix D) approving project dredge material disposal at approved ocean disposal site ODMDS LA-5. Additionally, upland disposal of proposed dredge materials would occur at an approved upland disposal site. This would involve upland disposal of 17,712 CY of dredge material which equates to a greatly reduced total truck trip generation of only 1,704 trips. These trips would be scheduled such that they avoid the weekday and weekend peak hour traffic periods along local and regional roads and highways. Proposed Action construction and demolition disposal trips to and from NBSD would be much lower than those associated with the 2012 NBSD Pier Replacement Project which was a much larger project and which had 13,000 CY of demolition waste and 479,455 CY of dredged sediment. The Pier 12 Replacement project had approximately seven times demolition waste and approximately 96% more dredge material disposal truck trips than would the Proposed Action. The NBSD Pier 12 Replacement project was not found to have a significant impact on traffic.

Utility upgrades required for the project would intermittently require short term and phased road closures primarily on portions of Cummings Road and also on certain parallel roads. Normal traffic counts on these road segments are relatively light. This work would not extend further across the base or beyond NBSD. The construction contractor would be required to prepare and a Traffic Control Plan which would need to be reviewed and approved by NBSD.

3.5.2.2 Proposed Action - Potential Impacts

Under the Proposed Action, landside traffic impacts would include construction work commutes and construction equipment/materials deliveries that do not arrive via barge on the water-side of the Mole Pier - South Berth. Construction workers would arrive at the Harbor Drive Gate 9 entrance and proceed via West 8th Street, Cummings Road, and Mole Road to parking adjacent to the south berth of the Mole Pier. Additional parking exists along Harbor Drive near the entrance gate. The estimated 40 construction workers (conservatively assumed to be arriving via single occupancy personal vehicle) would likely

commute during peak hour traffic periods (i.e., typically between the hours of 7:00 a.m. and 9:00 a.m. as well as 4:00 p.m. and 6:00 p.m.); however, these commutes would add a negligible amount of daily trips to Harbor Drive totaling to less than 1 percent of the existing ADT along that roadway. Additionally, these construction worker trips would be temporary, lasting for a period of approximately 15 months. Construction equipment/materials delivery would occur at various times throughout the day. Given the limited number of piles and the limited area of pier deck proposed for demolition and construction, daily construction vehicle trips would be minimal. As with construction worker trips, truck trips associated with construction equipment/materials delivery as well as demolition debris hauling would be temporary. Additionally, landside construction equipment would be stored onsite adjacent to the south berth of the Mole Pier for the duration of the demolition and construction to limit construction-related truck trips. Given the small number of construction worker and other construction-related trips needed for landside access relative to existing traffic demand along Harbor Drive, landside traffic impacts would be negligible.

Under the Proposed Action, the following dredge material disposal actions would occur per an approved Suitability for Unconfined Aquatic Disposal (SUAD) Determination.

Ocean Disposal

With Ocean Disposal of the Proposed Action's dredge material, the ROI would be vessel transportation within San Diego Bay and the Pacific Ocean between NBSD and LA-5 ODMDS.

The primary source of traffic-related impacts from ocean dredge material disposal would be vessel transportation within San Diego Bay and Pacific Ocean. Ocean dredge material disposal would involve loading the 93,248 CY of dredged sediment into a barge and transporting it to LA-5 ODMDS. Approximately two barge trip per day would be necessary over the approximately 90 day duration to transport the dredged sediment 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 Mole Pier –South Berth to LA-5 ODMDS is expected to take approximately 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. Project barge tug/barge traffic levels 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 regular 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 on vessel transportation as a result of the Proposed Action.

Upland Disposal

With Upland Disposal of the Proposed Action's dredge material, the ROI would be landside truck transit from the Mole Pier dredging site to the NBSD CDF, and then from the Navy drying facility to the Otay Landfill.

The primary source for traffic-related impacts from the upland dredge material action would be truck trips between NBSD and the upland disposal site at the Otay Landfill. Upland dredge material disposal would involve loading the 17,712 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 CDF. Transporting sediment from the upland CDF to the Otay Landfill would require approximately 1,704 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. These truck trips would compose less than 1 percent of the existing ADT along the haul route, including I-5 and I-805. Additionally, truck trips would avoid peak hour travel times along local and regional roads and highways, including I-5 and I-805. Therefore, there would be no significant impacts on traffic as a result of the Proposed Action. No avoidance and minimization measures would be necessary to further reduce transportation impacts within the NBSD region.

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 CERCLA and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (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 1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or 2) 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 wastes 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, and lead-based paint. USEPA is given authority to regulate special hazard substances by the TSCA. Asbestos is also regulated by USEPA under the CAA and CERCLA.

Hazardous materials and wastes are also controlled under the California Code of Regulations and these regulations are implemented by the California Environmental Protection Agency Department of Toxic Substances Control and the local Certified Unified Program Agency. The San Diego County Department of Environmental Health 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 NBSD.

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 of EPCRA requires that facilities have Safety Data Sheets for chemicals held above certain quantities, and that they submit either copies of these sheets or a list of the chemicals held 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 1 March of each year. The information submitted under Sections 311 and 312 is 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 Office of the Chief of Naval Operations 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

Industrial activities at NBSD require the installation to use, handle, and store hazardous materials, including oils, lubricants, cleaners, hydraulic fluids, and fuels (i.e., gasoline and diesel) (Navy 2012a).

3.6.2.2 Hazardous Waste

Industrial activities generate various quantities of hazardous wastes, such as oils, lubricants, hydraulic fluids, paint, paint thinners, cleaners, degreasers, solvents, and batteries. NBSD is a large-quantity generator of hazardous wastes. A large-quantity generator generates more than 2,200 pounds (1,000 kilograms) of hazardous waste, or more than 2.2 pounds (1 kilogram) of acutely hazardous waste, per month (Navy 2012a).

3.6.2.3 Special Hazards – Asbestos-Containing Materials, Lead Based Paint, Polychlorinated Biphenyls

Buildings constructed before 1970 are more likely to contain Asbestos-Containing Materials (ACM). Pipe or other insulation, ceiling tiles, exterior siding, roof shingles, and sprayed-on soundproofing are some of the materials found in older buildings that may contain ACM. Buildings built before 1978 may contain lead-based paint (Navy 2006).

3.6.2.4 Defense Environmental Restoration Program

As of 2011, 24 active Installation Restoration Program sites were identified at NBSD. Of these sites, 8 (Sites 3, 5, 7, 8, 9, 11, 12, and 13) have been closed and require no further action. Sites 14, 15, 16, and 19 were never officially established because these sites were termed Solid Waste Management Units under

the Resource Conservation and Recovery Act before being implemented in the Installation Restoration Program. The remaining sites (Sites 1, 2, 4, 6, 10, 17, 18, 20, 22, 23, and 24), including Munitions Response Program Site 100, continue under various stages of investigation and remedial action and will remain open until the nature and extent of contamination is fully characterized, or the necessary cleanup actions completed. The Navy has also identified 30 Solid Waste Management Units, which have since been closed with regulatory concurrence (Navy 2014a).

3.6.3 Environmental Consequences

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

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 Avoidance and Minimization Measures

The avoidance and minimization measures that would be implemented to address hazards and hazardous materials would be identical those described in Section 3.2, *Water Resources.* These avoidance and minimization measures in demolition and construction activities limit potential impacts related to hazardous materials and wastes.

3.6.3.2 Proposed Action - Potential Impacts

The ROI for hazardous materials and hazardous wastes for the Proposed Action is NBSD and San Diego Bay. The Proposed Action would involve dredging the Mole Pier – South Berth to a maximum design depth of -56 feet MLLW. The total estimated volume of dredged sediment would be 110,960 CY.

Sediment samples from the Mole Pier dredging footprint were collected and tested in accordance with regulations in 40 CFR Parts 220–228. The resulting sediment characterization report was provided to USEPA and USACE for review and comment on potential sediment disposal options. The sediment characterization and chemistry tests for the project, performed to Tier 3 Green Book testing standards (See Section 3.2, Water Resources), helped determine the degree to which the sediments meet the allowable parameters for unconfined ocean disposal. Project test results indicate that 93,248 CY of the project sediment meet requirements for unconfined aquatic disposal at approved ocean disposal site LA-5 ODMDS. USEPA and USACE have issued a Suitability for Unconfined Aquatic Disposal (SUAD) Determination (Appendix D) confirming these disposal findings. All dredged sediment disposal operations performed for the Proposed Action would comply with CWA Section 404 and would be performed in accordance with a dredging permit issued by USACE, and a CWA Section 401 Water Quality Certification from the San Diego RWQCB. If hazardous substances were found in the dredged sediment, avoidance and minimization measures would be taken to prevent adverse impacts from hazardous materials or substances.

Demolition and construction contractors would be required to park their vehicles within an on-shore staging area, where they would be allowed to store fuels for small portable equipment use following approval from the NBSD Public Works Office and Fire Department (Navy 2016). No vehicle fueling or maintenance would take place at the project site (Navy 2016). Contractors would be subject to all Federal, state, and San Diego County requirements for hazardous materials and hazardous waste management and would be required to follow the Hazardous Waste Management Plan (HWMP) (Navy 2016). In addition, a site-specific construction SWPPP would be developed and implemented by the demolition and construction contractor that would incorporate BMPs designed to minimize the potential for hazardous material releases during demolition and construction activities. Any hazardous materials and wastes generated during construction and operational activities would also be subject to installation-wide EPCRA 312 and 313 reporting requirements (Navy 2016).

Operationally, contractors working on the floating dry dock would be permitted to store hazardous materials and wastes associated maintenance activities, subject to the conditions in the HWMP and all applicable Federal, state, and County of San Diego requirements (Navy 2016). These regulations include the Resource Conservation and Recovery Act (RCRA); U.S. Department of Transportation (DOT) Hazardous Materials Regulations (CFR Title 49), California Health and Safety Code, and San Diego County Code, Title 6, Division 8, in combination with operational BMPs. Any accidental releases of these materials due to spills or leaks would be cleaned and reported consistent with the above-mentioned regulations. Through the implementation of the HWMP, there would be no increase in human health risk or environmental exposure to hazardous materials or hazardous wastes. A portion of the proposed relocated crane lot will be within Installation Restoration Site 2D. However, the proposed lot relocation site and utility work would have minimal actual contact with IR Site 2.

Overall, implementation of the Proposed Action would not result in increased human health risk or environmental exposure. The Proposed Action would not result in significant impacts from hazardous materials and wastes.

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

A summary of the potential impacts associated with the Proposed Action and impact avoidance and minimization measures is presented in Table 3-13.

Table 3--13. Summary of Potential Impacts on Resource Areas.

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
Air Quality/Climate Change	Under the Proposed Action, air quality impacts from dredging, transportation, and sediment disposal activities as well as demolition and construction activities and annual waterfront operations would occur as a result of combustion emissions associated with fossil-fuel-powered equipment. Because of the nature of the Proposed Action, landside grading would not be required; dredging activities would not generate fugitive dust since the marine sediments that would be dredged are wet, which prevents the sediments from becoming airborne. Estimated construction-related criteria pollutant emissions would be below the *de minimis* threshold levels for Clean Air Act conformity. The construction contractor will obtain required air permits for the project from the San Diego County Air Pollution Control District and California Air Resources Board, including those for portable, fuel driven power sources. The construction contractor will ensure that all rental equipment and subcontractor owned equipment shall, if required, have copies onsite of all associated rental agreements, California Air Resources Board registrations, and local county air permits to operate. The construction contractor will follow San Diego County Air Pollution Control District rules regarding dust, nuisance, particulate matter, storage, transfer containers, abrasives, and materials containing volatile organic compounds. Diesel powered equipment will use only California Air Resources Board fuel. Required permits will be obtained for any emissions associated with the floating dry dock operation from the San Diego Air Pollution Control District (SDAPCD) prior to dry dock operation (vessel maintenance). Implementation of Proposed Action would result in less than significant impacts to air quality. **Avoidance and Minimization Measures** Under the Proposed Action, the Navy would comply with all applicable BMPs presented in Table 2-2. Additional avoidance and minimization measures would not be required. Implementation of the Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels during construction. Dredging, transportation, and disposal activities as well as demolition and construction activities would generate a limited amount of greenhouse gas (GHG) emissions that 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.
Water Resources	Under the Proposed Action, dredging activities would result in minor changes to bathymetry at the south berth of the Mole Pier; however, these changes would not be sufficient to affect circulation patterns in the San Diego Bay. Potential surface water quality impacts associated with Proposed Action include spills and releases of hazardous and nonhazardous materials, including materials involved with dredging as well as demolition and construction. Potential sources of impacts on marine water quality associated with dredging as well as required demolition and construction activities include accidental release of vessel and equipment fuels or hydraulic fluids. The contractor would be required to develop, receive Navy approval of, and implement a site-specific construction Stormwater Pollution Prevention Plan (SWPPP) that specifies BMPs. The sediment to be dredged or disturbed by pile extraction/installation is estimated to be mostly sand and silts. Previous sampling conducted in the vicinity and at the south berth of the Mole Pier did not indicate elevated levels of contaminants. Therefore, it is unlikely that temporary turbidity associated with these activities would mobilize significant levels of dissolved- phase contaminants into the water column. Physical disturbance during dredging and sediment disposal would last for approximately 90 days, required demolition would occur over 13 weeks, and construction activities are expected to last for

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	60 weeks. Under the Proposed Action, these activities would result in the short-term loss of marine benthic organisms. Turbidity would persist throughout these activities; however, it would vary spatially based on currents and sediment grain size. Most sediments suspended by dredging would resettle within several hours, and only a small fraction would take longer to resettle. Potential sources of impacts on marine water quality associated with dredging as well as required demolition and construction activities include accidental release of vessel and equipment fuels or hydraulic fluids. The contractor would be required to develop, receive Navy approval of, and implement a site-specific construction Stormwater Pollution Prevention Plan (SWPPP) that specifies BMPs. The sediment to be dredged, or disturbed by pile extraction/installation, is estimated to be mostly sand and silts. Previous sampling conducted in the vicinity and at the south berth of the Mole Pier did not indicate elevated levels of contaminants. Therefore, it is unlikely that temporary turbidity associated with these activities would mobilize significant levels of dissolved- phase contaminants into the water column. Following berthing, operation of the floating dry dock could result in potential water resuspension would be minimal; dry docking evolutions (i.e., lowering and raising the floating dry dock) are slow and do not substantially disturb the underlying sediments. Ballast water pumps would be built into the floating dry dock and operated to comply with the requirements of the Uniform National Discharge Standard for Vessels of the Armed Forces. These standards would dictate the Marine Pollution Control Device performance standards necessary to control the vessel's discharges Dry docking evolutions would average between 4 and 6 times per year, or a maximum of 8 times per year. Each event would take approximately 6 hours to complete, depending on the objective(s) of the specific dry docking event. Ballast water pumps would be powered from existing land- side electrical power sources and operated in compliance with UNDS. The dry dock ballast tanks are filled with air, and the floating dry dock would remain stationary in the raised position while maintenance and repair work is undertaken on a dry- docked vessel. While ship repair and maintenance is occurring, appropriate BMPs would control for environmental releases of process water and dust. Floating dry dock operations could result in potential water quality impacts. However, sediment resuspension would be minimal; dry docking evolutions (i.e., lowering and raising the floating dry dock) are slow and do not substantially disturb the underlying sediments. The Proposed Action would not result in significant impacts to water resources. **Avoidance and Minimization Measures** Under Proposed Action, the Navy would comply with all applicable BMPs presented in Table 2-2. Additionally, the Navy would implement additional construction-related avoidance and minimization measures intended to reduce the potential for construction- related impacts to water quality (e.g., spill control and response measures, clean construction materials, barge to collect demolition debris, etc.).

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
Biological Resources	Physical disturbance during dredging and sediment disposal would last for approximately 90 days, required demolition would occur over 13 weeks, and construction activities are expected to last for 60 weeks. Under the Proposed Action, these activities would result in the short-term loss of marine benthic organisms. Turbidity would persist throughout these activities; however, it would vary spatially based on currents and sediment grain size. Most sediments suspended by dredging would resettle within several hours, and only a small fraction would take longer to resettle. Following berthing, operation of the floating dry dock could result in potential water quality impacts. However, sediment resuspension would be minimal; dry docking evolutions (i.e., lowering and raising the floating dry dock) are slow (approximately 6 hours) and do not substantially disturb the underlying sediments. Dredging as well as required construction and demolition 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. Under the Migratory Bird Treaty Act a pre-construction survey would be performed for migratory birds in the project area. Underwater noise generated during dredging, demolition, and pile extraction/driving would disturb fish and marine mammals within the vicinity. As a result, fish and marine mammals may temporarily leave or avoid the project area. The Navy processed a Final Incidental Harassment Authorization (IHA) with the National Marine Fisheries Service (NMFS) addressing potential impacts to marine mammal. Per the IHA, the Navy will implement shutdown zones of from 33 feet (10 meters) to 197 feet (60 meters), depending on the pile being driven/extracted and the species of concern. With the implementation of the shutdown zones, Level A (injury) take would be avoided; However, implementation of the Proposed Action would result in Level B (behavioral) takes of three species: California sea lions (118 takes), Coastal Bottlenose dolphin (59 takes), and Harbor Seal (59 takes). Potential impacts on green turtles from implementation of the Proposed Action would primarily be from impact pile driving. However, with the imposition of monitoring and shutdown zones for green turtles, the potential for acoustic injury, or physical interaction with Project-related activities, would be avoided. The dry dock would be transported using a heavy-lift ship with an approximate length of 800 to 1,000 feet (244 to 305 meters). The FDD transit will follow established shipping lanes, leaving from Mobile, Alabama traveling through the Gulf of Mexico, along the western Atlantic coastline of South America, around Cape Horn at the southern tip of South America, and then up the eastern Pacific coast of South and Central America to San Diego Bay. The full trip is expected to take approximately 75 to 90 days, and will include multiple stops for supplies and fuel. During the transit, average speeds would be maintained at approximately 8 to 10 knots (9.2 to 11.5 miles/hour), with a maximum speed of 14 knots (16.1 miles/hour). During the FDD transit, different species would be encountered in the different water bodies; however, the potential for, and types of, impact would remain the same regardless of the water body. Potential stressors during transit include elevated noise and vessel strike. During the transit, ESA-listed marine mammals and sea turtles may be encountered. The heavy-lift vessel will remain in established shipping lanes during the transit from Mobile, Alabama to San Diego, California. The noise generated by the vessel would be consistent with other large vessels that would also use the same shipping lanes. Considering that the FDD transit will occur only once, the vessel will not remain in one place for any length of time, and noise generated by the heavy-lift vessel will be consistent with other ships in the shipping lanes, the Navy finds that any effects from elevated noise may affect, but are not likely to adversely affect ESA-listed turtles or marine mammals. Vessel strikes can result in lethal and sub-lethal injuries to marine species. If a marine species were to be struck during the FDD transit, impacts could include injury due to broken bones, or death as a result of the strike. A majority (89%) of the lethal or severe injuries were a result of ships traveling 14 knots (16.1 miles/hour) or faster. While there is a potential for encountering ESA-listed marine mammals and sea turtles during transit, the anticipated speeds of the heavy-lift vessel would generally be less that what would be expected to cause severe or lethal injury. The vessel will generally be moving at 8 to 10 knots (9.2 to 11.5 miles/hour), which is slower than the speed of most lethal or severe strikes. It is also

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	a single trip, rather than a program of repeated trips, which makes any strike very unlikely to occur. Therefore the Navy finds that vessel strikes associated with the FDD transit may affect, but are not likely to adversely affect ESA-listed turtles or marine mammals. The FDD is built to accommodate multiple classes of ships with multiple hull designs. For ships with sonar domes that may strike the deck of the FDD after it is raised, there is one location in the FDD that is lower than the rest of the FDD. While there is no known habitat (e.g., eelgrass) that would be an attractant to adult green sea turtles in the Project Area, the Project Area is inside of a floating security fence and is adjacent to active piers to both the north and south, their presence in the Project Area is not expected, but it is possible that green sea turtles would be present in the vicinity of the FDD after it has been lowered to accommodate a ship entering the FDD and then raised. However, the FDD is open on both ends, and water would leave the FDD via the open ends and any animals that may be in the FDD during this process would be expected to be "flushed" out with the water as it leaves the FDD. Furthermore, FDD-related personnel would be on site during all raising or lowering of the FDD, and BMPs identified in Table 2-2 would be followed during all FDD operations. These BMPs would also apply to other protected marine species (e.g., marine mammals) that have the potential to occur in the Project Area. The number of turtles using the bay is estimated to range between 40 and 60 animals during most months of the year, increasing to 100 animals during peak migratory periods (Eguchi 2017). During recent monitoring efforts for the NBSD Pier 6 replacement project, monitors were routinely stationed at Pier 1, Pier, 5 or Pier 7 on NBSD and in a small vessel adjacent to the Naval Base Coronado Naval Amphibious Base. During the eight months of monitoring efforts, green sea turtles were observed a total of six times in a large eelgrass patch off the eastern end of the Naval Base Coronado Naval Amphibious Base. No green sea turtles were observed in/among the piers. The Navy prepared and submitted a consultation letter to NMFS on 11 February 2020. After reviewing the consultation letter, NMFS provided a response on 25 March 2020 concurring with the Navy that the Proposed Action may affect, but is not likely to adversely affect Federally listed species and/or Federally designated critical habitats. Based on newly available project description information the Navy processed with NMFS an Endangered Species Act informal Section 7 consultation renewal based on the Navy finding that the Proposed Action may affect, but is not likely to adversely affect Federally listed species and/or Federally designated critical habitats. NMFS responded on 6 September 2023, concurring with the Navy that the Proposed Action may affect, but is not likely to adversely affect federally listed species and/or federally designated critical habitats. The Proposed Action's dredging footprint, volumes, and depths have increased since 2020 and a new 2023 Functional Loss Equivalency Analysis was completed for the redesigned project. Resulting calculations indicate that only slight changes to the results of the 2020 Functional Loss Equivalency Analysis in the 2020 Final EA would occur since they relate to ecological function which would proportionately decrease with the increased dredging depths within the photic zone. Specifically, below 29 feet of depth, ever deeper dredging would have a proportionately decreasing amount of loss in benthic function as that function is at lower depths benthic function is no longer driven by light penetration. While the deeper the water column, the more value is gained by water column productivity that water column productivity is very minor compared to benthic productivity. To evaluate the changes in the Project design, the same methods and criteria were used (MAI, 2020a, b), but with updated information for bathymetry, dredging, and shade structures (Merkel and Associates, 2023). The dredge footprint would increase from 4.79 acres to 9.98 acres, and the over-water structures in the updated design specifications would increase shading in the Project area from 0.014 to 0.027 acres, depending on whether certain structures are kept or removed. Based on the 2023 analysis the changes in dredge depth would not have a significant impact on the eelgrass equivalency mitigation amount. Further, though the current design would increase coverage from that analyzed in the EFHA these cover changes also would be in waters deeper than -29 ft. and so would cause no additional benthic functional loss. Based on the new 2023 analysis the water column functional loss

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	rises very slightly due to the expanded shading, and the eelgrass equivalency of the project would increase from 0.084 acres to 0.137 acres, or an additional 0.053 acres. Navy Region Southwest has agreed to let the Project use the Navy's San Diego Bay Eelgrass Mitigation Bank to offset the additional impacts associated with the conversion of shallow water habitat to deeper water, and shading impacts from the new FDD and the associated structures. Based on the newly available project design information, and the new 2023 Functional Loss Equivalency Assessment the Navy is processing an Essential Fish Habitat Assessment Reinitiation with NMFS. On 6 September 2023 NMFS concurred stating that there is no objection to the Navy's assessment and NMFS had no additional EFH Conservation Recommendations. The Proposed Action would not result in significant impacts to biological resources. **Avoidance and Minimization Measures** Under the Proposed Action, the Navy would comply with all applicable BMPs presented in Table 2-2. Additionally, the Navy would implement additional construction- related avoidance and minimization measures intended to reduce the potential for construction-related impacts to biological resources. These measures include the establishment of multiple monitoring and shutdown zones for underwater construction or demolition activities which are intended to reduce the potential for construction-related impacts to biological resources. The Proposed Action would result in a reduction in ecological value as a result of the Proposed Action, which would translate into a loss of functionally equivalent acres of un-vegetated soft bay bottom. These impacts would be mitigated by providing offsetting ecological lift equivalent to the quantified loss through approximately 0.137 acres of eelgrass habitat credits through the Navy Eelgrass Mitigation Bank. Potential impacts on green turtles from implementation of the Proposed Action would primarily be from impact pile driving. However, with the imposition of monitoring and shutdown zones for green turtles, the potential for acoustic injury would be avoided.
Airborne Noise	Under the Proposed Action, airborne noise would be produced from heavy machinery and vehicles required for demolition, construction, dredging, 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 between 6:00 p.m. and 6:00 a.m., for 90 days. Demolition and construction activities required under the Proposed Action would occur during daylight hours over a period of approximately 60 weeks and would involve the use of standard construction equipment ranging from trucks and cranes to pile drivers, all of which would create noise. The tugboat used to move and position the crane barge would also generate some noise, but the noise would be consistent with the ambient noise environment characteristic of NBSD. The sound level of the impact pile driver during construction would dominate and would almost exclusively determine the total sound level emanating from the south berth of the Mole Pier. Dredging and sediment disposal as well as required demolition and construction activities, including overnight work, would not increase ambient outdoor noise levels at the nearest sensitive receptor to greater than 65 decibels (dB) DNL and would not conflict with the City of San Diego construction noise ordinance.

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	The Proposed Action would not result in significant noise- related impacts. **Avoidance and Minimization Measures** Under the Proposed Action, additional avoidance and minimization measures would not be required for airborne noise.
Transportation	Under the Proposed Action, landside traffic impacts would include construction worker commutes and construction equipment/materials deliveries that do not arrive via barge on the water-side of the south berth of the Mole Pier. However, these trips would be temporary and would add a negligible amount of traffic to the existing transportation network. Traffic impacts associated with sediment disposal would include the following: <u>Ocean Dredge Material Disposal–</u> The primary source of traffic- related impacts under the ocean dredge material disposal action would be vessel transportation within San Diego Bay and Pacific Ocean. The ocean dredge material disposal action would involve loading the 93,248 cy of dredged sediment into a barge and transporting it to LA-5 ODMDS. Approximately one barge trip per day would be necessary over the approximately 90 days duration to transport the dredged sediment with one tug and barge loading at the dredge site while the other is in transit to and from LA-5 ODMDS. Project barge tug/barge traffic levels in San Diego Bay and the Pacific Ocean would be temporary and negligible. <u>Upland Dredge Material Disposal–</u> The primary source for traffic- related impacts under the upland dredge material disposal would be truck trips between NBSD and the upland disposal site at the Otay Landfill. The upland dredge material disposal action would involve loading the 17,712 cy of dredged sediment into 12-cy- capacity trucks and transporting the material to a designated site such as the Otay Landfill. Transporting sediment from the upland CDF to the Otay Landfill would require approximately 1,704 truck trips over approximately 4-5 months, as governed by the rate of drying of sediment to a point where it is suitable for transport and disposal. These truck trips would account for less than 1 percent of the existing average daily trips (ADT) along the haul route, including Interstate 5 (I-5) and I-805. <u>Construction and Demolition</u> The NBSD Pier 12 Replacement project generated more than seven times the amount of material that would be generated by the Proposed Action and Pier 12 did not have a significant traffic impact. The Proposed Action is a much smaller action which will also not have a significant traffic impact. Utility upgrades required for the project would intermittently require short term and phased road closures primarily on portions of Cummings Road and also on certain parallel roads. Normal traffic

Resource Area	*Proposed Action (Floating Dry Dock at the Mole Pier - South Berth)*
	counts on these road segments are relatively light. This work would not extend further across the base or beyond NBSD. The construction contractor would be required to prepare and a Traffic Control Plan which would need to be reviewed and approved by NBSD. The Proposed Action would not result in significant impacts to transportation. **Avoidance and Minimization Measures** Under the Proposed Action, the Navy would comply with all applicable BMPs presented in Table 2-2. Additionally, the Navy would implement additional construction- related avoidance and minimization measures intended to reduce the potential for construction- related impacts. Specifically, haul truck trips associated with upland disposal would be scheduled such that they avoid the weekday and weekend peak hour traffic periods along local and regional roads and highways.
Hazardous Materials and Wastes	Sediment samples from the dredging footprint at the south berth of the Mole Pier were collected and tested in accordance with regulations in 40 Code of Federal Regulations (CFR) Parts 220–228. The resulting sediment characterization report was provided to U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACE) and the agencies then issued a Suitability for Unconfined Aquatic Disposal (SUAD) Determination (Appendix D). The sediment characterization and chemistry tests analyzed whether the sediment meets the allowable parameters for unconfined ocean disposal. Test results indicate that 93,248 cy of sediment meet requirements for unconfined aquatic disposal at LA-5 ODMDS, and 17,712 cy of project dredge material would be taken to an approved upland disposal site such as the Otay Landfill. All dredged sediment disposal operations performed for the Proposed Action would comply with Clean Water Act (CWA) Section 404 and would be in accordance with a dredging permit issued by USACE, and a CWA Section 401 Water Quality Certification from the San Diego Regional Water Quality Control Board (RWQCB). Contractors would be subject to all Federal, state, and San Diego County requirements for hazardous materials and hazardous waste management and would be required to follow the Hazardous Waste Management Plan (HWMP). In addition, a site-specific construction SWPPP would be developed and implemented by the demolition and construction contractor that would incorporate BMPs designed to minimize the potential for hazardous material releases during demolition and construction activities. Any hazardous materials and wastes generated during construction and operational activities would also be subject to installation-wide Emergency Planning and Community Right-to-Know Act (EPCRA) 312 and 313 reporting requirements. The Proposed Action would not result in significant impacts from hazardous materials and wastes. **Avoidance and Minimization Measures** The BMPs as well as avoidance and minimization measures that would be implemented to address hazards and hazardous materials would be identical those described for water resources.

Notes:

[1] This discussion of airborne noise includes the types or sources of airborne noise and the associated sensitive receptors in the human environment. Airborne and underwater noise in relation to biological resources and wildlife species is discussed in the Section 3.3, *Biological Resources*.

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 NEPA, CEQ regulations, and CEQ guidance. Cumulative impacts are defined in 40 CFR Section 1508.7 as "the impact on 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 are to 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 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 USEPA Review of NEPA Documents* (USEPA 1999). CEQ guidance titled *Considering Cumulative Impacts Under NEPA* (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 is 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 timeframe in which the effects could be expected to occur. For this Supplemental EA, the project area delimits the geographic extent of the cumulative impacts analysis. For the purpose of describing potential cumulative impacts associated with dredging, dredging projects across the bay (e.g., Naval Base Point Loma)

were considered. For the purpose of describing potential cumulative impacts associated with demolition and construction, projects within NBSD were considered. The time frame for cumulative impacts centers on the timing of the proposed action. Past cumulative actions that were implemented within the last 10 years have been described in Section 4.3.1, *Past Actions*.

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 EAs, management plans, land use plans, and other planning related studies.

4.3 Past, Present, and Reasonably Foreseeable Actions

This section focuses on past, present, and reasonably foreseeable future projects at and near the Proposed Action locale. In determining the 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, *Definition of Cumulative Impacts*, it was determined whether a relationship exists such that the affected resource areas of the Proposed Action (included in this Supplemental 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 cataloged here because 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	*NEPA Completed*	*Timing*
NBPL Fuel Pier Replacement and Dredging (P-151)	EA	2013
NBPL Piers 5000, 5002 and Pier 5002 Approach Channel Dredging	EA	2014
NBSD Pier 12 Replacement and Dredging (P-327)	EA	2016
NBSD Pier 8 Replacement	EA	2016
NBSD Maintenance Dredging Various Piers (Piers 2, 6, 7, 13 and 14) and in Chollas Creek	CATEX	2017
NBPL U.S. Coast Guard Mooring Ballast Point Maintenance Dredging	EA	2019
NBPL Smuggler's Cove Fish – Eelgrass, Intertidal, Subtidal Habitat Reef and Enhancement Project	EA	2020
NBPL Floating Dry Dock (ARCO) Dredging	EA	2020
NAB NBC Pier 4 Floating Docks	CATEX	2020
NAB NBC Pier 14 New Docks New Piles	CATEX	2020
NAB NBC Pier 17 Minor Repairs	CATEX	2020
NBPL Pier 5000 North Side Outer Berth and Pier Approach Dredging	EA	2019
NBSD Pier 6 Replacement	EA	2022

Abbreviations:
NBSD = Naval Base San Diego; NBPL = Naval Base Point Loma; NAB NBC = Naval Amphibious Base Naval Base Coronado; CATEX = Categorical Exclusion; EA = Environmental Assessment; NEPA = National Environmental Policy Act

4.3.1.1 NBPL Fuel Pier Replacement and Dredging (P-151)

This project involved demolition and replacement of the existing fuel pier (Pier 180) in San Diego Bay at Naval Base Point Loma. More specifically, this project replaced the aging, seismically deficient, and increasingly dysfunctional and obsolete fuel Pier 180 with a new fuel pier that would meet current state and Navy seismic construction standards, meet projected ship fueling requirements, and enable the Navy and U.S. Department of Homeland Security to meet their and national defense mission and security missions. As with the Proposed Action, this project involved sediment dredging with beneficial reuse of the dredged sediments at the Naval Base Coronado Silver Strand Training Complex. An EA was completed for this project in August 2013, and dredging began the same year.

4.3.1.2 NBPL Piers 5000, 5002 and Pier 5002 Approach Channel Dredging

This project involved dredging of sediment at Naval Base Point Loma Pier 5000 and Pier 5002 sites and the approach area, offsite 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 sf), 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 NBSD Pier 12 Replacement and Dredging (P-327)

This project included construction of a general-purpose berthing pier feet to include electrical, telephone, and cable television services, fiber optic communications, a Supervisory Control and Data Acquisition system for energy monitoring and control, and a fire alarm. The project supported the upgrade of shore-to-ship power of 480 volts, 4,160 volts, and 12 kilovolts to meet power-intensive fleet requirements. Fender systems included concrete and plastic piles with foam-filled fenders at the berths and plastic log camels. The project also included demolition of existing Pier 12. This project also included dredging to meet the -37-foot MLLW depth requirement for deep-draft vessels. The project was completed in July 2016.

4.3.1.4 NBSD Pier 8 Replacement

The Navy prepared an EA for construction of a general-purpose berthing pier to replace existing Pier 8. Utilities include potable water, sanitary sewer, compressed air, steam, oily waste, and compensating water systems. Additional ship-to-shore utilities include electrical, telephone, cable television, fiber optic communications, a Supervisory Control and Data Acquisition system for energy monitoring and control, and a fire alarm. This project also supported the upgrade of shore-to-ship power of 480 volts, 4,160 volts, and 13.8 kilovolts to meet power-intensive fleet requirements. Fender systems included concrete and plastic piles with foam-filled fenders at the berths and plastic log camels. The project also included demolition of existing Pier 8 and Facility #358.

4.3.1.5 NBSD Maintenance Dredging Various Piers (Piers 2, 6, 7, 13 and 14) and in Chollas Creek

This project included maintenance dredging activities that began at NBSD following the completion of the Pier 12 Replacement and Dredging project and the Replacement and Maintenance Dredging project at Pier 8 (Navy 2016).

4.3.1.6 U.S. Coast Guard Mooring Ballast Point Maintenance Dredging

This project included scheduled maintenance dredging at Naval Base Point Loma to meet existing, and future, navigational requirements at U.S. Coast Guard Ballast Point, including dredging of 28,000 CY of clean

sand. The clean dredged sand was beneficially reused as part of the neighboring Smugglers Cove Fish, Eelgrass, Intertidal, Subtidal Habitat Reef and Enhancement.

4.3.1.7 NBPL Smuggler's Cove Fish – Eelgrass, Intertidal, Subtidal Habitat Reef and Enhancement Project

This project included the creation of an artificial reef and the restoration of the Smuggler's Cove beach, at Naval Base Point Loma (NBPL), through beneficial re-use of 8,000 cy of clean concrete piles and rubble from the demolished (NBPL) Navy Fuel Pier. Additionally, less than 30,000 cy of dredge material from the nearby United States Coast Guard Mooring Ballast Point dredging project was utilized.

4.3.1.8 NBPL Floating Dry Dock (ARCO) Dredging

This project included NBPL maintenance dredging within the operational footprint used by the existing ARCO dry dock. The ARCO dry dock provides maintenance and repair services for submarines.

4.3.1.9 NAB NBC Pier 4 Floating Docks

This project included installation of Floating docks at Naval Amphibious Base Pier 4. A CATEX was prepared for this project. It was constructed in 2020.

4.3.1.10 NAB NBC Pier 14 New Docks New Piles

This project included installation of new docks and new piles at Naval Amphibious Base in Coronado. A CATEX was prepared for this project in 2020.

4.3.1.11 NAB NBC Pier 17 Minor Repairs

This project included minor repairs to Naval Amphibious Base Pier 17. A CATEX was prepared for this project. It was constructed in 2020.

4.3.1.12 NBPL Pier 5000 North Side Outer Berth and Pier Approach Dredging

This project included dredging at NBPL Pier 5000 North Side Outer Berth and Pier Approach. The approximate dredging volume was 110,619 cy of San Diego Bay bottom material. The dredging operations lasted approximately 90 days. The project was in support of the Navy submarine fleet operations at Naval Base Point Loma.

4.3.1.13 NBSD Pier 6 Replacement

The Navy prepared an EA for construction of a general-purpose berthing pier to replace existing Pier 6. Utilities include potable water, sanitary sewer, compressed air, steam, oily waste, and compensating water systems. Additional ship-to-shore utilities include electrical, telephone, cable television, fiber optic communications, a Supervisory Control and Data Acquisition system for energy monitoring and control, and a fire alarm. This project also supported the upgrade of shore-to-ship power to meet power-intensive fleet requirements. Fender systems included concrete and plastic piles with foam-filled fenders at the berths and plastic log camels. The project also included demolition of existing Pier 6.

4.3.2 Present and Reasonably Foreseeable Actions

In-water projects within the San Diego Bay presently underway and anticipated to occur in the coming years are presented include waterfront improvements and a commercial outlease dry dock (see Table 4-2).

Table 4--2. Present and Reasonably Foreseeably Cumulative Actions.

Action	*Estimated Timing*
BAE Systems Waterfront Improvement Project	2023–2024
Austal Floating Dry at the South Edge of Naval Base San Diego	2023

4.3.2.1 BAE Systems Waterfront Improvement Project

This proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations at the existing BAE Systems San Diego Ship Repair Yard. These improvements would allow for newer and different classes of vessels to be moored and repaired onsite. The proposed improvements are not expected to increase the number of vessels serviced because no new berthing space would be provided. The proposed project includes 15 distinct project elements designed to improve efficiency and functionality of the existing BAE Systems San Diego Ship Repair Yard. Construction of various project elements is anticipated to begin in 2020, with construction lasting through 2024. POSD is preparing an Environmental Impact Report for the proposed project pursuant to the California Environmental Quality Act (CEQA); the Notice of Preparation was released in March 2019.

4.3.2.2 Commercial Outlease Floating Dry Dock at South Edge of NBSD

Dredging, pile driving, and installation of a floating dry dock at the commercial outlease dry dock site toward the south edge of Naval Base San Diego. This project creates additional dry dock space for both military and commercial vessels. Construction began in 2023.

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 are 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 Supplemental EA where possible. The analytical methodology presented in Chapter 3, which was used to determine potential impacts on 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 ROI for assessing cumulative air quality impacts of criteria pollutants and GHGs is primarily the SDAB, and more specifically, areas in proximity to NBSD. This region is in attainment of all criteria pollutants regulated under the NAAQS except O_3. The impacts on air quality from the Proposed Action that could contribute to cumulative impacts would be from emissions associated with dredging as well as construction and demolition activities.

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 affect air quality primarily include projects that would establish new or increase existing emissions in the ROI. Past, present, or reasonably foreseeable dredging and construction projects

would not 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

Cumulative impacts resulting from the Proposed Action would occur during dredging and sediment disposal as well as demolition and construction activities associated with the berthing of a floating dry dock at the NBSD Mole Pier – South Berth. Any concurrent emissions-generating activities that occur near the Mole Pier would potentially contribute to the overall air emissions at NBSD. Nevertheless, because berthing of the proposed floating dry dock at the Mole Pier – South Berth would produce a minor amount of emissions that would remain well below applicable *de minimis* thresholds, the combination of emissions associated with Proposed Action and emissions associated with future cumulative projects would not contribute to an exceedance of an ambient air quality standard. Cumulatively impacts on considerable air quality/climate change would remain less than significant.

Implementation of the Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels during construction, transit and operation. In 2020 the Final EA for the NBSD Floating Dry Dock project calculated the amount of dredging, transportation, and disposal, demolition and construction activity generated GHG emissions at approximately between 1,040 and 1,253 metric tons of CO_2e. This limited amount of GHG emissions was determined to be not likely contribute to global warming to any discernible extent. Based on the revised project description operational and transit within 12 nautical miles of shore and GHG emissions have been recalculated and found to be only 466 metric tons of CO_2e and 848 metric tons of CO_2e. Therefore, implementation of the Proposed Action would not result in significant impacts specific to GHG emissions. As previously described, future decisions about ship deployments to and from NBSD are programmatic in nature and are neither a part of this alternative nor addressed in this Supplemental EA.

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 Central Bay in the vicinity of NBSD.

4.4.2.2 Relevant Past, Present, and Future Actions

Past projects within the ROI, including Pier 12 Replacement and Dredging, had temporary impacts on water resources that occurred for the duration of the respective projects, but would not overlap with impacts associated with the Proposed Action. Present and future in-water projects, including the Pier 8 Replacement 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.

4.4.2.3 Cumulative Impact Analysis

Implementation of Proposed Action would have temporary, localized, and less than significant impacts on water resources during dredging and in-water construction activities. In total, the dredging, demolition, and construction activities associated with berthing of the floating dry dock would occur over a period of 6 months. For that reason, any potential overlap between the projects would be minimal. Even if in-water activities for some, or all, of the cumulative projects occur concurrently with the Proposed Action, the cumulative impacts would be minimal with the implementation of all appropriate permit conditions, plans,

and BMPs. Therefore, the Proposed Action, in conjunction with other cumulative in-water projects in the Central Bay, would not result in significant cumulative impacts on 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 demolition, dredging, and construction site, as well as NBSD.

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 affect 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

Impacts of the Proposed Action, when compared with those of currently ongoing and reasonably foreseeable future actions, would be temporary and less than significant. Demolition, pile driving, dredging, and construction 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 be no adverse effect on EFH, listed Fishery Management Plan species, or special aquatic sites, including eelgrass. Short-term impacts on EFH from dredging activities would result in minor disturbances to the bottom of San Diego Bay as well as to 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 on fish, invertebrates, green turtles, birds, and marine mammals that occur in the vicinity of NBSD.

The Navy has processed with NMFS a Final IHA for the Proposed Action at the Mole Pier – South Berth. With the imposition of an 82-foot (25-meter) buffered shutdown zone Level A (Injury) take would be avoided. The implementation of the Proposed Action would result in up to 118 Level B (Behavior) takes of California sea lions, 52 Level B (Behavior) takes of Coastal Bottlenose dolphin takes, and 55 Level B (Behavior) Harbor Seal takes.

Only two listed threatened or endangered species have the potential to occur in the project vicinity: the green turtle and California least tern. With implementation of BMPs, the Proposed Action would result in no effect on individuals of either of these species. Additionally, measures discussed in Section 3.3.3.1, *Avoidance or Minimization Measures*, would be implemented to further avoid potential impacts on special status species.

The Proposed Action's dredging footprint, volumes, and depths have increased since 2020 and a new functional loss equivalency assessment was prepared in 2023 (Appendix F). The results of a new 2023 Functional Loss Equivalency Assessment indicate that no significant changes to the results of the 2020 assessment would occur since ecological function decreases proportionately with increased water depth within the photic zone. Specifically, below 29 feet of depth, ever deeper dredging would cause a

proportionately decreasing amount of loss in benthic function since it is lower at lower depths due to decreased light penetration. Water column productivity is gained with increasing water depths, but that water column productivity is very minor compared to benthic productivity.

To evaluate the changes in the Project design, the same methods and criteria were used (MAI, 2020a, b), but with updated information for bathymetry, dredging, and shade structures (Merkel and Associates, 2023). The dredge footprint would increase from 4.79 acres to 9.98 acres, and the over-water structures in the updated design specifications would increase shading in the Project area from 0.014 to 0.027 acres, depending on whether certain structures are kept or removed. Based on the 2023 analysis the changes in dredge depth would not have a significant impact on the eelgrass equivalency mitigation amount. Further, though the current design would increase coverage from that analyzed in the EFHA these cover changes also would be in waters deeper than -29 ft. and so would cause no additional benthic functional loss. Based on the new 2023 analysis the water column functional loss rises very slightly due to the expanded shading, and the eelgrass equivalency of the project would increase from 0.084 acres to 0.137 acres, or an additional 0.053 acres. Navy Region Southwest has agreed to let the Project use the Navy's San Diego Bay Eelgrass Mitigation Bank to offset the additional impacts associated with the conversion of shallow water habitat to deeper water, and shading impacts from the new FDD and the associated structures.

Based on the newly available project design information, and the new 2023 Functional Loss Equivalency Assessment the Navy is processing an Essential Fish Habitat Assessment Reinitiation with NMFS. On 6 September 2023 NMFS concurred stating that there is no objection to the Navy's assessment and NMFS had no additional EFH Conservation Recommendations.

In-water construction work associated with cumulative project may potentially occur simultaneously during the implementation of the Proposed Action. However, even if in-water work for all projects is completed concurrently, the cumulative impacts would be minimal. The duration of construction associated Proposed Action dredging is not anticipated to be longer than 90 days and would be limited to the geographic scope of the 9.98-acre dredging area. For these reasons, any potential overlap between the projects would not result in a significant cumulative impact on biological resources. Therefore, the Proposed Action, in conjunction with any reasonably foreseeable future projects, would not result in significant cumulative impacts on biological resources.

4.4.4 Airborne Noise

4.4.4.1 Description of Geographic Study Area

The ROI for noise cumulative impacts includes areas in proximity to the project site at the Mole Pier at NBSD.

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

Construction of the Proposed Action at the Mole Pier – South Berth site would result in temporary, less than significant airborne noise impacts because noise- generating activities would not occur in the immediate vicinity of any sensitive receptors and airborne noise would be reduced by intervening structures, including industrial uses. Overall, impacts would be short-term and intermittent and airborne noise levels would be well below established thresholds. Implementation of the Proposed Action, combined with past, present, and reasonably foreseeable future projects, would not substantially contribute to significant cumulative airborne noise impacts within the ROI.

4.4.5 Transportation

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 actions (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 NBSD. Upland disposal of sediment would expand the ROI to include the regional road network connecting the CDF and the Otay Landfill.

4.4.5.2 Relevant Past, Present, and Future Actions

All cumulative projects at NBSD (refer to Tables 4-1 and 4-2) have the potential to add construction trips within the geographic extent of cumulative effects for traffic and circulation. Past projects would not contribute construction trips, while present and future projects could contribute to construction traffic, depending on the timing of these projects as they are constructed relative to the Proposed Action. Relevant past, present, and future actions would involve or involved minor facilities improvement projects, which would have negligible associated construction traffic trips within the cumulative ROI in conjunction with the Proposed Action. For example, the floating dry dock berthing would result in temporary vehicle trip generation during demolition and construction. These vehicle trips would be composed of worker commute and truck trips and the number of trips would be lower than the volumes that would trigger a significant traffic impact, according to City of San Diego minimum performance standards for streets. The construction contractor would be required to prepare and receive Navy approval of a separate Traffic Control Plan to address the estimated minimal temporary increases in traffic during the construction period (Navy 2016). In the event that any of the current or future projects are constructed at the same time, the contribution of construction-related trips associated with the Proposed Action would not result in cumulatively considerable traffic impact.

4.4.5.3 Cumulative Impact Analysis

Construction of the Proposed Action at the Mole Pier – South Berth site is not anticipated to generate a significant number of daily trips during construction activities related to construction worker commutes and/or construction equipment/materials deliveries. The relatively small, short-term increase in daily trips would be a fraction of the daily trips on the surrounding roadways. Further, transportation impacts associated with demolition and construction under the Proposed Action would not substantially overlap with the potential implementation of cumulative projects. However, even if cumulative projects were to occur concurrently, they would generate only small numbers of trips that would not appreciably alter the impacts associated with the Proposed Action, as discussed above in Section 3.5, Transportation. The disposal of dredge material at either of the in-water disposal sites would be temporary in nature and would

not cause cumulative impacts with regard to other projects in San Diego Bay. Therefore, in conjunction with other past, present, or reasonably foreseeable projects, there would be no significant cumulative impacts on traffic and circulation from implementation of the Proposed Action.

4.4.6 Hazardous Materials and Wastes

4.4.6.1 Description of Geographic Study Area

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

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 NBSD include the Pier 8 Replacement project that may require use and/or disposal of hazardous materials, including fuels.

4.4.6.3 Cumulative Impact Analysis

Implementation of the Proposed Action would not result in any significant impacts related to hazardous materials and wastes. Sediment testing was performed and a test results report submitted to USEPA and USACE. The agencies jointly issued a Suitability for Unconfined Aquatic Disposal (SUAD) Determination (Appendix D) approving aquatic disposal of 93,248 CY of project dredge material at ocean disposal site LA-5 ODMDS. All required permits, prevention plans, and management plans would be acquired and adhered to prevent exposure to hazardous materials or impacts on human health. Contractors would be subject to all Federal, state, and San Diego County requirements for hazardous materials and hazardous waste management, and would be required to follow the HWMP. Additionally, all procedures would apply to construction contractors for the site-specific SWPPP to incorporate BMPs during construction and demolition activities. Similar procedures would be required with the potential implementation of cumulative projects involving in-water work or other disturbance and/or generation of hazardous materials and wastes. Therefore, there would be no cumulative impacts related to hazardous materials and wastes.

4.4.7 Economic and Population Growth

The Proposed Action's potential to foster economic or population growth, or cause the construction of additional housing or facilities, either directly or indirectly, in the surrounding environment was considered with the understanding that the Proposed Action would have the potential to induce Economic or Population Growth if it would:

- Remove obstacles to population growth (e.g., through the expansion of public services into an area that does not currently receive these services), or through the provision of new access to an area, or a change in restrictive zoning or land use designation; or
- Result in economic expansion and population growth through employment opportunities and/or construction of new housing.

Proposed Action

The Proposed Action is the construction of a floating dry dock facility at Naval Base San Diego. The project work include: dredging, pile removal, pile installation, mooring wharf construction work elements, and construction of upland dry dock support facilities such as utilities, and an administration/shop building and

shed. The Proposed Action would help meet the CPF's forecasted surface ship maintenance requirements identified by the Commander of the U.S. Pacific.

The Proposed Action would include:

- Dredging activities over approximately 9.98 acres in San Diego Bay
- demolition activities (demolition of decking, utilities, certain structural piles, and the existing ramp pier),
- construction of facility upgrades (construction of a new ramp pier, new permanent structural piles, wharf-pier attachments, seismic upgrades, and a cast concrete deck),
- upland facility demolition activities (demolition of mechanical utilities, quay wall repairs, removal of unneeded wharf improvements), and
- upland facility construction activities (construction of a new electrical switch station building and parking, and landscaping)
- Berth and operate a new floating dry dock

Following all required construction activities, a floating dry dock would be berthed at the Mole Pier – South Berth site at Naval Base San Diego. Future maintenance dredge operations at the project site are expected to be required as they are all along the Naval Base San Diego waterfront.

Direct Impacts

A project would induce economic and population growth if it would directly foster economic or population growth or the construction of new housing in the surrounding environment. The Proposed Action would create additional dry dock space to increase NBSD's ship repair and maintenance capabilities. Construction elements of the Proposed Project would employ approximately 20 construction workers for the approximately 90-day dredging operation, and approximately 40 workers for the 15-month construction work. The operation of the finished Mole Pier dry dock would employ approximately 40 workers. This employment is not expected to result in population growth or a significant need for additional housing in the area because of the large number of skilled workers that already reside within San Diego region.

The current unemployment level of San Diego County is 3.1% which is less than but similar to the state's overall unemployment rate of 3.9% (EDD 2022). However, both construction and operations require specialized workers, and the Proposed Action would draw from the local labor pool.

Dredging and construction workers are expected to be existing employees of existing marine dredging and marine construction companies. Operations would require a negligible number of employees (up to 41) in comparison to the overall population of San Diego County (3.324 million residents). For purposes of analysis, it is estimated that these workers, who would need training and security clearances, would be new employees.

One of the objectives of the Proposed Action is to meet the current demand for existing ship maintenance and repair. Therefore, the proposed project would not result in direct economic growth outside of that analyzed as part of the Project Description and subsequent impact analyses. The Proposed Action would not result in a population increase or in a need for new housing.

Indirect Impacts

The Proposed Action would not result in indirect economic growth outside of that analyzed as part of the proposed project description and subsequent impact analyses. The Proposed Action would not result in expanding populations, tax existing facilities, or require new facilities to be constructed outside of those constructed as part of the proposed project.

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5 Other Considerations Required by NEPA

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

In accordance with 40 CFR Section 1502.16(c), analysis of environmental consequences is to include discussion of possible conflicts between the Proposed Action and the objectives of Federal, regional, state and local land use plans, policies, and controls. Table 5-1 identifies the principal Federal and state laws and regulations that are applicable to the Proposed Action and describes briefly how compliance with these laws and regulations would be accomplished.

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 (42 U.S.C. Section 4321 *et seq*.); CEQ NEPA implementing regulations; Navy procedures for Implementing NEPA (32 Code of Federal Regulations Part 775)	Navy	This Supplemental Environmental Assessment has been prepared in accordance with the CEQR egulations implementing NEPA and Navy NEPA procedures.
Coastal Zone Management Act (16 Code of Federal Regulations Section 1451 *et seq*.)	Navy	A Federal action is subject to CZMA Federal consistency requirements if the action would have any reasonably foreseeable direct or indirect effect on any coastal use or resource. The Navy conducted an effects test for purposes of Federal consistency review. Because of 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 submitted a Coastal Consistency Negative Determination for the Proposed Action as required by the CZMA. The California Coastal Commission concurred with the Coastal Consistency Negative Determination (D-0031-19). Based on subsequent project description revisions, in 2023 the Navy renewed its CZMA consultation with the California Coastal Commission. On 5 September 2023 the Coastal Commission issued its concurrence.
Clean Water Act (U.S.C. Section 1251 *et seq*.)	USEPA, USACE	The Proposed Action would not involve the release of pollutants requiring a National Pollutant Discharge Elimination System permit. The Proposed Action would involve dredging for which a CWA Section 404/Rivers and Harbors Act Section 10 permit from USACE would be obtained, along with related CWA Section 401 Water Quality Certification from the San Diego RWQCB. A CWA Section 103 permit in compliance with the Marine Protection, Research, and Sanctuaries Act would be obtained prior to construction.

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
Clean Air Act (42 U.S.C. Section 7401 *et seq*.)	USEPA	Per the Federal CAA regulations, the Proposed Action 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 would be in compliance with the CAA and would comply with all applicable San Diego Air Pollution Control District Rules and Regulations.
EO 11990, Protection of Wetlands (42 Federal Register 26961)	Navy	The Proposed Action would not affect wetlands (none are present in the project area) and would be in compliance with EO 11990.
Endangered Species Act (16 U.S.C. Section 1531)	NMFS	The Navy prepared and submitted a consultation letter to NMFS on 11 February 2020. After reviewing the consultation letter, NMFS provided a response on 25 March 2020 concurring with the Navy that the Proposed Action may affect, but is not likely to adversely affect Federally listed species and/or Federally designated critical habitats. Based on the revised project description, on 28 June 2023 the Navy re-Initiated its informal ESA consultation with NMFS. On 6 September 2023 NMFS concurred that the Proposed Action may affect, but is not likely to adversely affect federally listed species and/or federally designated critical habitats.
Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. Section 1801 *et seq*.) as amended by the Sustainable Fisheries Act (Public Law 104-267)	NMFS	The Proposed Action would have minimal adverse effects on essential fish habitat for Federally managed fish species within the Coastal Pelagic Species and Pacific Coast Groundfish Fishery Management Plan areas. These effects would be temporary and limited in scope. The Proposed Action includes adequate measures to avoid and minimize any remaining potential adverse effects on essential fish habitat. The Navy prepared an EFH Assessment for consultation with NMFS. On 14 April 2020, NMFS stated that it had no objection to the Navy's proposed compensatory mitigation and no additional EFH Conservation Recommendations at the time. Based on analysis of the revised project design, and preparation of a 2023 the new Functional Loss Equivalency Assessment the Navy re-initiated its EFH consultation with NMFS. On 6 september 2023 NMFS concurred stating that there is no objection to the Navy's assessment and NMFS had no additional EFH Conservation Recommendations.
Marine Mammal Protection Act of 1972 (16 U.S.C. Sections 1361-1407)	NMFS	The Navy submitted an Incidental Harassment Authorization application to NMFS, and on 26 September 2023 NMFS issued a Final IHA for the Proposed Action.
Migratory Bird Treaty Act (16 U.S.C. Sections 703-712)	Navy	The Proposed Action would be restricted to short-term, in-water work within a limited geographic area relative to the entire San Diego Bay.

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
National Historic Preservation Act (16 U.S.C. Section 470 *et seq*.)	Navy	The Proposed Action will not adversely affect historic properties. In accordance with the NBSD Programmatic Agreement, no further compliance with Section 106 or 36 CFR 800 is required, unless the scope and potential effects change.
Comprehensive Environmental Response and Liability Act (42 U.S.C. Section 9601 *et seq*.)	Navy	The Proposed Action would not involve the use or discharge of any hazardous materials.
Emergency Planning and Community Right-to-Know Act (42 U.S.C. Sections 11001–11050)	Navy	The Proposed Action would not involve the use or discharge of any hazardous materials.
Resource Conservation and Recovery Act (42 U.S.C. Section 6901 *et seq*.)	Navy	The Proposed Action would not involve the use or discharge of any hazardous materials.
Sikes Act Improvement Act (16 U.S.C. Section 670a *et seq*.)	Navy	The Proposed Action would be in compliance with the Integrated Natural Resources Management Plan for San Diego Bay and Naval Base San Diego, and therefore would be in compliance with the Sikes Act Improvement Act.
EO 12088, Federal Compliance with Pollution Control Standards	Navy	The Proposed Action 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 and Low-income Populations (59 Federal Register 7629)	Navy	The Proposed Action would not directly affect any residential populations, including minority 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 would not directly, or indirectly, affect 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 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 would 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 would not directly or indirectly affect any protected cultural, archeological, or historic resources and would be in compliance with EO 13175.
EO 13693, Planning for Federal Sustainability in the Next Decade (80 Federal Register 119)	Navy	The Proposed Action does not include structures with energy or water demands with potential improvements to conservation, and would be in compliance with EO 13693.

Abbreviations:
CAA = Clean Air Act CWA = Clean Water Act; CZMA = Coastal Zone Management Act EO = Executive Order; NMFS = National Marine Fisheries Service USACE = U.S. Army Corps of Engineers; USEPA = U.S. Environmental Protection Agency; USFWS = U.S. Fish and Wildlife Service

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, including the use of nonrenewable 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 period of dredging and construction as laborers would be available for other projects following completion of the project. Consumption of fuel, oil, and lubricants for dredging vehicles and pile drivers 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 NBSD.

5.3 Unavoidable Adverse Impacts

This Supplemental 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 through 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 on 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 impact 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 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. However, these impacts are considered less than significant, because the facilities and geographic areas associated with the Proposed Action area are designated for, and have historically accommodated, the types of uses proposed, and the duration would be minimal. Therefore, the Proposed Action would not result in any impacts that would reduce environmental productivity or permanently narrow the range of beneficial uses of the environment. The Proposed Action's dredge material was not found by USEPA and USACE to be suitable for beneficial reuse at a nearshore disposal site. However, 93,248 CY of the project dredge material was determined to meet requirements for disposal at ocean disposal site LA-5 ODMDS. The balance of the project dredge material, 17,712 CY would be disposed of at an approved upland facility. Maintenance dredging at the Mole Pier likely would eventually be required, thereby potentially providing an additional, long-term source of material for beneficial reuse.

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8 References

Allen, L.G., A.M. Findlay, and C.M. Phalen. 2002. Structure and Standing Stock of the Fish Assemblages of San Diego Bay, California from 1994-1999. Bulletin of the Southern California Academy of Sciences 101:49-85.

Amec Foster Wheeler. 2016. Regional Harbor Monitoring Report. January.

American National Standards Institute (ANSI). 2002. Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools. Vol S12.60-2002.

Atwood J.L. and P.R. Kelly. 1984. Fish dropped on breeding colonies as indicators of least tern food habitats. Wilson Bull. 96(1): 34-37.

Atwood J.L. and D.E. Minsky. 1983. Least tern foraging ecology at three major California breeding colonies. Western Birds 14(2): 57-72.

Bailey, S.F. 1984. California Least Tern Foraging and Other Off-Colony Activities Around Alameda Naval Air Station During 1984. Department of Ornithology and Mammalogy, California Academy of Sciences, Golden Gate Park, San Francisco, California.

Baird, P., S. Hink, and D. Robinette. 1997. A Foraging Study of California Least Terns in San Diego Bay and Nearshore Pacific Ocean. Final Report to U.S. Navy, Southwest Division, San Diego, CA.

BMJ. 2013. Residential Exposure to Aircraft Noise and Hospital Admissions for Cardiovascular Diseases: Multi-Airport Retrospective Study. October.

Caffrey, C. 1993. California least tern breeding survey, 1993 season. California Department of Fish and Game, Wildlife Management Division, Nongame Bird and Mammal Section Report 93-11, Sacramento, CA. 35 pp.

California Air Resources Board. 2014. San Diego Air Basin Emission Inventory Data. Available at:

California Air Resources Board. 2018. Air Quality Data Statistics. Available at: Accessed December 2018.

California Department of Transportation (Caltrans). 2015. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. November.

Caltrans. 2018. Traffic Census Program Spreadsheet.

California Regional Water Quality Control Board San Diego Region, 2013. General Waste Discharge Requirements for Discharges from Boatyards and Boat Maintenance and Repair Facilities Adjacent to Surface Waters within the San Diego Region. Order No. R9-2013-0026 NPDES No. CAG719001. May 8

CalRecycle. 2019. SWIS Facility Detail. Otay Landfill (37-AA-0010). Available at: https://www2.calrecycle.ca.gov/SWFacilities/Directory/37-AA-0010/Detail/.

Chadwick, B., G. Key, D. Sutton, L. Skinner, and J. Germano. 1999. Sediment Quality Characterization Naval Station San Diego: Final Summary Report. Technical Report No. 1777. January.

City of San Diego. 2007. Final General Plan Program Environmental Impact Report - Noise. Available at:

City of San Diego. 2008. City of San Diego General Plan - Noise Element.

City of San Diego. 2010a. San Diego Municipal Code Chapter 5, Public Safety, Morals, and Welfare, Article 9.5 Noise Abatement and Control, Section 59.5.0404 Construction Noise. Available at docs.sandiego.gov/municode/MunSeiCodeChapter05/Ch05Art9.5Division04.pdf.

City of San Diego. 2010b. Traffic Volumes. Available at: https://data.sandiego.gov/datasets/traffic- volumes.

City of San Diego. 2015. City of San Diego General Plan Amendments. Adopted June 29, 2015.

Collins, C.T., K.E. Bender and D.D. Rypka. 1979. Report on the feeding and nesting habits of the California least tern in the Santa Ana River marsh area, Orange County, California, Unpubl. Report to U.S. Army Corps of Engineers, Los Angeles, California.

Council on Environmental Quality (CEQ). 1997. Considering Cumulative Effects Under the National Environmental Policy Act. January.

CEQ. 2005. Considering Cumulative Effects Under the National Environmental Policy Act. Washington, DC.

Cowan, J.P. 1994. Handbook of Environmental Acoustics. New York: John Wiley & Sons.

Crear, D.P., D.D. Lawson, J.A. Seminoff, T. Eguchi, R.A. LeRoux and C.G. Lowe. 2016. Seasonal Shifts in the Movement and Distribution of Green Sea Turtles Chelonia mydas in Response to Anthropogenically Altered Water Temperatures. Marine Ecology Progress Series, 548: 219–232.

Crear, D.P., D.D. Lawson, J.A. Seminoff, T. Eguchi, R.A. LeRoux, C.G. Lowe. 2017. Habitat Use and Behavior of the East Pacific Green Turtle, Chelonia mydas in an Urbanized System. Bulletin of Southern California Academy of Sciences, 116(1), 17-32.

Dahl, P.H. and D.R. Dall'Osto. 2019. Ambient Underwater Sound at Naval Base San Diego, San Diego Bay, California. Prepared for Naval Facilities Engineering Command Southwest under contract to Tierra Data, Inc.

Dall'Osto, D.R. and P.H. Dahl. 2019. Hydroacoustic Modeling of Pile Driving for the South-Central Region of San Diego Bay, California. Prepared for Naval Facilities Engineering Command Southwest under contract to Tierra Data, Inc.

Dickerson, C., K.J. Reine, and D.G. Clarke. 2001. Characterization of Underwater Sounds Produced by Bucket Dredging Operations. DOER Technical Notes Collection (ERDC TN-DOER-E14). U.S. Army Engineer Research and Development Center, Vicksburg, MS. Available at: www.wes.army.mil/el/dots/doer.

Eaton, S. 2000. Workers' Compensation Board of BC. Engineering Section Report: Construction Noise. Project Number 7.11-99284. February.

Eguchi, T. 2017. Abundance of green turtles in San Diego Bay 2017. Report to Naval Facilities Engineering Command Southwest.

Fairey, R., C. Bretz, S. Lamerdin, J. Hunt, B. Anderson, S. Tudor, C. Wilson, F. LaCaro, M. Stephenson, M. Puckett, and E. Long. 1996. Chemistry, Toxicity, and Benthic Community Conditions in Sediments of the San Diego Bay region. Final Report Prepared by California State Water Resources Control Board, NOAA, California Department of Fish and Game, Moss Landing Marine Laboratories, and University of California, Santa Cruz. September.

Fairey, R., J. Downing, C. Roberts, E. Landrau, J. Hunt, B. Anderson, C. Wilson, G. Kapahi, F. LaCaro, P. Michael, M. Stephenson, and M. Puckett. 1998. Chemistry, Toxicity, and Benthic Community Conditions in Sediments of the San Diego Bay Region. Final Report Prepared by California State Water Resources Control Board, NOAA, California Department of Fish and Game, Moss Landing Marine Laboratories, and University of California, Santa Cruz. September.

Federal Interagency Committee on Noise. 1992. Federal Review of Selected Airport Noise Analysis Issues.

Federal Interagency Committee on Urban Noise (FICUN). 1980. Guidelines for Considering Noise in Land Use Planning and Control. Washington, DC.

Frost, N. 2017. California least tern breeding survey, 2016 season. California Department of Fish and Wildlife, Wildlife Branch, Nongame Wildlife Program Report, 2017-03. Sacramento, CA. 20 pp + Appendices.

Galli, L., Hurlbutt, B., Jewett, W., Morton, W., Schuster, S., & Van Hilsen, Z. 2003. Source-level noise in Haro Strait: relevance to orca whales. Colorado College, Colorado Springs, CO.

Graham, S.E. and Saunders, B.P. 2014. Occurrence, Distribution, and Population Estimates of Marine Mammals near Silver Strand Training Complex and San Diego Bay, CA. Prepared for Commander, Pacific Fleet. Submitted to Naval Facilities Engineering Command Southwest. February 2015.

Hill, T. 2011. Demolition of South Bay Power Plant Moves Forward. The Log. Available at: http://www.thelog.com/local/demolition-of-south-bay-power-plant-moves-forward/.

Jones, D., K. Marten, K. Harris. 2015. Underwater Sound from Dredging Activities: Establishing Source Levels and Modeling the Propagation of Underwater Sound. CEDA Dredging Days 2015: Innovative Dredging Solutions for Ports, Rotterdam, the Netherlands.

Kipple, B.M. and C.M. Gabriele. 2007. Underwater Noise from Skills to Ships. In Piatt, J.F., and S.M. Gende eds. Proceedings of the Fourth Glacier Bay Science Symposium. October 26-28. U.S. Geological Survey Scientific Investigations Report 200-5407.

Largier, J.L. 1995. San Diego Bay Circulation: A Study of the Circulation of Water in San Diego Bay for the Purpose of Assessing, Monitoring and Managing the Transport and Potential Accumulation of Pollutants and Sediment in San Diego Bay. Prepared for California Regional Water Quality Control Board, San Diego Region. July.

Lazarus. 1990. New Methods for Describing and Assessing Direct Speech Communication Under Disturbing Conditions. Environ. Int. No. 16, 373-392.

Lemons, G., R.L. Lewison, L. Komoroske, A. Gaos, C-T. Lai, P. Dutton, T. Eguchi, R. Leroux, J.A. Seminoff. 2011. Trophic Ecology of Green Sea Turtles in a Highly Urbanized Bay: Insights from Stable Isotopes and Mixing Models. Journal of Experimental Marine Biology and Ecology. 405:25-32.

Ludlow, B. and K. Sixsmith. 1999. Long-term Effects of Military Jet Aircraft Noise Exposure during Childhood on Hearing Threshold Levels. Noise and Health, 33-39.

Macdonald, K.B., R.F. Ford, E.B. Copper, P. Unitt, and J.P. Haltiner. 1990. South San Diego Bay Enhancement Plan, vol. 1, Bay History, Physical Environment and Marine Ecological Characterization, vol. 2, Resources Atlas: Birds of San Diego Bay, vol. 3, Enhancement Plan, vol. 4, Data Summaries. Published by San Diego Unified Port District, San Diego, CA. and California State Coastal Conservancy.

MacDonald and Dutton. 1992. Status of Sea Turtles in San Diego Bay: 1992 Report. Prepared for the San Diego Fish and Wildlife Advisory Commission. San Diego, CA.

MacDonald, B.D., R.L. Lewison, S.V. Madrak, J.A. Seminoff, and T. Eguchi. 2012. Home Ranges of East Pacific Green Turtles Chelonia mydas in a highly urbanized temperate foraging ground. Marine Ecology Progress Series, 461:211-221.

Madrak S.V., R.L. Lewison, J.A. Seminoff, T. Eguchi. 2016. Characterizing response of East Pacific Green Turtles to Changing Temperatures: Using Acoustic Telemetry in a Highly Urbanized Environment. Animal Biotelemetry. 4:22.

Martinez-Takeshita, N., Graham, S.E., and Bredvik, J.J. 2015. San Diego Bay Fisheries Inventory and Utilization for April and July 2014. Prepared for Commander, Naval Installation Command. Submitted to Naval Facilities Engineering Command Southwest, California, October 2015.

Massey, B.W. 1974. Breeding biology of the California least tern. Proc. Linnaean Soc. 72: 1-24.

Massey, B.W. and J. Atwood. 1981. Second-wave nesting of the California least tern: age composition and reproductive success. Auk 98(3): 596-605.

Massey, B.W. and J. Atwood. 1984. Application of ecological information to habitat management for the California least tern. Progress Report No. 6. October 1984. U.S. Fish and Wildlife Service.

Matzner, S., & Jones, M.E. 2011. Measuring coastal boating noise to assess potential impacts on marine life. *Sea Technology, 52*(7), 41–44.

McKenna, M.F. 2011. Blue whale response to underwater noise from commercial ships. Dissertation. University of California, San Diego. 242 pages.

Melin, S. R., F. Trillmich, and D. Aurioles-Gamboa. 2018. California, Galapagos, and Japanese Sea Lions: Zalophus californianus, Z. wollebaeki, and Z. japonicus. Encyclopedia of Marine Mammals (Third Edition). Bernd Würsig, J.G.M. Thewissen and Kit M. Kovacs (Ed.)

Merkel & Associates, Inc. 2008. Marine Mammal Surveys in the Vicinity of the Point Loma Naval Complex, San Diego, California. Final Report. Prepared for Naval Facilities Engineering Command Southwest. September.

Merkel & Associates, Inc. 2009. 2008 San Diego Bay Eelgrass Inventory and Bathymetry Update.

Merkel & Associates, Inc. 2010. San Francisco Bay Eelgrass Atlas: October-November 2009. Prepared for Parsons Brinckerhoff Quade & Douglas, the California Department of Transportation, and NOAA-Fisheries. San Diego, CA.

Merkel & Associates, Inc. 2014. Draft Wharf Shading Study for the Pier 8 Replacement and Demolition Project, Naval Base San Diego. Prepared for NAVFAC Southwest. Prepared November 2013, revised March 2014.

Merkel & Associates, Inc. 2018. 2017 San Diego Bay Eelgrass Inventory Update.

Merkel & Associates, Inc. 2020a. NBSD Mole Pier Floating Dry Dock Ecological Functional Loss Analysis and Potential for Offsetting Mitigation Employing the NEMS Bank, or New Eelgrass Restoration.

Merkel & Associates, Inc. 2020b. Supplemental Analysis for Ecological Functional Loss Associated with Water Column Shading by the NBSD Mole Pier and MGBW Floating Dry Docks

Merkel & Associates, Inc. 2023. Supplemental Analysis for Ecological Functional Loss Associated with Construction of Naval Base San Diego Mole Pier Floating Dry Dock.

Minsky, D. 1984. A study of the foraging ecology of the California Least Tern at Camp Pendleton, Season of 1984. Prepared for the Dept of the Navy, Natural Resources Management Branch, Western Division Naval Facilities Engineering Command, San Bruno, CA, contract N62474-84-M-4561.

Mission Environmental, LLC. 2018. Draft Marine Group Boat Works Project Feasibility Investigation Sediment Quality Survey Report. August.

National Institute for Occupational Health and Safety (NIOSH). 1998. Criteria for a Recommended Standard Occupational Noise Exposure, Revised Criteria. Cincinnati: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

National Marine Fisheries Service (NMFS). 2008. Caulerpa Control Protocol Version 5 - October 20, 2021. Available at: https://media.fisheries.noaa.gov/2021-12/caulerpa-control-protocol-v5.pdf

NMFS. 2018a. 2018 Revisions to Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Department of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59, 167 pp.

NMFS. 2018b. Optional User Spreadsheet Tool and User Manual for 2018 Revisions to Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts.

NMFS and USFWS. 1998. Recovery Plan for the U.S. Pacific Populations of the Green Turtle (*Chelomian mydas*). NMFS, Silver Spring, MD.

National Oceanic and Atmospheric Administration (NOAA). 2010. Office of Coast Survey. Chart 18773 San Diego Bay. Edition 41. Available at: http://www.charts.noaa.gov/OnLineViewer/18773.shtm.

National Research Council et al. (2003) National Research Council, Committee on potential impacts of ambient noise in the ocean on marine mammals, ocean studies board, and division on earth and life studies. Ocean noise and marine mammals. National Academies Press; Washington, D.C. 2003.

Naval Base San Diego (NBSD). 2014. Personal communication via email with P. Patricio, Waterfront Operations Manager re: deep-draft and littoral combat ships homeported at NBSD. January.

NAVFAC SW. 2018b. Monitoring Report for Fuel Pier Replacement Project (P-151) Naval Base Point Loma, San Diego, CA. July.

NAVFAC SW. 2014. Naval Base Point Loma Fuel Pier Replacement Project: Acoustic, Marine Mammal, Green Sea Turtle, and California Least Tern Monitoring Report. Final, August.

NAVFAC LANT. 2022. Bathymetric Condition Survey for NBSD. November.

Nightingale, B., and C. A. Simenstad. 2001. Overwater structures: marine issues. White Paper, Res. Proj. T1803, Task 35, Wash. State Dept. Transportation, Washington State Trans. Center (TRAC), Seattle, WA. 133 pp + appendices

Pacific Fishery Management Council (PFMC). 2016. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery. August.

PFMC. 2019. Coastal Pelagic Species Fisheries Management Plan. June. Available at: coastal-pelagic-species/fishery-management-plan-and- amendments/.

Pondella, D.J. and J.P. Williams. 2009. Fisheries Inventory and Utilization of San Diego Bay, San Diego, California for Surveys Conducted in April and July 2008. Vantuna Research Group - Moore Laboratory of Zoology, Occidental College. February.

Port of San Diego (POSD). 2007. State of the Bay. January.

POSD. 2009. Port of San Diego. Commercial Fisheries Revitalization Plan. Background and Existing Conditions Report. Prepared by Lisa Wise Consulting, Inc.

Popper, A. N., A. D. Hawkins, R. R. Fay, D. A. Mann, S. M. Bartol, T. J. Carlson, S. Coombs, W. T. Ellison, R.L. Gentry, M. B. Halvorsen, S. Løkkeborg, P. H. Rogers, B. L. Southall, D. G. Zeddies, and W. N. Tavolga. 2014. *ASA S3/SC1.4 TR-2014 Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI*. New York, NY and London, United Kingdom: Acoustical Society of America Press and Springer Briefs in Oceanography.

Post M. L., Ibarguchi G., Aguiar, A., Vilchis I., Swaisgood R. 2018. Naval Base Coronado California Least Tern and Western Snowy Plover Monitoring, 2017. Unpublished report prepared for Naval Base Coronado under Cooperative Agreement with Army Corps of Engineers, Fort Worth District, Fort Worth, TX. Agreement Number W9126G-17-2-0003. Prepared by San Diego Zoo Institute for Conservation Research.

Ruiz, G.M. and Geller, J. 2015. Spatial and temporal analysis of marine invasions in California: morphological and molecular comparisons across habitats. Final Report Submitted to: Office of Spill Prevention and Response, Marine Invasive Species Program, California Department of Fish and Wildlife.

San Diego Air Pollution Control District (SDAPCD). 2016. Annual Air Quality Monitoring Network Plan. Available at:

SDAPCD. 2018. Rules and Regulations. November.

San Diego Association of Governments (SANDAG). 2008a. Final Coastal Regional Sediment Management Plan for the San Diego Region. Prepared for SANDAG and California Coastal Sediment Management Workgroup by Moffatt & Nichol. March.

SANDAG. 2008b. Congestion Management Program Update.

San Diego Regional Water Quality Control Board (RWQCB). 2016. Water Quality Control Plan for the San Diego Basin. RWQCB - San Diego Region.

Seminoff, J.A., T.T. Jones and G., J. Marshall. 2006. Underwater behavior of Green Turtles monitored with video-time-depth depth recorders: what's missing from the dive profiles? Marine Ecology Progress Services 322: 269-280.

Sorensen, K. and Swope, B. 2010. San Diego Bay Marine Mammal Survey Project. Report to Navy Region Southwest, San Diego, CA. Third Survey Report.

Space and Naval Warfare Systems Center San Diego. 2007. Sediment Site Assessment. Naval Station San Diego Area Offshore of R.E. Staite Leasehold. San Diego, CA. January.

State Water Resources Control Board (SWRCB). 2007. California Environmental Protection Agency. State Water Resources Control Board. Enforcement Reports 2000-2007. Available at: http://www.waterboards.ca.gov/enforcement/.

SWRCB. 2012. National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Runoff Discharges Associated with Construction and Land Use Disturbance Activities, Order No. 2012-0006-DWQ, NPDES No. CAS000002.

SWRCB. 2019. San Diego Region – Total Maximum Daily Loads. Available at: https://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/.

Stinson, M.L. 1984. Biology of Sea Turtles in San Diego Bay, California, and in the Northeastern Pacific Ocean. Master of Science Thesis, San Diego State University, California. 578 p.

Tierra Data, Inc. 2010. Characterizing the Spatial and Temporal Variation in Turbidity and Physical Water Quality Characteristics in San Diego Bay - A Study to Determine a Cost-Efficient Strategy for Longterm Monitoring. A Project for: Environmental Project to Benefit San Diego Bay San Diego Unified Port District Environmental Services Department. Final Report. Available at; http://www.portofsandiego.org/environment/projects-a-progress-reports.html.

Tierra Data, Inc. 2011. San Diego Bay Avian Species Surveys, 2009-2010. Final, May. Prepared for Naval Base Coronado and San Diego Unified Port District.

Tierra Data, Inc. (Tierra Data). 2016. North San Diego Bay Marine Mammal Report for Acoustics Monitoring and GIS Surveys in Support of Fuel Pier Replacement at Naval Base Point Loma, California. December.

Tierra Data, Inc. 2018. San Diego Bay Avian Species Surveys, 2016-2017. April. Prepared for Naval Bases Coronado, Point Loma, and San Diego, and San Diego Unified Port District.

U.S. Army Corps of Engineers (USACE). 2009. Final Environmental Assessment for the San Diego Harbor Maintenance Dredging Project, San Diego County, California. South Pacific Division; Los Angeles District. March.

USACE. 2012. Final Supplemental Environmental Assessment for the San Diego Harbor Maintenance Dredging Project, San Diego County, California. South Pacific Division; Los Angeles District. June.

USACE. 2014. Safety and Health Requirements. USACE Manual No. 385-1-1. November.

U.S. Department of Defense (DoD). 2009. Memorandum from the Under Secretary of Defense. Methodology for Assessing Hearing Loss Risk and Impacts in DoD Environmental Impact Analysis. Washington, DC.

DoD Noise Working Group. 2009. Improving Aviation Noise Planning, Analysis and Public Communication with Supplemental Metrics - Guide to Using Supplemental Metrics.

U.S. Department of the Navy (Navy). 2000. San Diego Bay Integrated Natural Resources Management Plan. And San Diego Unified Port District. San Diego, CA. September.

Navy. 2002. Naval Base San Diego Integrated Natural Resources Management Plan. August 2002.

Navy. 2006. Naval Base San Diego Regional Shore Infrastructure Plan/Activity Overview Plan. Final Report. November.

Navy. 2010. Characterization of Essential Fish Habitat in San Diego Bay.

Navy. 2011a. Final Environmental Assessment Pier 12 Replacement and Dredging Naval Base San Diego July.

Navy. 2011b. Silver Strand Training Complex Environmental Impact Statement.

Navy. 2012a. Final Environmental Assessment for the Homeporting of the Littoral Combat Ship on the West Coast of the U.S. April.

Navy. 2012b. Navy Region Southwest Business Case Analysis Naval Base San Diego Pier 8 Assessment. 31 October. Provided by M. Baiza, Community Planner, Public Works Department Naval Base San Diego.

Navy. 2014a. Final Naval Base San Diego Integrated Natural Resources Management Plan. June. Navy. 2014b. Final Environmental Assessment of Piers 5000, 5002 and Pier 5002 Approach Channel Dredge, Naval Base Point Loma, San Diego, California. September.

Navy. 2014c. Programmatic Agreement between the Commander Naval Base San Diego and the California State Historic Preservation Officer Regarding Naval Base San Diego Undertakings, San Diego County, California. May.

Navy. 2016. Final Environmental Assessment Pier 8 Replacement Naval Base San Diego. June.

Navy. 2017. Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III). SSC Pacific. June.

Navy. 2018a. Dry Dock No. 1 Modifications and Mole Pier Floating Dry Dock Studies. Prepared by GHD COWI Joint Venture for Naval Facilities Engineering Command Southwest. August.

Navy. 2018b. *Hawaii-Southern California Training and Testing Final EIS/OEIS.*

Navy. 2021. Naval Base San Diego Integrated Management Plan. February.

Navy. 2022. Acoustic and marine Protected Species Interim Monitoring Report for the Navy's Pier 6 Replacement Project at Naval Base San Diego, California.

Navy. 2023. NBSD Mole Pier Floating Dry Dock Prefinal Design. Prepared by GHD-COWI Joint Venture for Naval Facilities Engineering Systems Command Southwest. July.

Navy and Port of San Diego (POSD). 2013. San Diego Bay Integrated Natural Resources Management Plan.

Navy and POSD. 2018. San Diego Bay Eelgrass Inventory 2017. Available online: https://pantheonstorage.blob.core.windows.net/environment/2017-San-Diego-Bay-Eelgrass-Inventory.pdf.

U.S. Department of Transportation (USDOT). 2006. Transit Noise and Vibration Impact Assessment. May.

USDOT and Federal Transit Administration (FTA). 2006. Roadway Construction Noise Model. Federal Highway Administration. USDOT Research and Innovative Technology Administration; John A. Volpe National Transportation Systems Center, Acoustics Facility, Cambridge, MA. January.

U.S. Environmental Protection Agency (USEPA). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with and Adequate Margin of Safety. EPA 550/9- 74-004. Washington, DC: Office of Noise Abatement and Control.

USEPA. 1982. Guidelines for Noise Impact Analysis. EPA 550/9-82-105. Washington, DC: Office of Noise Abatement and Control.

USEPA. 1987. Environmental Impact Statement for San Diego (LA-5) Ocean Dredged Material Disposal Site - Site Designation. October.

USEPA. 1999. Consideration of Cumulative Impacts in USEPA Review of NEPA Documents, EPA 315-R-99-002. May.

USEPA and USACE. 1991. Evaluation of Dredged Material Proposed for Ocean Disposal, "Green Book." EPA 503/8-91/001. February. Available at: https://www.epa.gov/ocean-dumping/evaluation- dredged-material-proposed-ocean-disposal-green-book.

USEPA and USACE. 1998. Inland Testing Manual under CWA Section 404. EPA-823-B-98-004. February. Available at: https://www.epa.gov/cwa-404/inland-testing-manual-under-cwa-section-404.

USFWS and Navy. 2004. Memorandum of Understanding Between U.S. Fish and Wildlife Service and the U.S. Navy Concerning Conservation of the Endangered California Least Tern in San Diego Bay, California, 2004.

Williams, J.P., D.J. Pondella, C.M. Williams, S. Schwab. 2015. Fisheries Inventory and Utilization of San Diego Bay, San Diego, California. For Surveys Conducted in April and July 2015.

Williams, J.P., D.J. Pondella, C.M. Williams, and M.J. Robart. 2016. Fisheries Inventory and Utilization of San Diego Bay, San Diego, California. For Surveys Conducted in April and July 2016.