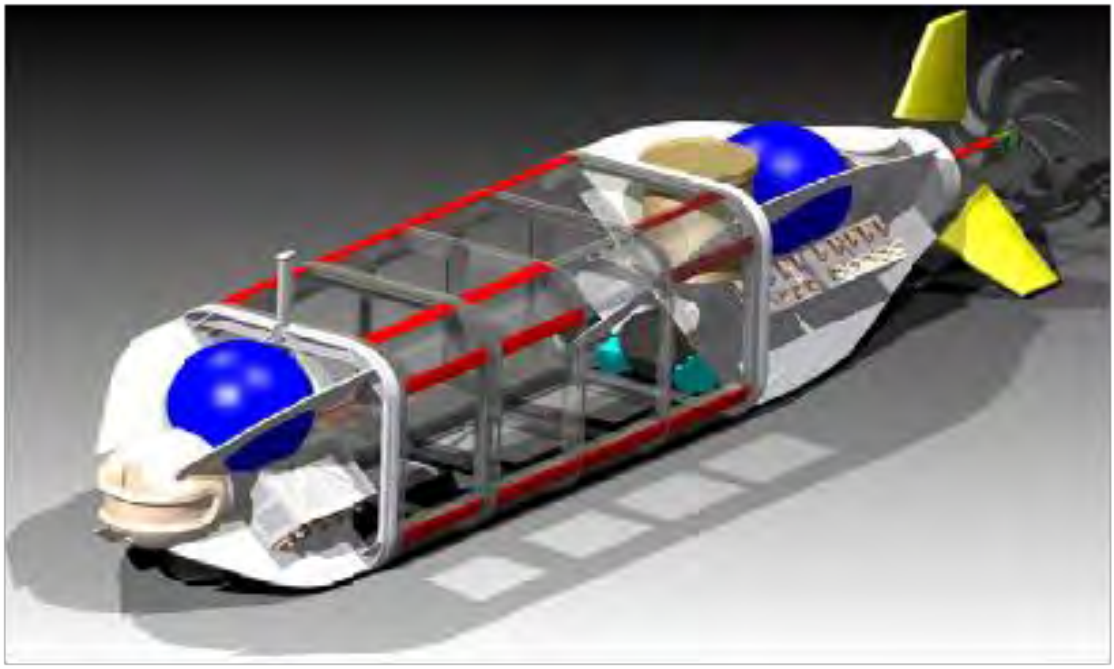
FINAL ENVIRONMENTAL ASSESSMENT



SHORE INFRASTRUCTURE MODIFICATIONS TO SUPPORT TESTING AND EVALUATION OF THE LARGE DISPLACEMENT UNMANNED UNDERSEA VEHICLE PROGRAM AT SPAWAR SYSTEMS CENTER PACIFIC, SAN DIEGO, CALIFORNIA

December 2013

Acronyms and Abbreviations

APCD	Air Pollution Control District
BMP	Best Management Practice(s)
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCR	California Code of Regulations
CDC	Child Development Center
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	methane
CNEL	Community Noise Equivalent Level
CNO	Chief of Naval Operations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CWA	Clean Water Act
dB	decibel(s)
dBA	A-weighted decibels
DEH	Department of Environmental Health Services
DoD	Department of Defense
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EFH	Essential Fish Habitat
EO	Executive Order
ESA	Endangered Species Act
ESQD	explosive safety quantity distance
ft	foot/feet
GCR	General Conformity Rule
GHG	greenhouse gas
H_2	hydrogen
HAP	Hazardous Air Pollutant(s)
HAPC	Habitat Areas of Particular Concern
HSTT	Hawaii-SOCAL Training and Testing
ISO	International Standards Organization
Ldn	Day-Night Average Level
LDUUV	Large Displacement Unmanned Undersea Vehicle
m	meter(s)
MILCON	Military Construction
MLLW	mean lower low water
MSATs	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NAB	Naval Amphibious Base
NAVFAC	Naval Facilities Engineering Command
Navy	Department of the Navy
NBPL	Naval Base Point Loma
NBSD	Naval Base San Diego
NEPA	National Environmental Policy Act
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Association
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOx	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NSR	New Source Review
O_2	oxygen
O_3	ozone
ONR	Office of Naval Research
OSHA	Occupational Health and Safety Administration
Pb	lead
$PM_{2.5}$	suspended particulate matter ≤ 2.5 microns aerodynamic diameter
PM_{10}	suspended particulate matter ≤ 10 microns aerodynamic diameter
ppm	parts per million
psi	pounds per square inch
RCRA	Resource Conservation and Recovery Act
re 1 µPa	referenced to 1 micro Pascal
RDT&E	research, development, testing, and evaluation
RHIB	rigid-hulled inflatable boat
RMS	root mean square
ROG	Reactive Organic Gasses
ROI	region of influence
RWQCB	Regional Water Quality Control Board
SCM	Special Conservation Measure
SDCAPCD	San Diego County APCD
SOCAL	Southern California
SO_2	sulfur dioxide
SPAWAR	Space and Naval Warfare Systems Command
SSC	SPAWAR Systems Center
SDAB	San Diego Air Basin
SHPO	State Historic Preservation Officer
SIO	Scripps Institution of Oceanography
SIP	State Implementation Plan
SWRMC	Southwest Regional Maintenance Center
$\mu g/m^3$	micrograms per cubic meter
UCSD	University of California San Diego
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UUV	Unmanned Undersea Vehicle
WMP	Waste Management Plan
ZOI	Zone of Influence

DEPARTMENT OF DEFENSE
DEPARTMENT OF THE NAVY

FINDING OF NO SIGNIFICANT IMPACT FOR SHORE INFRASTRUCTURE MODIFICATIONS TO SUPPORT TESTING AND EVALUATION OF THE LARGE DISPLACEMENT UNMANNED UNDERSEA VEHICLE PROGRAM AT SPAWAR SYSTEMS CENTER PACIFIC, NAVAL BASE POINT LOMA, SAN DIEGO, CALIFORNIA

Pursuant to Section 102(2) of the National Environmental Policy Act (NEPA) of 1969, as amended; Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] §§ 1500-1508) implementing NEPA; U.S. Department of the Navy (Navy) regulations (32 CFR § 775); and Office of the Chief of Naval Operations Instruction (OPNAVINST) 5090.1C CH-1, the Navy gives notice that an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) were prepared for the implementation of Shore Infrastructure Modifications to Support Testing and Evaluation of the Large Displacement Unmanned Undersea Vehicle (LDUUV) Program at Space and Naval Warfare Systems Command (SPAWAR), Systems Center Pacific (SSC Pacific) at Naval Base Point Loma (NBPL), San Diego, California.

Purpose and Need for the Project: The purpose of the Proposed Action is to provide necessary modifications to existing infrastructure at SSC Pacific to enable LDUUV test activities to proceed as scheduled. This action is needed to meet critical milestones for testing and evaluation that have been established for the LDUUV program.

Proposed Action: Under the Proposed Action, the Navy would modify existing infrastructure and shore installation management activities at SSC Pacific to accommodate two LDUUVs (one of which would be fuel-cell powered and one of which would be battery powered) and three rigid hulled inflatable boats (RHIBs) as part of the LDUUV Innovative Naval Prototype program. This action would require permanent modifications to the following NBPL Facilities: Pier 160; Building 9; Building 68; and a Flume Bridge. Since the proposed Pier 160 construction might not be completed before the LDUUVs arrive, a temporary shelter and self-propelled trailer, in combination with either two floating boat docks or a modular pin barge and a single floating boat dock, may be assembled and used to accommodate the LDUUV program's immediate needs. Elements of the Proposed Action are described below.

<u>Pier 160 Modifications</u>. Up to five 70,000 lb.-capacity launch and recovery lifts would be installed between Fingers A and B of

Pier 160. The launch and recovery lifts are required to raise/lower the project's three 11-meter (m) RHIBs and two LDUUVs. To provide access to the RHIBS and LDUUVs while on the launch and recovery lifts, three or four small floating walkways would also be installed. All walkways would use an open design (e.g., grating) to reduce shading of San Diego Bay waters. The lifts and walkways would be supported by up to 72 16-inch concrete piles which would be installed by jetting and/or impact hammer. In addition, oxygen (O_2) and hydrogen (H_2) gas cylinders and compressors used to recharge the fuel cells of the LDUUV would be stored in a controlled recharging area protected by safety bollards on the pier. The battery-powered LDUUV could also be recharged at the pier.

Building 9 Modifications. This facility would be used to integrate new payloads into the vehicle, for routine maintenance of the LDUUVs, for storage of the LDUUVs during non-testing periods, for storage of other equipment (including small amounts of petroleum fuel, hydraulic oils, carbon fiber resins and fabrics, and tools), and for recharging the battery-powered LDUUV. Modifications would include construction of office space, installation of fencing, and modification of supporting utility systems.

Building 68 Modifications. Building 68 is currently used for research activities, and includes a large storage room in the rear of the building. Proposed modifications to this building include replacement of an existing double door with an automated roll-up door tall enough to accommodate forklift access, installation of chain link fence within the room, striping for an adjacent parking space, additional overhead lighting, raising the existing overhead lighting to allow for forklift access, and clearance of an existing double door on the rear wall of the building.

Flume Bridge Modification. A Flume Bridge is located on Front Street and is on the route between Pier 160 and Building 9. The current slope of the Flume Bridge, which is about 12-20 percent grade, would be problematic for the mobile boat hoist holding the LDUUV and transiting the LDUUV on a trailer. The proposed modification would add concrete or asphalt to each side of the bridge over the current concrete and/or asphalt to decrease the grade.

Temporary Shelter, Transport, and Barge/Floating Dock Options. To provide the necessary out-of-water mooring required for one LDUUV and one RHIB until the launch and recovery lifts at Pier 160 can be installed, the Navy has identified options involving the use of a temporary shelter and self-propelled trailer in combination with either a modular pin barge and floating boat dock, or two floating boat docks. Either option would be placed near the end of Pier 159 or between Fingers A, B and C of Pier 160 and used until no longer required. The temporary shelter would be a polyvinyl covered metal frame tent, and would primarily be used to store and to perform minor maintenance on the LDUUV. Two standard International Standards Organization (ISO) containers (8 ft. x 20 ft.), one placed at each end of the shelter, would be used to provide storage of LDUUV equipment and to provide additional protection for the shelter. The pin barge would have a moon pool in the center section to moor the LDUUV and two 150-horse power outboard motors to transport, launch, and recover the LDUUV at a pre-determined location outside San Diego Bay. A floating boat dock is a floating basin that can be raised or lowered to allow a vessel to be driven onto or to slide off into the water. A mobile crane would be used to raise and lower the vessels between the floating docks and topside of the pier. Under this option, the crane could be positioned as needed on Pier 160. Existing infrastructure at the NBPL Main Base piers (north, middle, and south) could also be used to move the vessels between the water and topside of the pier.

Alternatives Considered: The Office of Naval Research performed a feasibility study that considered four Navy laboratories as possible locations for the LDUUV Program, and determined that SSC Pacific is the most suitable location. The Navy considered a number of alternative locations in the San Diego region in terms of capabilities to provide the necessary infrastructure. In addition to SSC Pier 160, the following possible locations were identified as warranting further investigation:

- SSC Pier 302 on NBPL (immediately south of Pier 160, used by Navy Marine Mammal Program [MMP]);
- SSC Pier 159 on NBPL (immediately north of Pier 160, used by the Navy MMP);
- NBPL Main Base piers (north, middle, and south, located on the Naval Submarine Base);
- Naval Base San Diego (NBSD), central San Diego Bay;

- Naval Base Coronado (NBC) - Naval Amphibious Base (NAB) Pier 16 (central San Diego Bay); and
- San Clemente Island Naval Ordnance Test Station (NOTS) Pier.

While each location met several of the criteria necessary for the project, the Pier 160 location (Proposed Action) was found to be the superior alternative overall, based on its proximity to classified laboratory space; avoidance of travel over public roads; available space for the Integration and Maintenance Area; no encumbrance due to explosive safety quantity distance (ESQD); docking and mooring capability; an existing pier with room to accommodate the LDUUVs and RHIBs; and presence of a high-bay building nearby. Therefore, only the Proposed Action and No Action Alternatives were carried forward for detailed analysis in the EA.

Based on the criteria described above, the Proposed Action is the selected alternative as it meets the purpose and need of the LDUUV infrastructure. The No Action Alternative would not meet the purpose and need of the project.

Environmental Effects: The following resource areas were determined to be minimally or not impacted by the project and therefore were not carried forward for detailed analysis in the EA: geological resources; cultural resources; land use; recreation; aesthetics; public services and utilities; and public health and safety and protection of children. Potential environmental impacts were analyzed in detail for the following resource areas: biological resource habitats and communities; fisheries; birds; marine mammals; threatened and endangered species; water resources; hazardous materials and wastes; noise; air quality; transportation and circulation; socioeconomics and environmental justice; and cumulative impacts. The EA finds that the Proposed Action would not result in significant impacts to any of these resources. Each resource area is discussed below, including relevant Special Conservation Measures (SCMs) to reduce potential impacts from implementation of the Proposed Action.

<u>Biological Resource Habitats and Communities</u>. There would be minor, temporary increases in deep subtidal habitat disturbance, turbidity, and underwater noise due to pile driving. Eelgrass does not occur in the areas of proposed construction, therefore

it would not be impacted. The temporary shelter, transport, and barge/floating dock options, if implemented, would result in minor shading of San Diego Bay. SCMs include the following:

- The approved *Caulerpa* Control Protocol would be followed, including pre-construction surveys and follow-up action if necessary;
- Piles may be jetted to minimize pile driving and associated underwater and airborne noise; and,
- To encourage fish and wildlife dispersal away from the immediate area of pile driving, at the start of each day's pile driving activity or when pile driving has ceased for more than an hour, a soft-start technique would be used involving a gradual ramp-up before pile driving reaches full energy.

Therefore, there would be no significant impacts to Biological Resource Habitats and Communities from implementation of the Proposed Action.

Fisheries. Impacts to fish and Essential Fish Habitat (EFH) would entail relatively minor and temporary effects as described above for biological resource habitats and communities. Fish would be expected to disperse away from or avoid the immediate area of pile driving. The Navy prepared an EFH Assessment as part of the EA, and consulted with the National Marine Fisheries Service (NMFS) on that assessment. NMFS concurred with the assessment and did not recommend additional mitigation measures. Therefore, there would be no significant impacts to fisheries from implementation of the Proposed Action.

Birds. Due to the noise and activity in the immediate area of Pier 160 during construction, birds would be expected to temporarily relocate to similar habitat in surrounding areas. Therefore, there would be no significant impacts to birds from implementation of the Proposed Action.

Marine Mammals. Marine mammal use of the project area is limited, and the zones of influence for potential incidental harassment due to pile driving are relatively small. The Proposed Action would not result in any injuries or mortalities (Level A harassment) of marine mammals. Proposed monitoring which would eliminate the potential for Level B harassment is provided by the following SCM:

- A biological monitor would be stationed on Pier 160 and would order a shutdown of pile driving any time a wild marine mammal or sea turtle is observed within or approaching the zone of potential harassment defined by a root mean square (RMS) underwater sound pressure level (SPL) of 160 decibels (dB) referenced to 1 micro Pascal (re 1 µPa). This is currently estimated as extending 74 m from the source, based on a worst case RMS SPL of 173 dB re 1µPa at 10 m from the source, and application of the NMFS-approved practical spreading model for transmission loss (Caltrans 2013). Site-specific data or more realistic estimates of sound levels would be applied should they become available.

Therefore, for the reasons stated above, there would be no significant impacts to marine mammals from implementation of the Proposed Action.

Threatened and Endangered Species. With the implementation of the previous SCM as it applies to both marine mammals and sea turtles, the Proposed Action is not likely to adversely affect the endangered green sea turtle. The Navy consulted informally with NMFS, and obtained NMFS' concurrence with this conclusion. There would be no effect on the endangered California least tern because of the following SCM:

- Pile driving would occur outside of the California least tern nesting/foraging season (April 1 to September 15) in San Diego Bay.

Therefore, for the reasons stated above, there would be no significant impacts to threatened and endangered species from implementation of the Proposed Action.

Water Resources. There would be no impact to San Diego Bay bathymetry from the Proposed Action. The temporary shelter, transport, and barge/floating dock options, if implemented, would result in a minor increase in bay shading due to the barge or floating boat docks. Increased turbidity as a result of sediment resuspension during concrete pile installation would be short-term and limited to the immediate areas around Pier 160. All operations at the pier would be in compliance with OPNAVINST 5090.1C, Chapter 22 (Environmental Compliance Afloat) and would

not be a source of pollutants. Therefore, there would be no significant impacts to water resources from implementation of the Proposed Action.

Hazardous Materials and Waste. Through the adherence to applicable Federal, Department of Defense (DoD), and Navy regulations that govern the storage, disposal, and transportation of hazardous materials, hazardous wastes, and non-hazardous solid wastes, no increase in human health risk or environmental exposure to hazardous materials or hazardous wastes would occur with implementation of the Proposed Action. Therefore, there would be no significant impacts from hazardous materials and waste from implementation of the Proposed Action.

Airborne Noise. The noise associated with the proposed pier modifications would not exceed City of San Diego construction airborne outdoor noise limits for residential areas (75 dB A-weighted) which apply at the boundaries of NBPL. The indoor airborne noise levels at educational facilities in the areas surrounding the proposed SSC Pacific project would not exceed the classroom criteria levels for effective hearing with windows closed (35 dB A-weighted). Additionally, because the pile driving would be intermittent rather than continual, the noise levels would be considered acceptable. SCMs to limit airborne noise are as follows:

- Construction activities, including pile driving, would only occur during daylight hours (7:00 A.M. to 5:00 P.M., Monday through Friday);
- A cushion block would be used to reduce airborne noise generated by pile driving; and
- Piles may be jetted to minimize pile driving and airborne noise.

Therefore, for the reasons stated above, there would be no significant impacts to sensitive receptors from noise through the implementation of the Proposed Action.

Air Quality. Estimated annual construction and operational emissions with implementation of the Proposed Action would be below the *de minimis* threshold levels for Clean Air Act (CAA) conformity. The Navy has prepared a Record of Non-Applicability (RONA) for Clean Air Act conformity (Appendix A of the EA).

Therefore, there would be no significant impacts to air quality from implementation of the Proposed Action.

Transportation and Circulation. Proposed construction associated with the pier, building, and bridge modifications would cause minor temporary changes to traffic and circulation during the construction period. Future operations at the proposed project site would be similar to current operations, and the number of workers would not change. Truck traffic associated with long-term maintenance activities is anticipated to equal two truck trips per month. Implementation of the Proposed Action would not result in changes in accessibility of public roads that would constitute long-term effects to transportation and circulation. Therefore, there would be no significant impacts to transportation and circulation from implementation of the Proposed Action.

Socioeconomics and Environmental Justice. Due to the limited timeframe for construction and scale of the proposed construction, impacts to the local economy and local labor pool would be negligible. The Proposed Action would involve no change in housing supply, population, demand for housing, or public services. No low-income or minority populations would be disproportionately or adversely affected, so no environmental justice impacts would occur. Therefore, there would be no significant impacts to socioeconomics and environmental justice from implementation of the Proposed Action.

Cumulative Impacts. All of the aforementioned resource areas were considered for potential cumulative impacts that could result from the Proposed Action in combination with other past, present, and reasonably foreseeable actions with overlapping effects. No significant cumulative impacts would occur.

Required Permits and Consultations: The status of all permits and consultations required for the Proposed Action to be implemented is noted below:

- Section 10/404 Permit from the U.S. Army Corps of Engineers application submitted September 2013;
- Federal Consistency under the Coastal Zone Management Act: the California Coastal Commission concurred with the Navy's Coastal Consistency Negative Determination, September 2013; and,

FINDING OF NO SIGNIFICANT IMPACT FOR SHORE INFRASTRUCTURE MODIFICATIONS TO SUPPORT TESTING AND EVALUATION OF THE LARGE DISPLACEMENT UNMANNED UNDERSEA VEHICLE PROGRAM AT SPAWAR SSC PACIFIC, NAVAL BASE POINT LOMA, SAN DIEGO, CALIFORNIA

- Endangered Species Act: consultation concluded with concurrence from NMFS that the action is not likely to adversely affect green sea turtles;
- Magnuson-Stevens Fishery Conservation and Management Act: EFH consultation concluded with concurrence from NMFS that no additional mitigation measures are warranted.

Public Review: A Notice of Availability (NOA) of the Draft EA was published in the San Diego Union Tribune Newspaper for 3-consecutive days (16-18 August 2013), in conjunction with a 15-calendar day public comment period concluding on 3 September 2013. The Draft EA was made available electronically via the Commander Navy Region Southwest website and in hard copy at the Point Loma/Hervey Public Library (3701 Voltaire Street, San Diego). No public comments were received for this project.

Finding: Based on the analysis in the EA and including consideration of input requested by public review and agency consultations, the Navy finds that implementation of the Proposed Action will not significantly impact the quality of the human or natural environment or generate significant controversy.

The EA prepared by the Navy addressing this action is on file, and interested parties may obtain a copy from

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RADM Patrick J. Lorge, USN
Commander, Navy Region Southwest

6 JAN 14
Date

FINAL ENVIRONMENTAL ASSESSMENT

Lead Agency: Department of the Navy

Action Proponent: Space and Naval Warfare Systems Center Pacific

Title of Proposed Action: Shore Infrastructure Modifications to Support Testing and Evaluation of the Large Displacement Unmanned Undersea Vehicle Program at SPAWAR Systems Center Pacific, San Diego, California

Abstract

The United States Department of the Navy (Navy) has prepared this Environmental Assessment (EA) in accordance with the 1969 National Environmental Policy Act (NEPA) (42 United States Code § 4321, as amended), The Council on Environmental Quality Regulations for Implementing NEPA (40 Code of Federal Regulations Parts 1500-1508), and the Chief of Naval Operations Instructions for Implementing NEPA (OPNAVINST 5090.1C, CH-1).

The EA addresses shore infrastructure modifications and operations that are needed at SPAWAR Systems Center Pacific on Naval Base Point Loma to support testing and evaluation that are part of the Large Displacement Unmanned Undersea Vehicle Program. It evaluates the environmental effects of a Proposed Action that would meet the program needs, as well as a No-Action Alternative.

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December 2013

EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] § 4321, as amended); the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (Title 40 Code of Federal Regulations [CFR] §§ 1500-1508, 1 July 1986); and Navy Procedures for Implementing NEPA (32 CFR § 775).

The United States (U.S.) Navy proposes shore infrastructure modifications and operations that are needed at SPAWAR Systems Center Pacific on Naval Base Point Loma to support testing and evaluation that are part of the Large Displacement Unmanned Undersea Vehicle (LDUUV) Program. Construction would not occur until the fall of 2013 or the spring of 2014.

This EA addresses the potential environmental impacts of the Proposed Action and the No-Action Alternative.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The LDUUV program will develop fully autonomous, long-endurance, UUVs capable of operating near shore. The program will develop new energy systems and core vehicle technology to extend the vehicle's endurance while the advanced sensing capability will enable operation in the littoral environment. Initial testing of the LDUUV in the Southern California (SOCAL) Range Complex is already addressed in the current Hawaii-SOCAL Training and Testing (HSTT) Environmental Impact Statement (EIS) and does not require further analysis. Under the HSTT EIS, LDUUV testing would not start until early 2014 after the Record of Decision is signed. After carefully considering alternative regional and San Diego-area locations, the Navy identified SSC Pacific facilities on Naval Base Point Loma (NBPL) as the preferred location for testing the LDUUV program in Southern California. The LDUUV program would be accommodated through relatively minor modifications to SSC Pacific's Pier 160, Buildings 9 and 68, and the Flume Bridge.

The purpose of the Proposed Action is to provide necessary modifications to existing infrastructure at SSC Pacific to enable LDUUV test activities to proceed as scheduled. This action is needed to meet critical milestones for testing and evaluation that have been established for the LDUUV program.

PROPOSED ACTION

The Proposed Action is to modify existing infrastructure and activities at SSC Pacific as necessary to accommodate two LDUUVs and three RHIBs as part of the LDUUV Innovative Naval Prototype program as scheduled. This would require permanent modifications to Pier 160, Building 9, Building 68, and the Flume Bridge. Since the proposed Pier 160 construction might not be completed before the LDUUVs arrive, either two floating boat docks or a floating barge and a single floating boat dock could also be used to accommodate LDUUV program's immediate needs. These elements are described below:

- Pier 160 Modifications. Up to five 70,000 lb-capacity launch and recovery lifts would be installed between Fingers A and B of Pier 160. The launch and recovery lifts are required to raise/lower the project's three 11-meter (m) rigid hulled inflatable boats (RHIBs) and two LDUUVs. Each launch and recovery lift would require the installation of eight 16-inch concrete piles (total of 40 piles). The installation of two tracks for a mobile boat hoist is also required. These tracks would be installed on Finger B of the pier and require installation of up to 20 16-inch concrete piles. To provide access to the RHIBS and LDUUVs while on the launch and recovery lifts, three or four small floating walkways would also be installed. Three of the floating walkways would be approximately 50 ft long, and would each require two piles to be installed. A fourth walkway may

be located in the interior of the mobile boat hoist. If so, it would be U-shaped, approximately 106 ft long, and would require up to 6 piles. All walkways would be approximately 6 ft wide and would use an open design (e.g., grating) to reduce shading. Altogether, up to 72 16-inch piles would be installed using jetting and/or a small impact hammer. LDUUV and RHIB launch and recovery events would occur at this location weekly or as needed for each LDUUV; these facilities would also be used to maintain and repair the LDUUVs topside of the pier. In addition, oxygen (O_2) and hydrogen (H_2) gas cylinders and compressors used to recharge the fuel cell of the LDUUV would be stored on Pier 160 in a controlled area surrounded by safety bollards to provide protection for the equipment. Recharging operations would be 3-5 day events and would occur approximately once a month for each LDUUV. These facilities would also be used to maintain and repair the LDUUVs topside of the pier.

- Building 9 Modifications. This facility would be used to integrate new payloads into the vehicle, for routine maintenance of the LDUUVs, for storage of the LDUUVs during non-testing periods, storage of other equipment and tools, and for recharging the battery-powered LDUUV. Modification would include construction of office space, installation of fencing, and modification of supporting utility systems.
- Building 68 Modifications. Building 68 is currently used for research activities, and includes a large storage room in the rear of the building. Proposed modifications to this building include replacement of an existing double door with an automated roll-up door tall enough to accommodate forklift access, installation of chain link fence within the room, striping for an adjacent parking space, additional overhead lighting, raising the existing overhead lighting to allow for forklift access, and clearance of an existing double door on the rear wall of the building.
- Flume Bridge Modification. The Flume Bridge is located on Front Street and is on the route from Pier 160 to Building 9. The current slope of the Flume Bridge, which is about 12-20% grade, is problematic for the mobile boat hoist holding the LDUUV and transiting the LDUUV on a trailer. The proposed modification would add concrete or asphalt to each side of the bridge over the current concrete and/or asphalt to decrease the grade.
- Temporary Shelter, Transport, and Barge/Floating Dock Options. To provide the necessary out-of-water mooring required for one LDUUV and one RHIB until the launch and recovery lifts and mobile boat hoist tracks at Pier 160 can be installed, the Navy has identified options involving the use of a temporary shelter and self-propelled trailer in combination with either a modular pin barge and floating boat dock, or two floating boat docks. Either option would be placed near the end of Pier 159 or between Fingers A, B and C of Pier 160 and used until no longer required. A floating boat dock is a floating basin that can be raised or lowered to allow a vessel to be driven onto or to slide off into the water. A mobile crane would be used to raise and lower the vessels between the floating docks and topside of the pier. Under this option, the crane could be positioned as needed on Pier 160. Existing infrastructure at the NBPL Main Base piers (north, middle, and south) could also be used to move the vessels between the water and topside of the pier.

NO-ACTION ALTERNATIVE

Under the No-Action Alternative, there would be no change to existing conditions and the Navy would not implement the proposed modifications to Pier 160, Buildings 9 and 68, and Flume Bridge; nor would the barge/floating dock option be implemented. However, it should be noted that the No-Action Alternative would impede the development of the LDUUV program and thereby delay the extension and augmentation of current Navy platform capabilities and negatively impact planned testing activities in the SOCAL Range Complex.

The No-Action Alternative is not considered a reasonable alternative because it does not meet the purpose of and need for the Project as required under the CEQ regulations (40 CFR 1502.14[d]). However, it does provide a measure of the baseline conditions described in Chapter 3, against which the potential impacts of the Project can be compared.

PUBLIC INVOLVEMENT AND AGENCY CORRESPONDENCE

A Notice of Availability (NOA) of the Draft EA was published in the San Diego Union Tribune Newspaper for 3-consecutive days (16-18 August 2013) (Appendix D), in conjunction with a 15-calendar day public comment period concluding on 3 September 2013. The Draft EA was made available electronically via the Commander Navy Region Southwest website and in hard copy at the Point Loma/Hervey Public Library (3701 Voltaire Street, San Diego). Comments on the Draft EA were accepted via regular mail; no comments were received.

Appendix D documents the correspondence between the Navy and regulatory agencies pursuant to the Navy's compliance with requirements for permitting, consultation and/or concurrence.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Potential environmental impacts have been analyzed for the following resources: biological resource habitats and communities; fisheries; birds; marine mammals; threatened and endangered species; water resources; hazardous materials and wastes; noise; air quality; transportation and circulation; and socioeconomics and environmental justice. Table ES-1 summarizes determinations of environmental impacts followed by the respective avoidance and minimization measures/special conservation measures (SCMs) for the Proposed Action. The No-Action Alternative would have no environmental impacts. Chapter 3 provides a detailed discussion of the environmental consequences. As described in Table ES-1, implementation of the Proposed Action would not result in significant impacts to any resource area.

Table ES-1. Summary of Potential Impacts

Resource	***Proposed Action***
Biological Resource Habitats and Communities	Any temporary increase in turbidity would not significantly impact benthic or water column habitats in the project area. There would be no residual effects beyond pile driving activities. The Proposed Action would not alter the area of the bay that is shaded by artificial structures. Eelgrass does not occur in the areas of proposed construction. A survey for the invasive alga *Caulerpa taxifolia* was conducted in April 2013 with negative results. An additional survey would be conducted before initiating in-water project activities, consistent with NMFS and California Department of Fish and Wildlife (CDFW) requirements (NMFS 2008). If *Caulerpa* is found in the study area during this survey, NMFS-approved *Caulerpa* Control Protocols would be followed. Therefore, the Proposed Action would not result in significant impacts to special aquatic sites due to *Caulerpa*. The temporary shelter, transport, and barge/floating dock options, if implemented, would result in minor shading due to the barge and/or floating boat docks. LDUUV maintenance (activities within Building 9 and transportation between Building 9 and Pier 160) would not affect biological resource habitats and communities. With the implementation of the proposed minimization and conservation measures, the Proposed Action would not result in significant impacts to biological resource habitats and communities. **Avoidance and Minimization Measures/Special Conservation Measures (SCMs):** • The approved NMFS/California Department of Fish and Wildlife (CDFW) *Caulerpa* Control Protocol (Version 4, February 25, 2008), including a pre-construction *Caulerpa* survey and follow-up action if necessary, would be followed. • Piles may be jetted to minimize pile driving and associated underwater and airborne noise.

Resource	***Proposed Action***
	• To encourage fish and wildlife dispersal away from the immediate area of pile driving, at the start of each day's pile driving activity or when pile driving has ceased for more than an hour, a soft-start technique would be used involving a gradual ramp-up before pile driving reaches full energy.
Fisheries	Impacts to fisheries associated with the Proposed Action would be primarily from increased underwater noise associated with pile driving. The temporary shelter, transport, and barge/floating dock options, if implemented, would result in minor shading due to the barge and/or floating boat docks. No Habitat Areas of Particular Concern (HAPCs), including eelgrass, would be impacted, areas of potential injurious effects are minimal, and the zone of potential influence that may cause a change in fish behavior is relatively small compared to the size of the bay. Fish would be expected to disperse away from or avoid the area of potential injury during pile driving rather than remain stationary and risk injury. Turbidity due to pile installation would be minimal because the sediments are known to be sandy. Piles may be jetted to minimize pile driving and associated underwater and airborne noise. Furthermore, most if not all of the fish species occurring in the area routinely experience turbid and noisy conditions due to natural processes and ship traffic within the industrialized north bay and there would be no residual adverse effects beyond pile driving activities. LDUUV maintenance (activities within Building 9 and transportation between Building 9 and Pier 160) would not affect fisheries. Therefore, implementation of the Proposed Action would not result in significant impacts to fisheries. The Navy prepared an Essential Fish Habitat (EFH) Assessment as part of the EA, determined that there would only be minimal and temporary adverse effects on EFH, and consulted with NMFS on that assessment. NMFS concurred with the assessment (Appendix D) and the consultation was concluded. **Avoidance and Minimization Measures/SCMs:** Under the Proposed Action, avoidance and minimization measures/SCMs would be the same as those for biological resource habitats and communities.
Birds	Project impacts would be highly localized and very temporary. Since the project area is developed and similar resting and foraging habitats occur nearby, shorebirds or waterbirds would likely move to other similar habitats nearby and return when the project is complete and there would be no residual effects beyond pile driving activities. Birds in the area are routinely subject to construction equipment associated noise and effects from routine marine activities common in the area. LDUUV maintenance (activities within Building 9 and transportation between Building 9 and Pier 160) would only marginally increase activity at the pier and would not affect migratory birds. Therefore, implementation of the Proposed Action would not result in significant impacts to birds. **Avoidance and Minimization Measures/SCMs:** Avoidance and minimization measures for birds would be the same as those for biological resource habitats and communities. Avoidance and minimization measures to protect California least terns are provided in the Threatened and Endangered Species resource section.
Marine Mammals	LDUUV maintenance (activities within Building 9 and transportation between Building 9 and Pier 160) would only marginally increase activity at the pier and would not affect marine mammals. Marine mammal use of the project area is limited, and the zones of influence for potential incidental harassment due to pile driving are relatively small. The Proposed Action would not result in any injuries or mortalities (Level A harassment) of marine mammals, and the proposed monitoring would eliminate the potential for Level B harassment of marine mammals. Therefore, implementation of the proposed project is not anticipated to result in any harassment to marine mammals. As such, an Incidental Harassment Authorization (IHA) from NMFS is not required and implementation of the Proposed Action would not result in significant impacts to marine mammals. **Avoidance and Minimization Measures/SCMs:** Under the Proposed Action, avoidance and minimization measures/SCMs would be the same as those for biological resource habitats and communities and would also include: • A biological monitor would be stationed on Pier 160 and would order a shutdown of pile driving any time a wild marine mammal or sea turtle is observed within or approaching the zone of potential harassment defined by a root mean square (RMS) underwater sound pressure level (SPL) of 160

Resource	***Proposed Action***
	decibels (dB) referenced to 1 micro Pascal (re 1 µPa). This is currently estimated as extending 74 m from the source, based on a worst case RMS SPL of 173 dB re 1µPa at 10 m from the source, and application of the NMFS-approved practical spreading model for transmission loss (Caltrans 2013). Site-specific data or more realistic estimates of sound levels would be applied should they become available.
Threatened and Endangered Species	California Least Tern LDUUV maintenance (activities within Building 9 and LDUUV transportation between Building 9 and Pier 160), as well as Flume Bridge and building construction, would have no effect on California least terns. Pile driving and other construction activities would occur outside of the California least tern nesting/foraging season (April 1 through September 15) in San Diego Bay and least tern habitat would not be altered. Therefore, the proposed pile driving would have no effect on California least terns and implementation of the Proposed Action would not result in significant impacts to California least terns. Green Sea Turtle LDUUV maintenance, as well as Flume Bridge and building construction, would have no effect on green sea turtles. Pile driving is the only proposed activity with the potential to impact green sea turtles due to associated underwater noise. However, since piles would only be driven during the non-tern season (September 16 to March 31), which is outside of the warmer summer season when turtles are most likely to transit through the project area, the likelihood of sea turtle occurrence within the project area is low. Furthermore, implementation of the proposed impact avoidance and minimization measures, would ensure that these activities are ceased if a sea turtle is observed within or approaching the zone of potential harassment surrounding the pile being driven during the very temporary pile driving period. As such, the Navy determined that the action is not likely to adversely affect green sea turtles and consulted informally with NMFS regarding this determination. NMFS concurred (Appendix D), and accordingly, implementation of the Proposed Action would not result in significant impacts to green sea turtles. **Avoidance and Minimization Measures/SCMs:** Under the Proposed Action, avoidance and minimization measures/SCMs would be the same as those for biological resource habitats and communities and marine mammals and would also include: • Pile driving would occur outside of the California least tern nesting/foraging season (April 1 to September 15) in San Diego Bay.
Water Resources	There would be no impact to bathymetry from the Proposed Action. The temporary shelter, transport, and barge/floating dock options, if implemented, would result in a minor increase in shading due to the barge and/or floating boat docks. Increased turbidity as a result of sediment resuspension during concrete pile installation would be short-term and limited to the immediate areas around Pier 160. All operations at the pier would be in compliance with OPNAVINST 5090.1C, Chapters 22 (Environmental Compliance Afloat) and would not be a source of pollutants. Therefore, implementation of the Proposed Action would not result in significant impacts to water quality.
Hazardous Materials and Wastes	Through the use of the preventive measures described in Section 3.7, including the adherence to applicable Federal, DoD, and Navy regulations that govern the storage, disposal, and transportation of hazardous materials, hazardous wastes, and non-hazardous solid wastes, no increase in human health risk or environmental exposure to hazardous materials or hazardous wastes would occur with implementation of the Proposed Action. Therefore, implementation of the Proposed Action would not have a significant impact to hazardous materials or hazardous wastes.
Airborne Noise	The noise associated with the proposed pier modifications would not exceed City of San Diego construction airborne outdoor noise limits for residential areas (75 dB A-weighted) which apply at the boundaries of NBPL. The temporary shelter, transport, and barge/floating dock options, if implemented, would entail non-significant noise due to operation of the crane but otherwise have no impact. The indoor airborne noise levels at educational facilities in the areas surrounding the proposed SSC Pacific project would not exceed the classroom criteria levels for effective hearing with windows closed (35 dB A-weighted). Additionally, because the pile driving would be intermittent rather than continual, the noise levels would be considered acceptable. Therefore, implementation of the Proposed Action would not result in significant impacts to

Resource	***Proposed Action***
	airborne noise. **Avoidance and Minimization Measures/SCMs:** • Construction activities, including pile driving, would only occur during daylight hours (7:00 A.M. to 5:00 P.M., Monday through Friday). • A cushion block would be used to reduce airborne noise generated by pile driving. • Piles may be jetted to minimize pile driving and airborne noise.
Air Quality	Operation emissions generated from the LDUUV test program would be limited to mobile source emissions occurring monthly as a result of delivery of gas cylinder replacements and transport of LDUUVs between Pier 160 and Building 9. Additional emissions could also result from operation of the crane if the temporary shelter, transport, and barge/floating dock options are also implemented. Regardless, operational emissions would be below *de minimis* thresholds. Estimated annual construction emissions with implementation of the Proposed Action would be below the *de minimis* threshold levels for Clean Air Act (CAA) conformity. In addition, the Proposed Action would conform to the San Diego Air Basin Shore State Implementation Plan (SIP) and would not trigger a conformity determination under Section 176(c) of the CAA. The Navy has prepared a Record of Non-Applicability (RONA) for CAA conformity (Appendix A of this EA). No health effects would be anticipated from emission of hazardous air pollutants because the majority of project activities occur in restricted areas where there are no sensitive receptors (i.e., residents, schools, hospitals, etc.). Therefore, implementation of the Proposed Action would not result in significant impacts to air quality.
Transportation and Circulation	Proposed construction associated with the pier, building, and bridge modifications would cause temporary and less than significant changes to traffic and circulation during the construction period. Future operations at the proposed project site would be similar to current operations, and the number of workers would not change. Truck traffic associated with long-term maintenance activities is anticipated to equal two truck trips per month. Implementation of the temporary shelter, transport, and barge/floating boat dock options would result in a minor, temporary increase in traffic due to the placement and removal of the temporary shelter, barge, or floating boat docks at Pier 160. Implementation of the Proposed Action would not result in changes in accessibility of public roads that would constitute long-term effects to transportation and circulation. Therefore, implementation of the Proposed Action would not have a significant impact to transportation and circulation.
Socioeconomics and Environmental Justice	Due to the limited timeframe for construction and scale of the proposed construction, impacts to the local economy and local labor pool would be negligible. The Proposed Action would involve no change in housing supply, population, demand for housing, or public services. Therefore, implementation of the Proposed Action would not have a significant impact to socioeconomics. No low-income or minority populations would be disproportionately or adversely affected, so no environmental justice impacts would occur and impacts would not be significant.

FINAL ENVIRONMENTAL ASSESSMENT

SHORE INFRASTRUCTURE MODIFICATIONS TO SUPPORT TESTING AND EVALUATION OF THE LARGE DISPLACEMENT UNMANNED UNDERSEA VEHICLE PROGRAM AT SPAWAR SYSTEMS CENTER PACFIC, SAN DIEGO, CALIFORNIA

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CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION/BACKGROUND

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] § 4321, as amended); the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural provisions of NEPA (Title 40 Code of Federal Regulations [CFR] §§ 1500-1508, 1 July 1986); and Navy Procedures for Implementing NEPA (32 CFR § 775).

The Large Displacement Unmanned Undersea Vehicle (LDUUV) is an unmanned vehicle under development by the Office of Naval Research (ONR). The LDUUV will enable persistent sensing to increase the influence and capability of the Navy. The LDUUV program will develop fully autonomous and long-endurance, unmanned undersea vehicles (UUVs) capable of operating in littoral environments. The Chief of Naval Operations (CNO) has stated that he desires to accelerate the development of UUVs in order to close warfighter capability gaps in a cost-effective manner and to gain access where manned platforms cannot operate. The LDUUV program will develop new vehicle technologies to extend UUVs endurance into months of operation time.

1.2 PROJECT LOCATION DESCRIPTION

The LDUUV test program is proposed to be located at Space and Naval Warfare Systems Center (SSC) Pacific's bayside compound, San Diego, California (Figure 1-1). SSC Pacific is part of the Naval Base Point Loma (NBPL) Complex, located on the Point Loma peninsula and adjacent to northern San Diego Bay. The bayside compound is bordered on the north by the Scripps Institution of Oceanography (SIO) facilities and the Navy's Fuel Facility to the south. The SSC Pacific facilities that are proposed to be modified to accommodate the LDUUV test program include Pier 160, the Flume Bridge on Front Street, Building 9, and Building 68 as shown in Figure 1-2. More detail on these proposed modifications is provided in Chapter 2.

1.3 PURPOSE AND NEED FOR THE PROJECT

ONR is the resource sponsor for the LDUUV Program and has an emergent need for a dedicated testing location and facility for the LDUUV Innovative Naval Prototype program. This program will enable persistent sensing to increase the influence and capabilities of the Navy.

The program will develop fully autonomous, long-endurance UUVs capable of operating near shore. The program will develop new energy systems and core vehicle technology to extend the vehicle's endurance while the advanced sensing capability will enable operation in the littoral environment. Initial testing of the LDUUV in the Southern California (SOCAL) Range Complex is already addressed in the current Hawaii-SOCAL Training and Testing (HSTT) Environmental Impact Statement (EIS) and does not require further analysis. Under the HSTT EIS, LDUUV testing would not start until early 2014 after the Record of Decision is signed. SSC Pacific is the proposed lab for testing the LDUUV program in Southern California. SSC Pacific currently has the required infrastructure and is in close proximity to open ocean and SOCAL Test Ranges. Additionally, fleet assets required for testing are within the SOCAL area.

The purpose of the Proposed Action is to provide necessary modifications to existing infrastructure at SSC Pacific to enable LDUUV test activities to proceed as scheduled. This action is needed in order

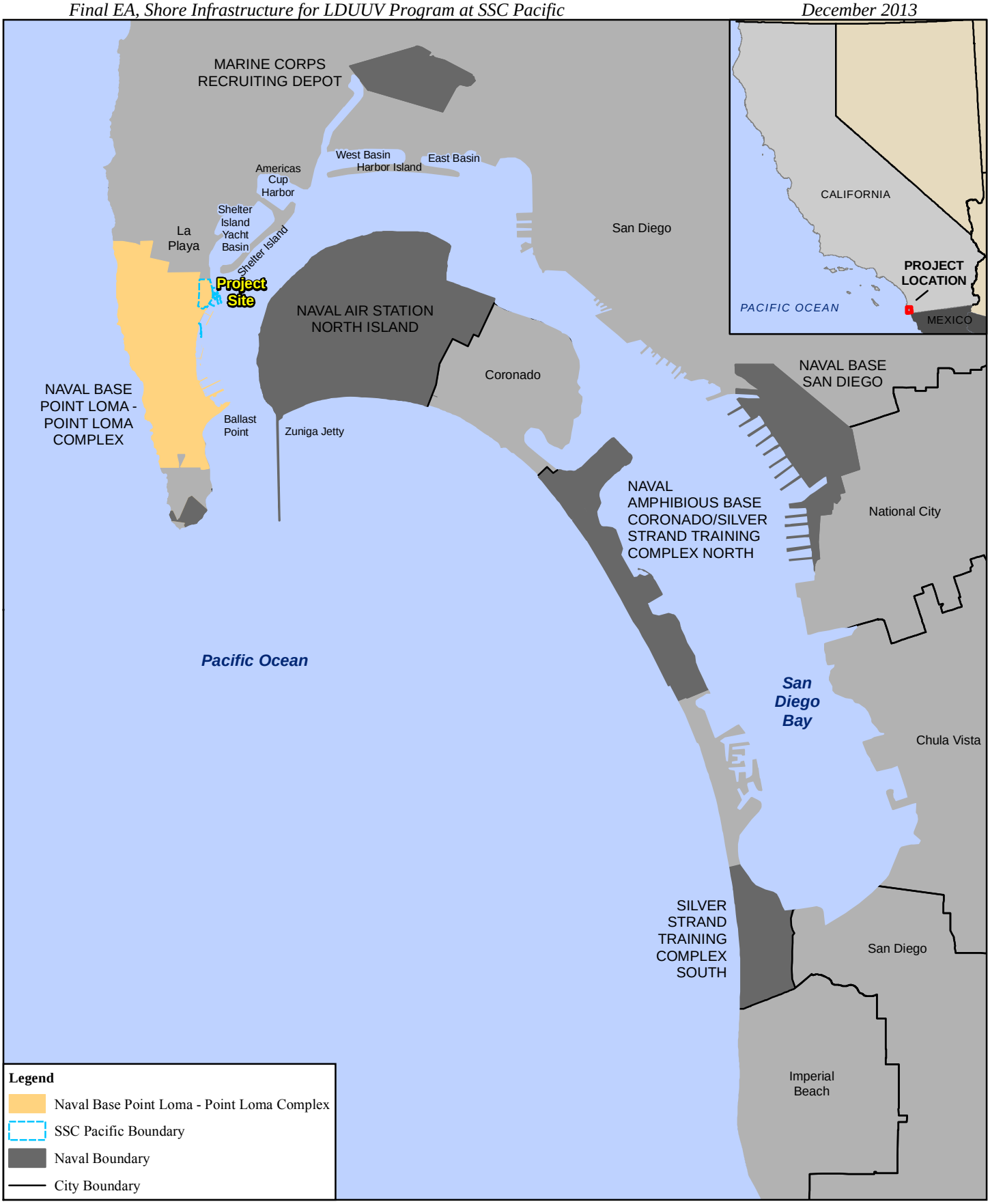

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Figure 1-1
SSC Pacific LDUUV Project Area Location Map

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Figure 1-2. Location of Proposed SSC Pacific Infrastructure Modifications

to meet critical milestones for testing and evaluation that have been established for the program during 2013-2017.

1.4 DECISION TO BE MADE

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

1.5 SCOPE OF ANALYSIS

NEPA, CEQ regulations, and Navy procedures for implementing NEPA and the CEQ regulations specify that an EA should address only those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact. The scope of analysis for this EA reflects ongoing Navy experience with waterfront projects for naval facilities in San Diego Bay, including other Navy piers.

1.5.1 Resources Carried Forward for Detailed Analysis

Resources carried forward for detailed analysis in this EA include biological resource habitats and communities; fisheries; birds; marine mammals; threatened and endangered species; water resources; hazardous materials and wastes; noise; air quality; transportation and circulation; and socioeconomics and environmental justice.

1.5.2 Resources Minimally or Not Impacted, Not Carried Forward for Detailed Analysis

Several resource areas have not been carried forward for detailed analysis in this EA since potential impacts were considered non-existent or negligible. The resources not carried forward for analysis are described below along with the reasons why a limited analysis is sufficient.

- **Geological Resources** – The minimal surficial modifications associated with the Proposed Action would not result in impacts to geology and topography.
- **Cultural Resources -** No known archaeological or cultural resources sites at NBPL would be affected by the proposed project, and the Navy would implement archaeological monitoring during excavation activities within any portion of the project area that is identified to have buried archaeological potential. In accordance with the Programmatic Agreement between the Navy and the State Historic Preservation Officer (SHPO) regarding Navy Region Southwest (NRSW) undertakings within the San Diego Metropolitan Area (NRSW 2003, extended in February 2013), the Commander Navy Region Southwest Cultural Resources Program Manager has determined no historic properties would be affected under Section 106 of the National Historic Preservation Act and further consultation with the SHPO is not required (Sproul 2013).
- **Land Use** – The Proposed Action is consistent with, and would have no effect on, existing land and water use at SSC Pacific and in the adjacent land and waters. No changes to the existing security zone bordering Pier 160 would be required.
- **Recreation and Recreational Navigation** – The proposed construction would not impact recreation and recreational navigation.

- **Aesthetics** – The Proposed Action would result in minor modifications to existing infrastructure which would remain consistent with the surrounding military industrial waterfront and have no effect on aesthetics.
- **Public Services and Utilities** – No new public services would be constructed and the utility infrastructure and recharging system for the Proposed Action would be accommodated without affecting the NBPL system/network capacity.
- **Public Health and Safety and Protection of Children** – Construction would occur in a controlled-access area from which the public is excluded, and there are no potential impacts offsite to the public. The transportation, storage, and handling of compressed gases is extensively regulated to minimize risk but is considered under Hazardous Materials (Section 3.7). The Proposed Action poses no environmental risks to children and is therefore in compliance with Executive Order (EO) 13045.

1.6 COORDINATION WITH OTHER NAVY ACTIVITIES

The Proposed Action has been briefed to the other Navy Commands and programs in the surrounding area to ensure there would be no conflicts with ongoing and future activities, including the use of adjacent areas for the Navy's Marine Mammal Program, which is authorized under United States Code Title 10 and is not subject to the Marine Mammal Protection Act or the Coastal Zone Management Act.

1.7 INTERGOVERNMENTAL COORDINATION

Following is a list of agency consultations, permits, and other authorizations required and the status, including explanation as to why certain actions are not required.

- **Section 10/404 Permit from the U.S. Army Corps of Engineers** – The installation of piles requires a permit pursuant to Section 10 of the Rivers and Harbors Act (33 U.S.C. § 401 et seq.). No dredge or fill is required, and per USACE (33 CFR 323.3(c)), pilings do not normally constitute fill. Therefore, a Section 404 permit requirement is not anticipated but could be accommodated through the same process if necessary, in which case a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB) would also be required. The Los Angeles District of USACE Carlsbad Field Office regulatory branch has advised the Navy that the project qualifies for a non-notification nationwide permit (#9) and, due to Regional General Condition 3, a pre-construction notification (PCN) is required. The PCN was submitted in September 2013 and confirmation of receipt by the USACE was received. Nationwide Permit #9 is pre-certified by the RWQCB and notification of use was provided in September 2013.
- **Endangered Species Act Consultation with U.S. Fish and Wildlife Service (USFWS)** – The Proposed Action incorporates seasonal avoidance of potential effects on the endangered California least tern and would not otherwise affect its habitat. Therefore, the action would have no effect on California least tern, and consultation is not required.
- **Endangered Species Act and Essential Fish Habitat (EFH) Consultation with National Marine Fisheries Service (NMFS)** – The Navy has determined that the action is not likely to adversely affect green sea turtles and the Navy consulted informally with NMFS and obtained NMFS' concurrence regarding this determination (Appendix D). The Navy also consulted with NMFS regarding possible minimal and temporary adverse effects of the Proposed Action on EFH, and obtained NMFS' concurrence with the EFH Assessment contained in the EA (Appendix D).

- **Federal Consistency under the Coastal Zone Management Act** – The Navy prepared a Coastal Consistency Negative Determination which was submitted to the California Coastal Commission, along with the Draft EA. The Commission concurred with the Navy's determination (Appendix D).

1.8 PUBLIC/AGENCY PARTICIPATION

Regulatory agencies participating in this project are described in Section 1.7, and all correspondence is contained in Appendix D. A Notice of Availability (NOA) of the Draft EA was published in the San Diego Union Tribune Newspaper for 3-consecutive days (16-18 August 2013) (Appendix D), in conjunction with a 15-calendar day public comment period which concluded on 3 September 2013. The Draft EA was made available electronically via the Commander Navy Region Southwest website (at http://www.navyregionsouthwest.com/go/doc/4275/1873878) and in hard copy at the Point Loma/Hervey Public Library (3701 Voltaire Street, San Diego). Comments were accepted via regular mail; no comments were received. The FONSI and this FEA were made available to the public at the Point Loma Public Library and via the Commander Navy Region Southwest website.

CHAPTER 2
PROPOSED ACTION AND ALTERNATIVES

2.1 REASONABLE ALTERNATIVE SCREENING FACTORS

Factors that must be met for an alternative to be considered are those needed for successful project implementation in a timely and cost-effective manner with minimal impacts on the environment. These factors include:

- The ability to meet the Navy's timetable for critical LDUUV testing in the SOCAL Range Complex beginning in early 2014 by accommodating the arrival of the LDUUVs in late 2013 and early 2014:
- Facilities that comply with current anti-terrorism/force protection directives (Department of Defense Instruction 2000.12, 1 March 2012).
- An existing pier on a Navy installation in the San Diego region with room to install the requisite launch and recovery lifts, floating boat docks or barge, and storage facilities (described in Section 2.2) to support up to 2 LDUUVs and 3 Rigid-Hulled Inflatable Boats (RHIBs).
- A location with out-of-water mooring capability to allow for security, repairs, maintenance, or recharging on a reoccurring basis to support daily operations.
- A docking and mooring capability to minimize potential damage to LDUUVs and RHIBs from strong waves and heavy vessel traffic.
- A classified laboratory to provide mission planning and navigational software for the vehicle.
- A short distance from the pier, a high bay building (with sufficient space for the mobile boat hoists and LDUUVs) that can serve as a Maintenance and Integration facility for the LDUUVs.
- A usable roadway allowing LDUUVs to be transported between the pier and Maintenance and Integration facility that minimizes the use of public roads.
- A location compatible with ongoing and planned Navy activities that leverages existing assets supporting science and technology in the area of unmanned systems.
- A location with a large test area that is not environmentally sensitive.
- A location that provides access to a Navy Sea Range with a Fleet presence.
- A location that provides a large number of available test days with appropriate sea-states (less than 1.25 m wave heights).
- A location with that minimizes test costs.

ONR recently conducted an evaluation of candidate Navy Warfare Centers for suitability as a maintenance, operations, and at-sea test site for the advanced LDUUV now in development by the program. Four Warfare Centers submitted proposals. Candidate Warfare Centers included SSC Pacific, Naval Surface Warfare Center (NSWC) Panama City, Naval Undersea Warfare Center (NUWC) Newport, and NUWC Keyport. Selection criteria for the test site included facilities for testing and maintenance, suitability of available test ranges, test range costs, available test days as a function of weather and wave height, proximity to the Fleet, and availability of classified work spaces for

development and integration of hardware and software on board the vehicle. Based on the criteria, SSC Pacific scored the highest rank in the evaluation and is the primary test site for the LDUUV.

A key facility required for the hosting the LDUUV is the Unmanned Maritime Vehicle Command and Control (UMV C2) Center at SSC Pacific Bayside, a classified laboratory that hosts mission planning and navigational software for the vehicle. Mission plans will be ported to the vehicle from this facility, requiring that the vehicle be in close proximity to the lab.

ONR carefully considered alternative locations for the Proposed Action and identified SSC Pacific as the most suitable location available to support the LDUUV test program objectives, and the only location that meets the screening criteria above. Additional details on alternative locations considered are provided in Section 2.4, below.

2.2 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action is to modify existing infrastructure and activities at SSC Pacific as necessary to accommodate two LDUUVs and three RHIBs as part of the LDUUV Innovative Naval Prototype program as scheduled. One action alternative, the Proposed Action, is described and analyzed in this EA; as required by NEPA, a No-Action Alternative is also considered (Section 2.3). Construction under the Proposed Action would provide a permanent solution that would meet the purpose and need discussed in Chapter 1 by permanently modifying Pier 160, Building 9, Building 68, and the Flume Bridge (Section 2.2.1). However, since the proposed construction would not be completed until the fall of 2014 or spring of 2015, the LDUUV program would commence prior to completion of the pier modifications. As such, the Navy has proposed a barge/floating dock option as part of the Proposed Action, which involves the placement of either two floating boat docks or a floating barge and a floating boat dock alongside Pier 160 or Pier 159 until the equipment is no longer required (Section 2.2.2). This option is needed to ensure the Navy is able to provide the out-of-water mooring required for one LDUUV and one RHIB until the launch and recovery lifts at Pier 160 can be installed. Impact Minimization and Conservation Measures that would be incorporated into the Proposed Action are also included (Section 2.2.3).

2.2.1 Permanent Structural and Operational Modifications

The proposed facility modifications consist of: 1) the installation and use of launch and recovery lifts and controlled recharging area for equipment (compressors) and compressed gases stored at Pier 160; 2) internal modifications to Building 9 to enable it to serve as the LDUUV Maintenance and Integration facility; 3) reducing the grade over the Flume Bridge on Front Street to avoid the LDUUV mobile boat hoist or trailer bottoming out in transit and to meet the mobile boat hoist grade requirements transiting from the pier to Building 9; and 4) minor modifications to Building 68 to accommodate a function relocated from Building 9. Each component is described below. It is estimated that the proposed modifications would require two to six months to complete, potentially beginning in December 2013. RHIBs would be maintained as needed at the existing SSC Pacific boat house.

2.2.1.1 Pier 160 Modifications

<u>Launch and Recovery Lifts</u>

Up to five 70,000 lb-capacity launch and recovery lifts would be installed at Pier 160, four on the middle finger (B) and one on the outer finger (A) as shown in Figure 2-1. The launch and recovery lifts are required to store 11 meter (m) RHIBs and the LDUUVs. Each launch and recovery lift would require the installation of eight 16-inch concrete piles (total of 40 piles). Specifications for the proposed launch and recovery lifts are shown in Figure 2-2. The launch and recovery lifts will be certified by the Southwest

Regional Maintenance Center (SWRMC). The installation of two tracks for a mobile boat hoist (Figure 2-3) is also required. These tracks would be installed on Finger B of the pier (Figure 2-1) and require installation of up to 20 16-inch concrete piles. The Naval Facilities Engineering Command (NAVFAC) Southwest would certify the mobile boat hoist. To provide access to the RHIBS and LDUUVs while on the launch and recovery lifts, three or four small floating walkways would also be installed. Three of the floating walkways would be approximately 50 ft long, and would each require two piles to be installed. A fourth walkway may be located in the interior of the mobile boat hoist. If so, it would be U-shaped, approximately 106 ft long, and would require up to 6 piles. All walkways would be approximately 6 ft wide and would use an open design (e.g., grating) to reduce shading. Altogether, up to 72 16-inch piles would be installed using jetting and/or a small impact hammer. LDUUV and RHIB launch and recovery events would occur at this location weekly or as needed for each LDUUV; these facilities would also be used to maintain and repair the LDUUVs topside of the pier. During recovery, the LDUUV would be rinsed with fresh water only; no cleaning detergents would be used. Rinsing would occur either at the boat ramp or while suspended over the water at Pier 160. These proposed rinsing activities would be in compliance with NBPL's National Pollutant Discharge Elimination System (NPDES) permit.

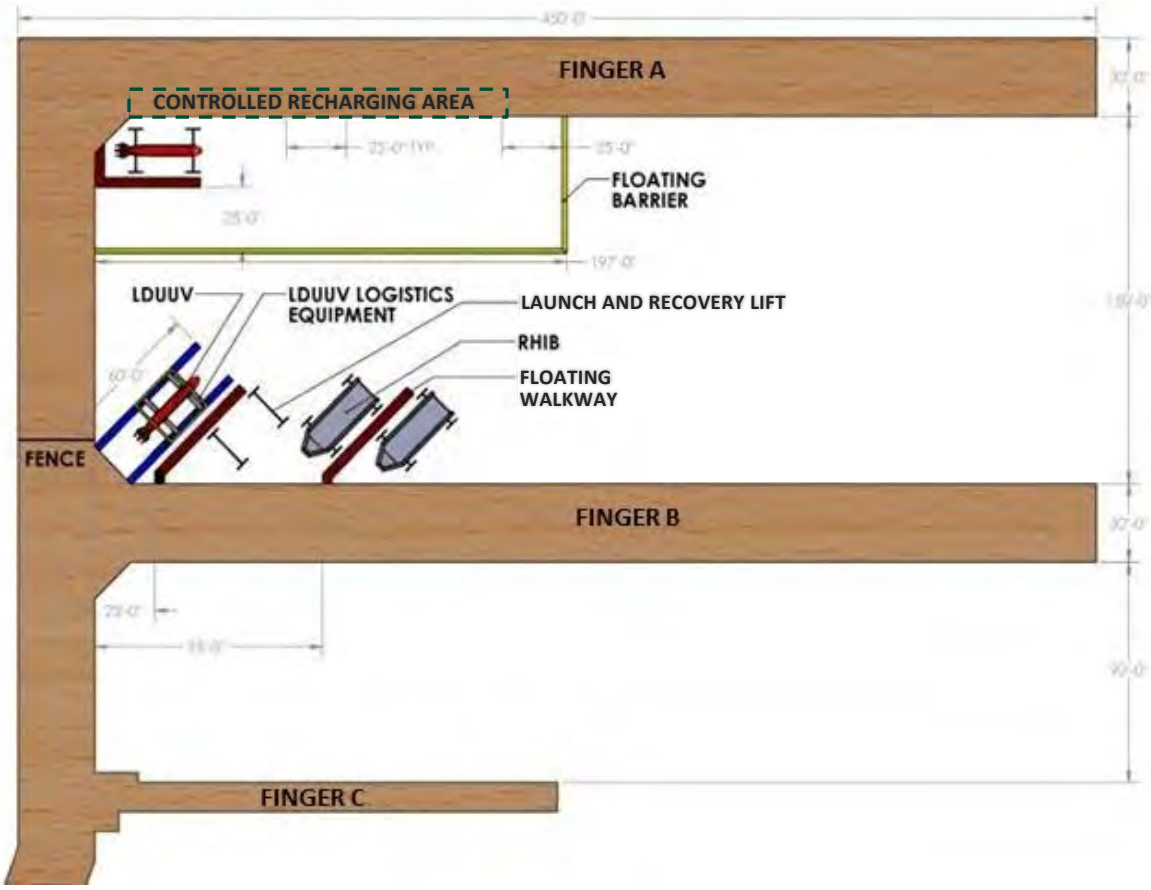


Figure 2-1. Proposed Pier 160 Modifications

Yacht Lifts

Industrial Duty Integrated with a New Ultra Modern Appeal

- All Aluminum and Stainless Steel Construction
- Direct Drive with Industrial Duty Motors
- Massive Solid Aluminum, Grooved Winders with Exclusive Corrosion Resistant Coating
- Solid Billet Aluminum Bearing Blocks
- Welded Construction/Not Bolted
- Aluminum Pulleys with Long Life Bearings
- Wireless Remote Control and Limit Switch Included\
- Optional Electrical Controls with Multiple Limit Switches
- 10 Year Limited Warranty

Options:

- Ultra High Speed (H2)
- Custom Bunking Systems

Specifications

Size	Top Carrier Dimensions	Lifter Beam Dimensions	Horse Power	Volt and Amperage	Cable Size	Drive Shaft	Vertical Travel	Bunks	Pile Size
70,000 lb. (w/remote)	Twin I-Beam	Double I-Beam 12" 18' – 20'	Enclosed HD 2HP Motors w/Brakes	240V/60A	7/16" Stainless Steel	Solid Teflon Grooved Winders	12'	6" x 12" x 20'	(8) 12" Pilings

Figure 2-2. Launch and Recovery Lift Description

Figure 2-3. Example of Mobile Boat Hoist on Tracks Over Water

LDUUV Recharging

Two types of LDUUV power sources would be utilized: a lithium-ion battery and a hydrogen (H_2)-oxygen (O_2) fuel cell. The lithium-ion battery would be charged via electrical connection on Pier 160 or inside Building 9. The batteries would remain inside the LDUUV during recharging operations. The fuel cell would be charged only at Pier 160. To recharge the fuel cell, a controlled area would be established with safety bollards on Pier 160 (Figure 2-1). This may require moving existing, double-stacked International Standard Organization (ISO) containers on Finger A to the end of Finger A. The equipment that would be placed within the controlled recharging area would be surrounded by bollards to provide protection of the following equipment:

- Compressed hydrogen (H_2) storage cylinders
- Compressed oxygen (O_2) storage cylinders
- H_2 compressor
- O_2 compressor

Fuel cell recharging operations for the LDUUV are 3-5 day events that would occur approximately once a month and in a two-part process. First, commercial gas trucks will deliver H_2 and O_2 compressed gas on separate days in Department of Transportation (DOT) certified cylinders at standard commercial pressure (approximately 2,400 pounds per square inch [psi]) to Pier 160 where they will be stored in compliance with all applicable regulations and National Fire Protection Association (NFPA) 2 and 55 standards. These gases will then be compressed to higher pressures for the recharging of the vehicle's fuel cell at the pier. This process is detailed below (Figure 2-4). Recharging of the LDUUV's fuel cell would be done at the launch and recovery lift located near the controlled recharging area on Pier 160. The Navy will limit access to the immediate area (which is within the Restricted Area of NBPL and not open to the public) as required to ensure the safety of fuel cell recharging operations.

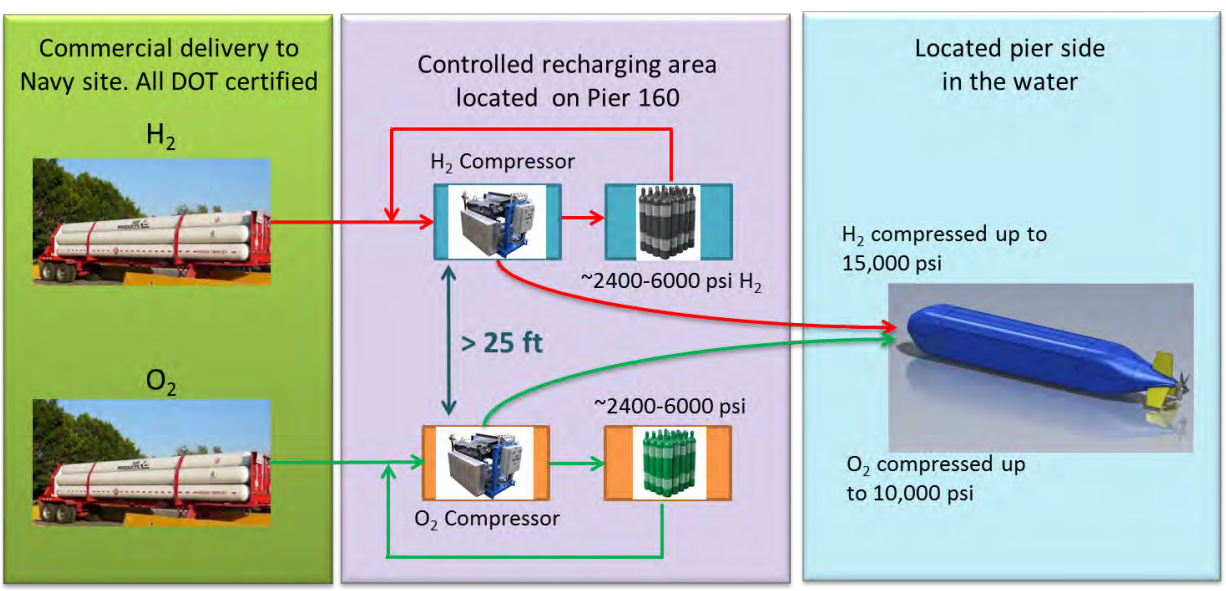


Figure 2-4. Compressed Gas Recharging Process for Fuel Cell LDUUV

2.2.1.2 Building 9 Modifications

The current use of this building is to stage and store research and testing equipment. The building can accommodate the Maintenance and Integration facility needed for the LDUUV. This facility would be used to integrate new payloads into the vehicle, for routine maintenance of the LDUUV, for storage of the

LDUUV(s) during non-testing periods, and for storage of other equipment and tools. Modification would include construction of office space, installation of fencing, and modification of supporting utility systems. Small amounts of petroleum fuel, hydraulic oils, carbon fiber resins and fabrics, and other materials needed for maintenance of the LDUUV and RHIBs would also be kept within existing Bayside facilities. Fuel cell recharging operations would only occur at Pier 160. The LDUUV would be mostly emptied of H_2 and O_2 prior to transport to Building 9 by recovering the gases or by discharging them to the atmosphere.

2.2.1.3 Building 68 Modifications

Building 68 is currently used for research activities and includes a large storage room in the rear of the building. Proposed modifications to this building include replacement of an existing double door with an automated roll-up door tall enough to accommodate forklift access, installation of chain link fence within the room, striping for an adjacent parking space, additional overhead lighting, raising the existing overhead lighting to allow for forklift access, and clearance of an existing double door on the rear wall of the building. Building 68 is separate from Building 9.

2.2.1.4 Flume Bridge Modification

The Flume Bridge is located on Front Street (Figure 2-5) and is on the route from Pier 160 to Building 9. The current slope of the Flume Bridge, which is about 12-20% grade, is problematic for the mobile boat hoist holding the LDUUV and transiting the LDUUV on a trailer. The proposed modification would add concrete or asphalt to each side of the bridge over the current concrete and asphalt to decrease the grade to approximately 7%.

Looking North	Looking South

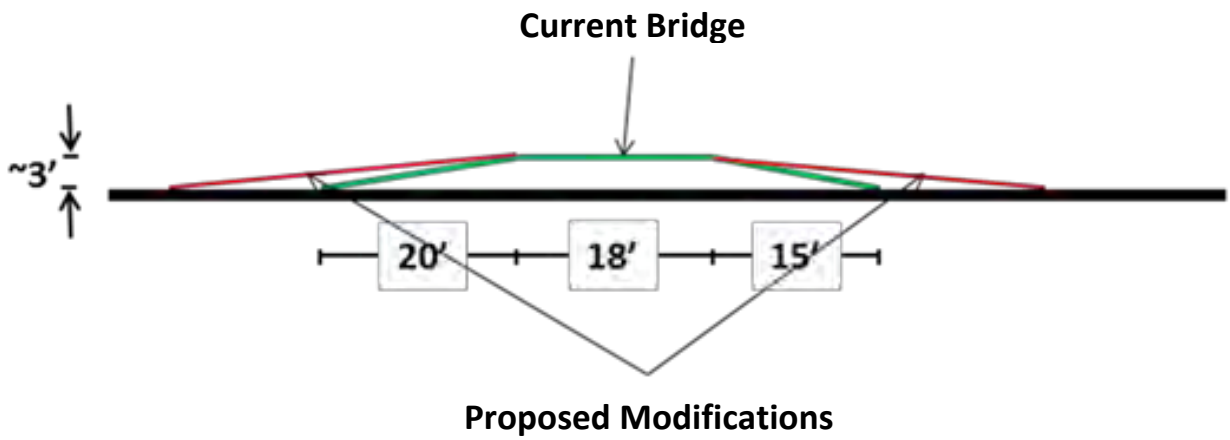


Figure 2-5. Existing Flume Bridge and Proposed Modifications

2.2.2 Temporary Shelter, Transport, and Barge/Floating Boat Dock Options

To provide the necessary out-of-water mooring required for one LDUUV and one RHIB until the launch and recovery lifts and mobile boat hoist tracks at Pier 160 can be installed, the Navy has identified options involving the use of a temporary shelter and self-propelled trailer in combination with either a modular pin barge and floating boat dock, or two floating boat docks. Either option would be placed near the end of Pier 159 or between Fingers A, B and C of Pier 160 and used until no longer required. Additional details are provided below.

2.2.2.1 Temporary Shelter

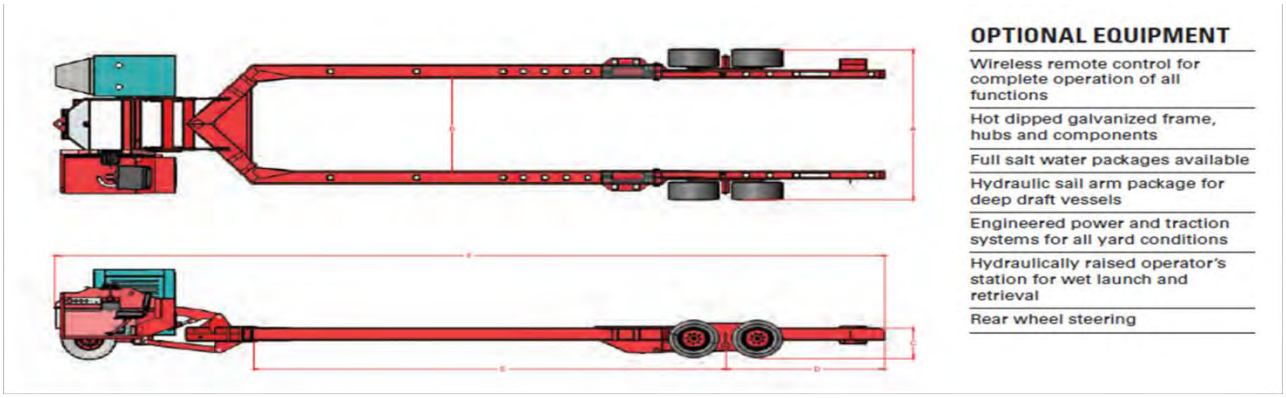
The temporary shelter would be a polyvinyl covered metal frame tent, approximately 20 ft wide, 40 ft long, with a center height of 20 ft, similar to the one shown in Figure 2-6. The shelter would primarily be used to store and to perform minor maintenance on the LDUUV such as inspecting the vehicle's operating systems, adjusting sensors, aligning fins, and removing panels for repair. All major maintenance activities, including any activities that require grinding metal, repair of carbon fiber components, or the use or transfer of fluids, would occur in Building 9. Two standard ISO containers (8 ft x 20 ft), one placed

at each end of the shelter, would be used to provide storage of LDUUV equipment and to provide additional protection for the shelter.

Figure 2-6. Example of a Temporary Shelter

2.2.2.2 Self-Propelled Transport

A self-propelled trailer made by Conolift, shown in Figure 2-7, would be used to transport the LDUUV between Pier 160 and Building 9. The Conolift could also be used to launch and recover the LDUUV at the Pier 160 boat ramp under favorable high tide conditions.



MODEL	LOAD CAPACITY	TRAVEL SPEED	GRADE CAPABILITY	SELF-PROPELLED TRAILER DIMENSIONS						BOAT LENGTH
				A	B	C	D	E	F	
SP-30	60,000 LBS	0 - 6 MPH	8%	121" - 151"	84" - 114"	24" - 62"	10' 6"	27' 4"	50' 0"	28' - 50'

Figure 2-7. Self-Propelled Trailer (Conolift)

2.2.2.3 Pin Barge and Floating Boat Dock

With the modular pin barge option, the pin barge could be up to 150 ft long and 50 ft wide and would include a small floating boat dock for one RHIB. The pin barge would have a moon pool in the center section to moor the LDUUV and two 150-horse power outboard motors to transport, launch, and recover the LDUUV at a pre-determined location outside San Diego Bay. The pin barge would either remain at the launch site to recover the LDUUV or would return to Pier 160 and recover the LDUUV at a later time. Figure 2-8 shows an example pin barge, which would be transported to SSC Pacific by truck, rail and/or tug as needed depending on the source. The floating dock would be the same as the smaller floating dock described in Section 2.2.2.4.

A mobile, hydraulic truck crane positioned on Pier 160 would be used to lift and lower the vessels between the pin barge and the topside of the pier. The truck crane is mobile, is legally allowed to drive on highways, and would be driven to Pier 160 or the NBPL Main Base piers, if used. Alternatively, existing infrastructure at the NBPL Main Base piers (north, middle, and south) could also be used to move the vessels between the water and topside of the pier.

Figure 2-8. Example of a Pin Barge

2.2.2.4 Two Floating Boat Docks

The floating boat dock option (Figure 2-9) involves two floating basins that could serve as dry docks. The floating boat docks could be raised or lowered to allow the vessels to be driven onto them. The same operation would be done for the vessels to slide off the floating boat docks into the water. The LDUUV floating boat dock would be up to 37 ft wide and 67 ft long, and the RHIB floating boat dock would be 15 ft wide and 45 ft long. The mobile, hydraulic truck crane described above would be used to raise and lower the vessels between the floating docks and topside of the pier at Pier 160. Alternatively, existing infrastructure at the NBPL Main Base piers (north, middle, and south) could also be used to move the

vessels between the water and topside of the pier. The proposed location of the floating boat docks and the mobile crane at Pier 160 are shown in Figure 2-10. Both floating boat docks would be attached to the appropriate Pier's existing concrete piles, would arrive at SSC Pacific unassembled in semi-trucks, and would be assembled onsite.

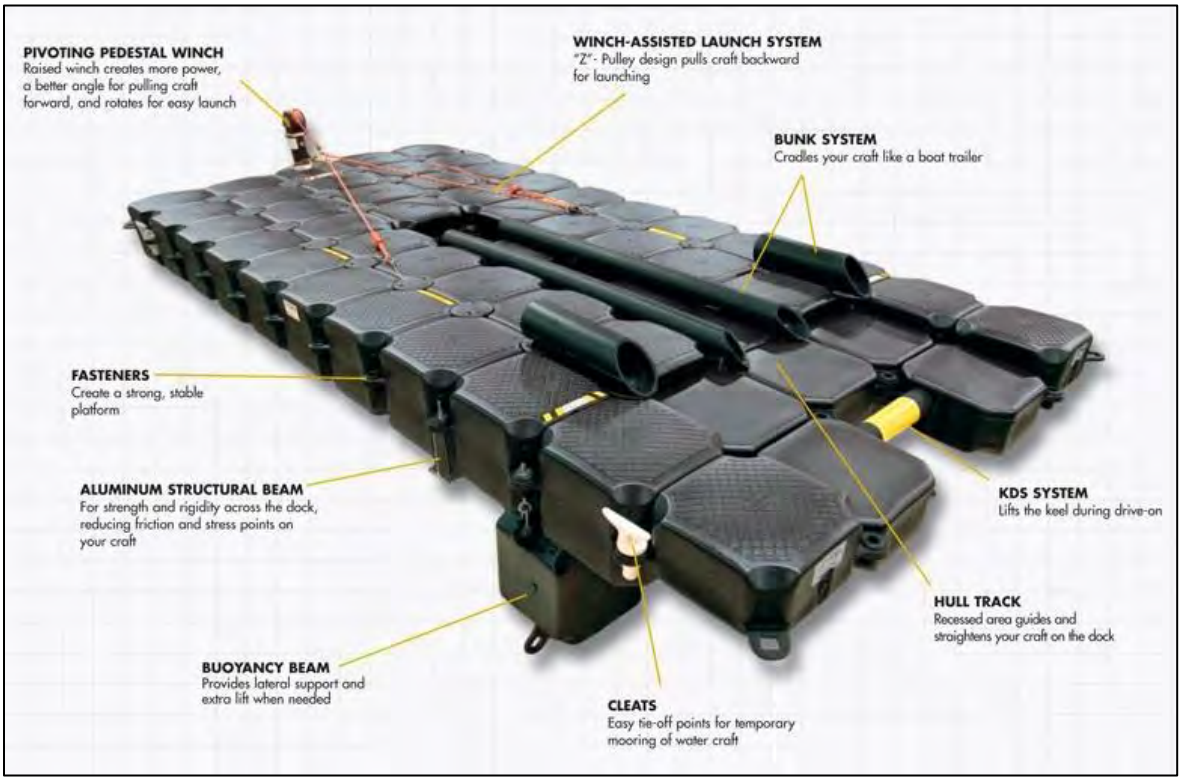


Figure 2-9. Example of a Floating Boat Dock

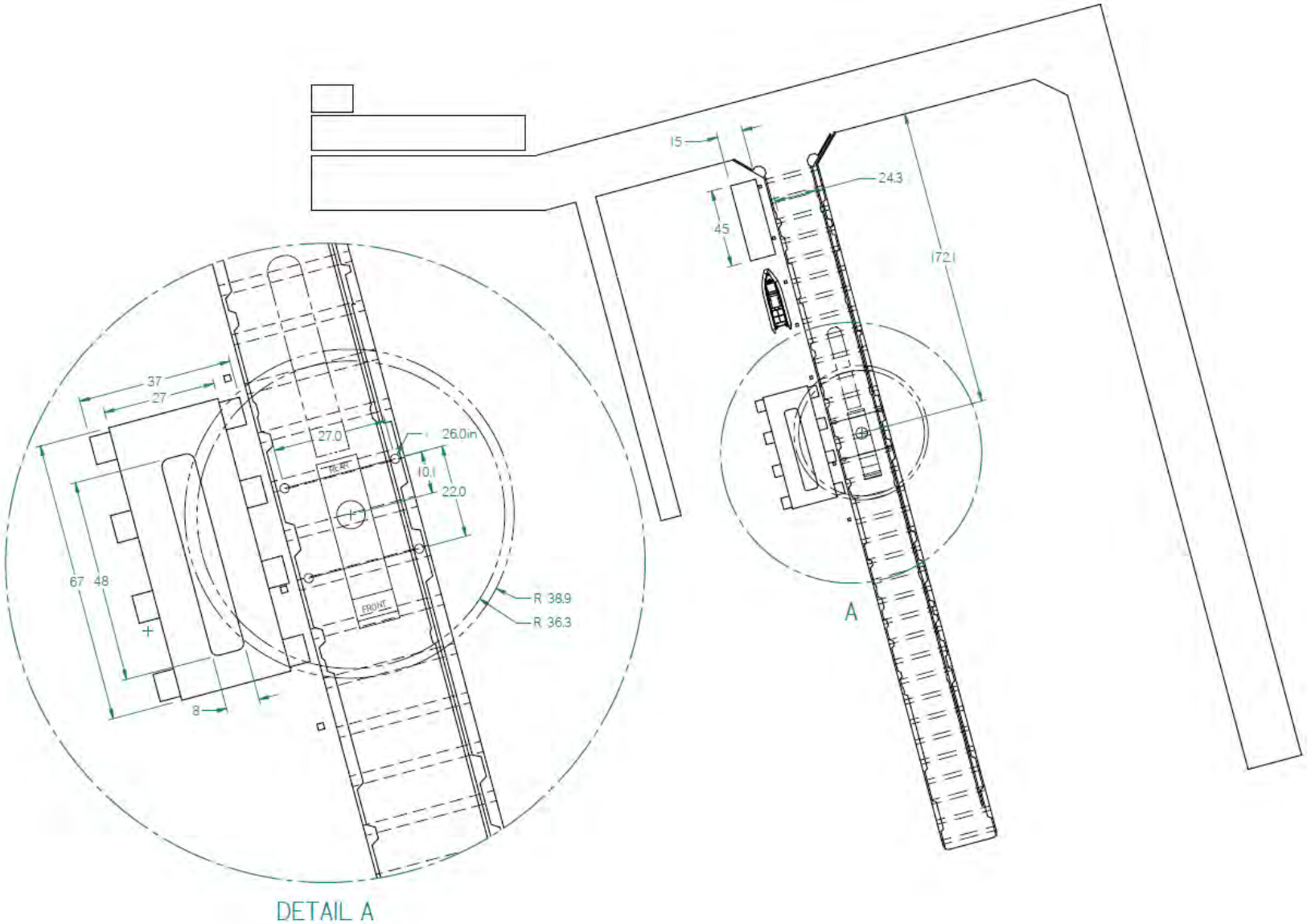


Figure 2-10. Proposed LDUUV and RHIB Floating Boat Docks and Truck Crane at Pier 160

2.2.3 Proposed Avoidance and Minimization Measures/Special Conservation Measures (SCMs)

The following measures are proposed for incorporation into the Proposed Action to minimize potential impacts.

1. The approved NMFS/California Department of Fish and Wildlife (CDFW) *Caulerpa* Control Protocol (Version 4, February 25, 2008), including a pre-construction *Caulerpa* survey and follow-up action if necessary, would be followed.
2. Pile driving would occur outside of the California least tern nesting/foraging season in San Diego Bay, which is April 1 to September 15.
3. Piles may be jetted to minimize pile driving and associated underwater and airborne noise.
4. A cushion block would be used to reduce airborne noise generated during pile driving activities.
5. To reduce noise impacts, pile driving would only occur during normal work hours (between 7 A.M. and 5 P.M.) Monday through Friday.
6. To encourage fish and wildlife dispersal away from the immediate area of pile driving, at the start of each day's pile driving activity or when pile driving has ceased for more than an hour, a soft-start technique would be used involving a gradual ramp-up before pile driving reaches full energy.
7. A biological monitor would be stationed on Pier 160 and would order a shutdown of pile driving any time a wild marine mammal or sea turtle is observed within or approaching the zone of potential harassment defined by a root mean square (RMS) underwater sound pressure level (SPL) of 160 decibels (dB) referenced to 1 micro Pascal (re 1 µPa). This is currently estimated as extending 74 m from the source, based on a worst case RMS SPL of 173 dB re 1µPa at 10 m from the source, and application of the NMFS-approved practical spreading model for transmission loss (Caltrans 2013). Site-specific data or more realistic estimates of sound levels would be applied should they become available.
8. The barge and floating boat docks, if used at Pier 159, would be positioned so that no eelgrass is shaded.

2.3 NO-ACTION ALTERNATIVE

Although the No-Action Alternative would not meet the purpose and need of the project, it is carried forward for analysis in this EA. In this case, the No-Action Alternative represents the status quo, with no change to existing conditions. However, it should be noted that the No-Action Alternative would impede the development of the LDUUV program and thereby delay the extension and augmentation of current Navy platform capabilities and negatively impact planned testing activities in the SOCAL Range Complex.

2.4 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR DETAILED ANALYSIS

2.4.1 General Location Alternatives

ONR performed a feasibility study of four Navy laboratories around the U.S. and determined that SSC Pacific is the most suitable location to support the LDUUV Program (Table 2-1). Naval Ordnance Test Station Pier at San Clemente Island was also considered but eliminated due to its remote location. The criteria used to make this determination was based on proximity to a fleet concentration area, number of available test days with appropriate sea-states, test costs, test area, and existing infrastructure in place. For

these reasons, as well as the availability of shore infrastructure, scientific and technical expertise, and continuity of support to the LDUUV Program, SSC Pacific was selected. Hence the scope of alternatives considered was limited to alternative modifications that could provide the same secure waterside capabilities to dock, launch, recharge, and hoist the LDUUVs; the same capacity to develop a shoreside Maintenance and Integration facility within an existing building; and road access to move the LDUUVs between waterside and shoreside facilities.

Table 2-1. ONR Technical Evaluation Results

Location	Criteria				
	Available Test Days	Test Area	Test Costs*	Facilities	Proximity to Fleet
NSWC Panama City	- Days with < 1.25m wave heights: 70%	- Large range - One day transit to deeper waters		- Variety of test ships available - Existing L&R system could be modified - Two high bay buildings; one 10,000 lift - Storage of H_2 and O_2 possible	- None
NUWC Newport	- Days with < 1.25m wave heights: 46%	- Small test area (mostly 100ft depth near shore)		- Boats to support testing - No discussion of vehicle storage or maintenance - No discussion of H_2/O_2 fueling or handling capability	- Naval War College
NUWC Keyport	-Days with < 1.25m wave heights: 18%	Small test area near Keyport		-Variety of test boats available -Storage and maintenance facility adequate -H_2/O_2 recharging is possible	- DEVRON 5 and Naval Base Kitsap
SSC Pacific	- Days with < 1.25m wave heights: 71%	- Large test area, including corridor to Hawaii		- Classified lab for mission planning and navigation software - High bay provided for vehicle maintenance - Dedicated building with overhead crane - Secure area for H_2/O_2 compressed storage and charging	- NMAWC and 3rd Fleet HQ

**Note*: due to the sensitivity of cost information, projected costs have been omitted from this document.

Red: Unacceptable Yellow: Marginal Green: Acceptable Blue: Outstanding

2.4.2 Local Location Alternatives

The Navy considered a number of alternative locations in the San Diego region in terms of capabilities to provide the necessary infrastructure. In addition to SSC Pier 160, the following possible locations were identified as warranting further investigation:

- SSC Pier 302 (immediately south of Pier 160, used by Navy Marine Mammal Program [MMP])
- SSC Pier 159 (immediately north of Pier 159, used by the Navy MMP)
- NBPL Main Base piers (north, middle, and south, located on the Naval Submarine Base)

- Naval Base San Diego (NBSD, central San Diego Bay)
- Naval Base Coronado (NBC) - Naval Amphibious Base (NAB) Pier 16 (central San Diego Bay)
- San Clemente Island NOTS Pier

Along with SSC Pier 160, the alternatives were evaluated according to how well they met logistical, infrastructure, and security criteria for the LDUUV program; the results are summarized below in Table 2-2. While each location met several criteria, Pier 160 was found superior overall based on proximity to classified laboratory space; avoidance of travel over public roads; available space for the Integration and Maintenance Area; no encumbrance due to explosive safety quantity distance (ESQD); docking and mooring capability; an existing pier with room to accommodate the LDUUVs and RHIBs; and presence of a high-bay building nearby.

Table 2-2. Comparison of Local Alternative Locations for LDUUV Program Infrastructure

INSTALLATION	***SSC***	***SSC***	***SSC***	***NBPL***	***NBSD***	***NBC - NAB***	***SCI***
Facility	**Pier 160**	**Pier 302**	**Pier 159**	**Main Base Piers**	**Any**	**Pier 16**	**NOTS**
LOGISTICS							
Access to Navy sea range	yes	yes	yes	yes	yes	yes	yes
Proximity to Int & Maint Facility (IMF) < 1 mile	yes	yes	yes	yes	no	no	no
INFRASTRUCTURE							
Ability to launch & recover LDUUV w/o modifications	requires piles for mobile boat hoist; access- boat ramp too shallow; possible w/ moveable crane	pier can't handle weight of crane- boat ramp too shallow	pier can't handle weight of crane- boat ramp too shallow	possible w/ movable crane- boat ramp too shallow	possible w/ movable crane	yes- pier designed for crane	possible
Docking & mooring space avail	yes- underutilized pier	yes; not until MMP moves	yes; not until MMP moves	no - designed for submarines	no- pier space at NBSD is at premium	no- pier used by CBs	yes
Pier space available for recharging facility	yes	yes; not until MMP moves	yes; not until MMP moves	no- incompatible w/ existing operations	no	no- incompatible with existing operations	possible

INSTALLATION	***SSC***	***SSC***	***SSC***	***NBPL***	***NBSD***	***NBC - NAB***	***SCI***
Facility	**Pier 160**	**Pier 302**	**Pier 159**	**Main Base Piers**	**Any**	**Pier 16**	**NOTS**
INFRASTRUCTURE (Continued)							
Existing pier w/no ESQD arc	yes	yes	yes	no- has explosive arc	yes/no	yes	no
Crane w/ existing 70,000 lbs lift capacity	no	no	no	no	no	yes	no
Ability to use mobile boat hoists	no- requires mod	no- requires mod	no- requires mod	no- requires mod	no- requires mod	yes	no- requires mod
Ability to moor floating boat dock or barge	yes	yes; not until MMP moves	yes; not until MMP moves	no	no	no	no
Space avail in nearby high bay building for IMF	yes	yes	yes	yes	not sure	no	no
Classified lab space < 1 mile	yes	yes	yes	no	no	no	no
SECURITY							
Waterfront security - patrolled	yes	yes	yes	yes	yes	yes	not routine
Controlled access to pier	yes	yes	yes	yes	yes	yes	yes; Navy-controlled island

Note: SSC = SPAWAR Systems Center; NBPL = Naval Base Point Loma; NBSD = Naval Base San Diego; NBC – NAB = Naval Base Coronado, Naval Amphibious Base; SCI = San Clemente Island; MMP = Marine Mammal Program.

CHAPTER 3
AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This chapter describes the existing environmental conditions on and around the project area for resources potentially affected by implementation of the alternatives discussed in Chapter 2. Information presented in this chapter represents baseline conditions and identifies potential impacts against which the Proposed Action and the No-Action Alternative are evaluated.

3.1 BIOLOGICAL RESOURCE HABITATS AND COMMUNITIES

3.1.1 Definition of Resource

Biological resource habitats and communities include terrestrial and marine flora and fauna and the habitats in which they occur within the areas that may be affected by the Proposed Action. For purposes of this EA, the general biotic features of different habitats, including assemblages of plants and invertebrates, are included in this section, whereas separate sections are provided for fisheries (Section 3.2), birds (Section 3.3), marine mammals (Section 3.4), and threatened and endangered species (Section 3.5).

The marine habitats of the project area are navigable waters of the U.S. under the Clean Water Act (CWA) (33 U.S. Code [USC] § 1344) and Rivers and Harbors Act (RHA) (33 USC § 403). In-water work, including pile driving, affecting the navigable waters are regulated under these statutes by the USACE under Section 404 of the CWA and Section 10 of the RHA; regulations are at 33 CFR 320-332.

3.1.2 Affected Environment

Habitats associated with the project area range from -15 to -25 ft mean lower low water (MLLW) and include the artificial substrates (i.e., the pier, including pier pilings), moderately deep subtidal habitat, and deep subtidal habitat, including marine benthic (bottom), water column, and open water habitat. Due to the highly developed, industrial nature of the project area, the Proposed Action would not impact upland biological resources or habitat and upland habitat will not be discussed further.

The shoreline near the project area consists of artificial rock rip-rap. These structures provide microhabitats and support communities similar to those of natural rocky shores outside San Diego Bay. These areas may also provide refuge and feeding areas for juvenile and predatory fishes (NAVFAC Southwest and Port of San Diego 2013).

Within San Diego Bay, structures along the shoreline and surrounding open waters, including Pier 160 and Pier 159, are heavily used by gulls, brown pelicans (*Pelicanus occidentalis californicus*), cormorants, and surf scoters (*Melanitta perspicillata*) (NAVFAC Southwest 1994, 2000; Tierra Data, Inc. 2011). Artificial substrates, such as the pilings and bulkheads for the fuel pier, rock riprap, floating docks, seawalls, and mooring systems support a wealth of invertebrates and seaweeds. Invertebrates comprise a significant portion of the organisms present in the San Diego Bay and serve as important components of bay habitats and essential food sources for marine life (NAVFAC Southwest 2010). California spiny lobster (*Panulirus interruptus*) and a variety of crabs, worms, mussels, barnacles, echinoderms (sea stars and sea urchins), sponges, sea anemones, and tunicates (sea squirts) inhabit artificial structures (NAVFAC Southwest and Port of San Diego 2013).

Moderately deep subtidal habitats include the surface water, water column, and sediments in areas from -12 to -20 ft MLLW. Within moderately deep subtidal habitat, primary production by phytoplankton and zooplankton occurs in the overlying water column. No information specific to this intermediate depth

exists for invertebrates or plankton, although benthic primary production is limited due to low light penetration. Primary production by phytoplankton and zooplankton occurs in the overlying water column. Eelgrass beds are not found in the project area and only algal mats were "very sporadically found" within the project area during the 30 April 2013 EFH survey and no single mat was larger than 2 ft^2 (Figure 3-1, Appendix B). Moderately deep water is favored by bottom feeding diving birds and plunge divers, including both the California least tern (*Sterna antillarum browni*) and brown pelican because the water surface and column are typically more open. The California least tern is discussed in greater detail in Section 3.5. Typical fish species include round stingray (*Urobatis halleri*), spotted sand bass (*Paralabrax maculatofasciatus*), California halibut (*Paralichtyhys californicus*), and barred sand bass (*Paralabrax nebulifer*). Diving waterbirds forage in or adjacent to the project area (NAVFAC Southwest 2010, NAVFAC Southwest and Port of San Diego 2013).

A small portion of the project area also includes deep subtidal habitat that are greater than -20 ft MLLW in depth. Deep subtidal habitat is used by a wide variety of vertebrate and invertebrate species that may spend all or part of their lives in these areas. Both fish and bird abundance and diversity is less in the deep subtidal zone than shallower areas. According to fish surveys of San Diego Bay, fish species accounting for the greatest biomass in deep subtidal areas are the round stingray, spotted sand bass, and bat ray (*Myliobatis californica*), respectively. Numerically, schooling bait fish, such as topsmelt (*Atherinops affinis*) and anchovies (*Engraulis spp*.) occur in the greatest abundance. Many different waterbirds use the open water for feeding and resting. Common bird species include pelicans, cormorants, grebes, surf scoter, elegant tern (*Sterna elegans*), and other tern species. Marine mammals also use these habitats (NAVFAC Southwest and Port of San Diego 2013).

3.1.3 Environmental Consequences

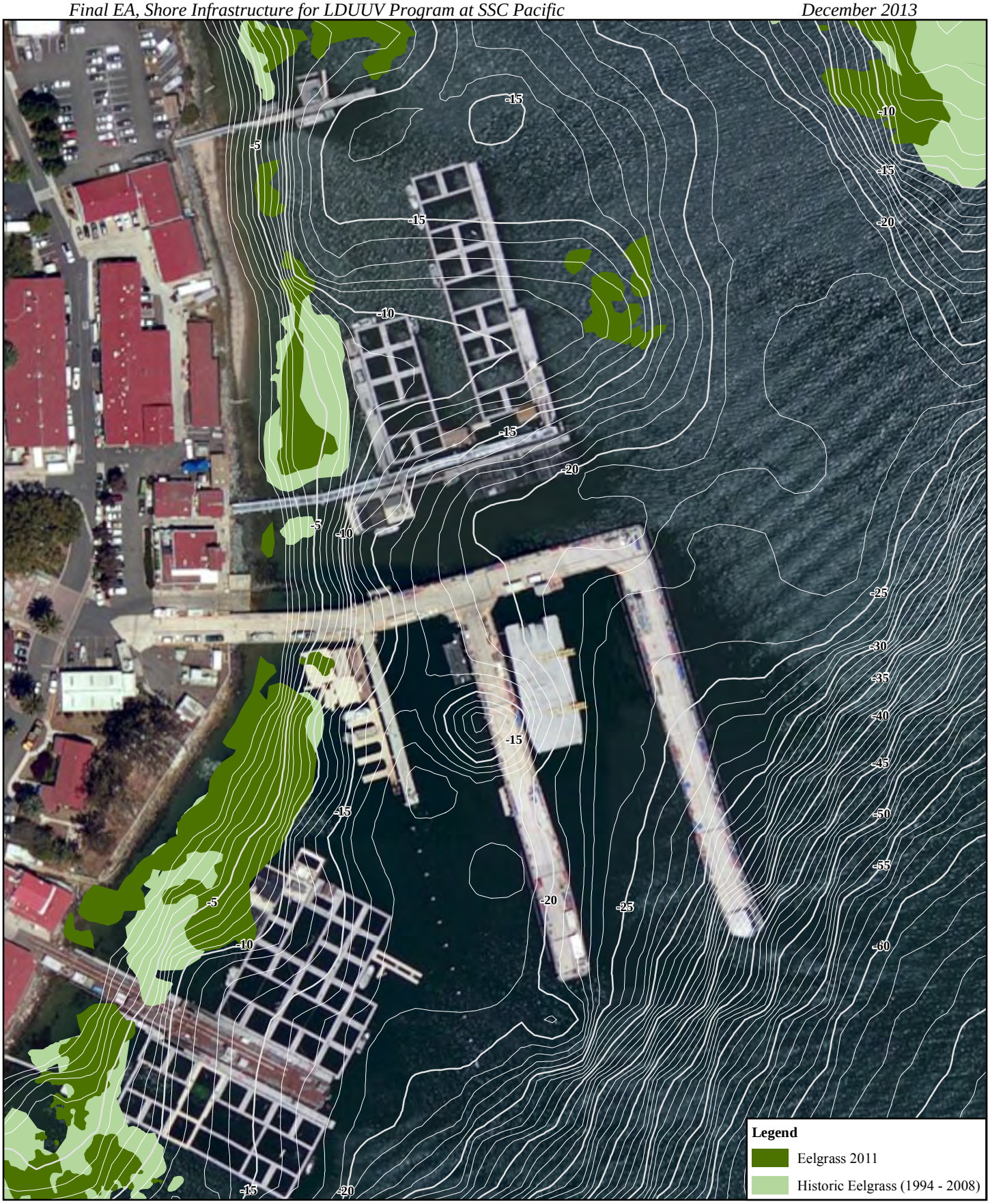
3.1.3.1 Approach to Analysis

The analysis identifies the potential significance of impacts to biological resource habitats and communities based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration and ecological ramifications of the impact. For example, an impact would be considered significant if it would permanently reduce the population size or distribution of a protected species.

3.1.3.2 Proposed Action

Pile driving would cause minor, temporary, and localized impacts to nonvegetated soft bottom benthic communities within and adjacent to the project area. Organisms occurring in the immediate area may be lost or displaced directly by equipment and noise associated with pile driving. Piles may be jetted to minimize pile driving and associated underwater and airborne noise. A cushion block would also be used to reduce airborne noise generated during pile driving activities. Turbidity due to pile installation would be minimal because the sediments are known to be sandy. Therefore, any temporary increase in turbidity would not significantly impact benthic or water column habitats in the project area. There would be no residual effects beyond pile driving activities.

A survey for the invasive alga *Caulerpa taxifolia* would be conducted before initiating in-water project activities, consistent with NMFS and California Department of Fish and Wildlife (CDFW) requirements (NMFS 2008). If *Caulerpa taxifolia* is found in the study area during this survey, NMFS-approved *Caulerpa* Control Protocols would be followed. Therefore, the Proposed Action would not result in significant impacts to special aquatic sites due to *Caulerpa*.



0 50 100 Feet

0 25 50 Meters

Figure 3-1
Bathymetry and Eelgrass in the Project Area

N

Merkel and Associates (1999) found that structures provide increased three-dimensional substrate for encrusting organisms. The proposed increase in pile counts and habitat area for encrusting organisms would likely result in a greater abundance. Varying pile exposure to light and dark would be expected to increase the species' variety of encrusting communities. An increase in encrusting an organism's abundance and variety would likely contribute to increased diversity and foraging opportunities for groundfish and other species that feed on these organisms. Implementation of the Proposed Action would not alter the area of the bay that is shaded by artificial structures.

Implementation of the temporary shelter, transport, and barge/floating boat dock options would result in minor shading due to the barge and single floating boat dock (0.19 ac total) or two floating boat docks (0.07 ac total). These structures would remain in place until they are no longer required. Given the absence of eelgrass and the placement of these components alongside Pier 160 or Pier 159, this shading would be inconsequential. There would be no impact to biological resource habitats and communities from use of the temporary shelter or transport.

LDUUV maintenance activities would not affect biological resource habitats and communities. Therefore, for reasons describe above and with the implementation of the proposed minimization and conservation measures (see Section 2.2.1.5), the Proposed Action would not result in significant impacts to biological resource habitats and communities.

3.1.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to biological resource habitats and communities.

3.2 FISHERIES

3.2.1 Definition of Resource

This section describes the fish species and their habitats that occur in the northern San Diego Bay project area. Since implementation of the proposed project would have no more than a minimal, temporary, adverse effect on Essential Fish Habitat, this section also includes an Essential Fish Habitat Assessment as required by the Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801).

3.2.2 Affected Environment

3.2.2.1 Fish Species

Numerous surveys have been conducted over the last few decades in the San Diego Bay region to quantify fish diversity and abundance; among the most comprehensive were surveys by Allen et al. (2002) and the Vantuna Research Group (2006, 2009). These and other works related to fish and EFH were characterized by Merkel & Associates, Inc. (NAVFAC Southwest 2010). Approximately 90 species of bottom living and open water fishes occur in the 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 (NAVFAC Southwest 2010). Eelgrass does not occur in the project area (see Figure 3-1). Based on the sandy sediment found at the SIO to the north and at the Navy's Fuel Facility (Military Construction [MILCON] P-151) to the south, sediment within the project area is also known to be sandy (Navy 2012; SIO and Navy 2013). Sandy floors have approximately two-thirds the species diversity of artificial reefs; piers and rock riprap have approximately one-half the fish diversity of artificial reefs (NAVFAC Southwest and Port of San Diego 2013).

The ten most common fish species sampled in the north bay, each with over 500 individuals found between July 1994 and April 1999, make up approximately 98 percent of the total sample. These ten fish species are:

- Northern anchovy (*Engraulis mordax*)
- Topsmelt (*Atherinops affinis*)
- Pacific sardine (*Sardinops sagax caeruleus*)
- Slough anchovy (*Anchoa delicatissima*)
- California grunion (*Leuresthes tenuis*)
- Shiner surfperch (*Cymatogaster aggregata*)
- Giant kelpfish (*Heterostichus rostratus*)
- Round stingray (*Urolophus halleri*)
- Bay pipefish (*Syngnathus leptorhynchus*)
- Cheekspot goby (*Ilypnus gilberti*)

The northern anchovy (62 percent) and topsmelt (22 percent) were the most abundant species found during surveys between July 1994 and April 1999. Based on Allen et al. (2002), the project area is also likely to contain dungeness crab (*Cancer magister*), Pacific rock crab (*Cancer anternnarius*), red tube worm (*Surpula vermicularis*), and giant green anemone (*Anthopleura xanthogrammica*).

Most, if not all, of the fish species occurring in the area routinely experience turbid and noisy conditions due to natural processes and ship traffic within the industrialized north bay. Additional details on ambient noise in the project area are provided in the Draft Naval Base Point Loma Fuel Pier Replacement and Dredging (MILCON P-151/DESC1306) Environmental Assessment (Navy 2012), and additional details on fish species in San Diego Bay are provided in the San Diego Bay Integrated Natural Resources Management Plan (INRMP) (NAVFAC Southwest and Port of San Diego 2013).

3.2.2.2 Essential Fish Habitat (EFH)

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) set forth the EFH provisions to identify and protect important habitats of federally managed marine and anadromous fish species. Section 305(b)(2) of the amended Magnuson-Stevens Act directs each Federal Agency to consult with 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 Magnuson-Stevens Act. Implementing regulations for this requirement are at 50 CFR 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] 2011) and the Coastal Pelagic Species (PFMC 1998a) – and may adversely affect EFH, the U.S. Navy is required to consult with NMFS.

The Pacific Coast Groundfish FMP manages at least 89 species, five of which are likely to occur within the San Diego Bay project area (NAVFAC Southwest 2000; Allen et al. 2002; Vantuna Research Group 2006, 2009; PFMC 2011), and the FMP for Coastal Pelagic Species includes five species, four of which are likely to occur in the San Diego Bay project area (PFMC 1998a). These species are listed in Table 3-1; additional details, such as life histories, are provided in the San Diego Bay INRMP (NAVFAC Southwest and Port of San Diego 2013). Coastal pelagic species are those fish that live in the water column, from the surface to -3,300 ft MLLW. Although groundfish species are considered demersal and generally live on or near the sea floor, they occupy diverse habitats at all stages in their life histories. No Habitat Areas of Particular Concern (HAPCs), including eelgrass (see Figure 3-1), occur within the project area.

Table 3-1. Fish Species with EFH Likely to Occur in the Proposed San Diego Bay Project Area

Common Name	***Scientific Name***
Coastal Pelagics	
Northern anchovy	*Engraulis mordax*
Pacific sardine	*Sardinops sagax*
Jack mackerel	*Trachurus symmetricus*
Pacific mackerel	*Scomber japonicas*
Groundfish	
Curlfin sole	*Pleuronichthys decurrens*
English sole	*Pleuronichthys vetulus*
California scorpionfish	*Scorpaena guttata*
Grass rockfish	*Sebastes rastrelliger*
Leopard shark	*Triakis semifasciata*

3.2.3 Environmental Consequences

3.2.3.1 Approach to Analysis

The analysis identifies the potential significance of impacts to fisheries and EFH based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration and ecological ramifications of the impact. For example, an impact would be considered significant if it would permanently reduce the population size or distribution of a protected species.

Impacts to fisheries associated with the Proposed Action would be primarily from increased underwater noise associated with pile driving. Underwater noise levels associated with pile driving were modeled using a NMFS-approved practical spreading model for transmission loss (Caltrans 2013) based on an estimated RMS SPL of 173 dB re 1μPa at 10 m from the source. This RMS SPL is based on 16-inch concrete piles driven at (the former) Naval Weapons Station Concord (Caltrans 2012).

<u>Duration of Activities</u>

No work would begin on the Proposed Action until all required permits and approvals are in place. A total of up to 72 concrete piles would be installed. It is assumed that the contractor will drive approximately three to five piles per day over a period of 13 to 24 days. Each pile is assumed to require up to two hours of driving and would require up to 200 strikes for a worst-case maximum of 1,000 strikes per day. Piles may be jetted to minimize pile driving and associated underwater noise. Pile driving would occur only during daylight hours, 7:00 A.M. to 5:00 P.M, Monday through Friday.

3.2.3.2 Proposed Action

The primary impacts to fish communities and habitats in the project vicinity would be from pile installation, which would result in increased underwater noise. Since many fish use their swim bladders for buoyancy, they are susceptible to rapid expansion/decompression due to peak pressure waves from underwater noises (Hastings and Popper 2005). At a sufficient level this exposure can be fatal. In 2008, NOAA Fisheries, U.S. Fish and Wildlife Service (USFWS), CDFW, and transportation agencies of California, Oregon, and Washington agreed in principle to assess project effects using Interim Criteria for Injury to Fish from Pile Driving Activities (Fisheries Hydroacoustics Working Group 2008). These interim criteria are provided in Table 3-2. The criteria were developed principally for endangered

salmonids in the Northwest and are conservative, indicating the potential for the identified effect, rather than a likelihood of occurrence (Popper and Hastings 2009; Halverson et al. 2011). The Navy has not adopted these criteria.

Table 3-2. Interim Criteria for Fish Injury and Disturbance by Underwater Sound from Pile Driving

Effect	*Size of Fish*	*Underwater Impact Pile Driving Criteria*
Onset of Injury	All fish	206 dB peak re: 1μPa
	≥ 2 grams	187 dB SEL re: 1μPa^{2}sec
	< 2 grams	183 dB SEL re: 1μPa^{2}sec
Behavioral Effects	All fish	150 dB RMS re: 1μPa

Note: N/A = not available; RMS = root mean square; SEL = sound exposure level

Based on the worst-case RMS SPL of 173 dB re 1μPa at 10 m from the source, model results indicate that:

- the 206 dB peak injury threshold would not be reached;
- the cumulative SEL threshold for fish less than 2 grams and greater than or equal to 2 grams would be minimal (7 m and 14 m from the pile being driven, respectively); and
- the behavioral effects threshold would be relatively small, extending up to 341 m from the pile being driven.

As such, the areas of potential injurious effects are minimal (approximately 0.15 acres and 0.04 acres for fish less than 2 grams and fish greater than or equal to 2 grams, respectively), and the zone of potential influence that may cause a change in fish behavior is relatively small (Figure 3-2). Fish would be expected to disperse away from or avoid the area of potential injury during pile driving rather than remain stationary and risk injury. Piles may be jetted to minimize pile driving and associated underwater noise.

Fish species occurring in the immediate areas identified could also be displaced during project activities indirectly by temporary changes in suspended sediments, turbidity, dissolved oxygen, and changes in light diffusion. However, turbidity due to pile installation would be minimal because the sediments are known to be sandy. Furthermore, most if not all of the fish species occurring in the area routinely experience turbid and noisy conditions due to natural processes and ship traffic within the industrialized north bay. There would be no residual effects beyond pile driving activities.

As described in Section 3.1.3.2, the proposed increase in pile counts and habitat area for encrusting organisms would likely result in greater abundance and diversity, which would likely contribute to increased diversity and foraging opportunities for groundfish and other species that feed on these organisms.

The grated walkways would not shade the bottom to an appreciable extent. Implementation of the temporary shelter, transport, and barge/floating boat dock options would result in shading due to the barge and single floating boat dock (0.19 ac total) or two floating boat docks (0.07 ac total). These structures would remain in place until they are no longer required. Given the absence of eelgrass and the placement of these components alongside Pier 160 or Pier 159, this bot shading would be inconsequential. There would be no impact to fisheries from use of the temporary shelter or transport.

As described above, implementation of the Proposed Action would result in minor, temporary adverse impacts to fish species and communities. However, due to the temporary and limited nature of the project activities within a limited geographic area, and since fish species would return to the project area

Figure 3-2. Noise Contours Associated with the Proposed Action and Least Tern Foraging Habitat

following the completion of in-water activities, implementation of the Proposed Action would not result in significant impacts to fish communities. Impacts to EFH under the Magnuson-Stevens Act are discussed in the EFH section below.

Essential Fish Habitat (EFH)

The Navy consults with NMFS regarding actions, such as the proposed project, that have the potential to adversely affect EFH. Since implementation of the proposed project would have no more than a minimal, temporary, adverse effect on Essential Fish Habitat, this section is included as the Essential Fish Habitat Assessment required by the Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801).

Of the approximately 90 species of fish previously identified in San Diego Bay, nine are managed by NMFS under two FMPs - the Coastal Pelagics and Pacific Groundfish Management Plans (PFMC 1998a, 1998b, 2011). Four are managed under the Coastal Pelagics FMP: northern anchovy; pacific sardine; pacific mackerel; and jack mackerel. Five species are covered under the Pacific Groundfish FMP and occur, although not in abundance, in San Diego Bay: California scorpionfish; grass rockfish; English sole; curlfin sole; and leopard shark (NAVFAC Southwest 2010; NAVFAC Southwest and Port of San Diego 2013).

Two species (northern anchovy and Pacific sardine) can be found throughout San Diego Bay. Jack mackerel were only found at the north bay survey area and Pacific mackerel were found at all but the southern survey station (Allen et al. 2002). All of these species are highly transient, are not tied to artificial substrates, and routinely experience turbid and noisy conditions due to natural processes and ship traffic within the industrialized north bay. No special aquatic sites, such as eelgrass (see Figure 3-1), occur within the project area.

Impacts from in-water project activities and the associated precautionary measures would be the same as described for other fish communities in the “Fisheries” section above. Namely, noise and minimal increase in turbidity associated with in-water construction and deconstruction activities would very temporarily displace EFH species within a very limited scope. These impacts would result in no more than a minimal, temporary, adverse effect on EFH per the Magnuson-Stevens Act and would not be significant under NEPA due to the very temporary and very limited nature of the impacts. Over time, algae and invertebrates would be expected to colonize the new pilings and contribute to increased diversity and foraging opportunities for groundfish and other species that feed on these organisms.

As described above, implementation of the temporary shelter, transport, and barge/floating boat dock options would result in minor shading due to the barge and single floating boat dock (0.19 ac total) or two floating boat docks (0.07 ac total). These structures would remain in place until they are no longer required. Given the absence of eelgrass and the placement of these components alongside Pier 160 or Pier 159, this increase in shading would be inconsequential. There would be no impact to EFH from use of the temporary shelter or transport.

Based on this analysis, the implementation of the Proposed Action would have only minimal adverse effects on EFH, these effects being of limited duration and involving relatively small and insignificant changes to EFH and its ecological functions. This EA contains the Navy’s EFH Assessment that was provided to NMFS for consultation on EFH. NMFS concurred with this assessment (Appendix D).

3.2.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to fisheries.

3.3 BIRDS

3.3.1 Definition of Resource

This section describes birds within or adjacent to areas directly or indirectly affected by the proposed project. The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703 et seq.) and the Migratory Bird Conservation Act (16 USC 715 et seq.) of February 18, 1929 (45 Stat. 1222) are the primary legislation in the United States established to conserve migratory birds. The MBTA prohibits the taking, killing, or possessing of migratory birds, or the parts, nests, or eggs of such birds, unless permitted by regulation. The species of birds protected by the MBTA are listed in Title 50, Section 10.13, of the Code of Federal Regulations (50 CFR 10.13) and represent almost all avian species found in North America. The Migratory Bird Conservation Act mandates migratory bird habitat conservation, including habitat protection, through acquisition, enhancement, and/or management and avoidance and minimization of adverse impacts. Section 3.5, *Threatened and Endangered Species*, provides detailed information on the California least tern.

3.3.2 Affected Environment

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. More than 300 migratory and resident bird species have been documented to use San Diego Bay and are discussed in detail in the San Diego Bay INRMP (NAVFAC Southwest 2000; NAVFAC Southwest and Port of San Diego 2013). Additional data can all be found in the Final San Diego Bay survey report for avian species (Tierra Data, Inc. 2011).

The project area is located within a very small portion of the developed shoreline of the North Bay and includes man-made structures and open water habitat. Bird abundance is low and ranges from 1-5 birds per hectare per month within the project area; near the shoreline adjacent to the project area, bird abundance ranges from 6-20 birds per hectare per month. Bird richness ranges from 11-25 unique species within the project area (NAVFAC Southwest and Port of San Diego 2013; Tierra Data, Inc. 2011).

3.3.3 Environmental Consequences

3.3.3.1 Approach to Analysis

The analysis identifies the potential significance of impacts to birds based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration and ecological ramifications of the impact. For example, an impact would be considered significant if it would permanently reduce the population size or distribution of a protected species.

3.3.3.2 Proposed Action

Construction activities would increase noise and human activity and decrease water quality by slightly increasing turbidity. These impacts could disturb nearby migratory birds and cause them to avoid the project area during construction activities. These very temporary impacts would be limited to the immediate project area and are not expected to significantly affect bird foraging and resting as the project area is routinely subject to elevated commercial- and military-related noise and activity of workers. Because the project area is developed and similar resting and foraging habitats occur nearby, shorebirds or waterbirds would likely move to other similar habitats nearby and return when the project is complete and there would be no residual effects beyond pile driving activities.

Construction activities may create noise and turbid water conditions that could alter fish behavior and make fish more or less available as prey; however, impacts to marine birds would be highly localized. These species are wide ranging and have a large foraging habitat available in and around San Diego Bay relative to the small area that may be impacted during construction. Construction impacts would also be reduced due to the limited duration of construction. Noise from construction activities is consistent with noise from industrial activities in this area.

Implementation of the temporary shelter, transport, and barge/floating boat dock options would have no impact to birds.

LDUUV maintenance activities would only marginally increase activity at the pier and would not affect migratory birds. Therefore, with the implementation of the proposed minimization and conservation measures (see Section 2.2.1.5), the Proposed Action would not result in significant impacts to birds.

3.3.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to birds.

3.4 MARINE MAMMALS

3.4.1 Definition of Resource

This section describes marine mammals and the habitats in which they occur within areas directly or indirectly affected by the proposed project. Marine mammals are protected from "taking" under the Federal Marine Mammal Protection Act (MMPA) of 1972. Taking is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." This section does not apply to the Navy Marine Mammal Program, which is authorized under Title 10 of the United States Code and is not subject to the MMPA.

Under the MMPA, NMFS has defined levels of harassment for marine mammals. Level A harassment is defined as "Any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild." Level B harassment is defined as "Any act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including but not limited to migration, breathing, nursing, breeding, feeding or sheltering."

Current NMFS practice regarding exposure of marine mammals to high level sounds is that cetaceans and pinnipeds exposed to impulsive sounds of 180 and 190 dB RMS or above, respectively, are considered to have been taken by Level A (injurious) harassment. Behavioral harassment (Level B) is considered to have occurred when marine mammals are exposed to sounds at or above 160 dB RMS for impulse sounds (e.g., impact pile driving) but below injurious thresholds.

3.4.2 Affected Environment

The Navy conducted 16 marine mammal surveys in the project area from 2007 through 2012 (Merkel & Associates, Inc. 2008; U.S. Pacific Fleet 2009-2012; Tierra Data, Inc. 2012). Based on these surveys, four marine mammals are known to occur in the in the vicinity of NBPL. California sea lions (*Zalophus californianus*), harbor seals (*Phoca vitulina*), and coastal bottlenose dolphins (*Tursiops truncatus*) commonly occur within San Diego Bay; a single gray whale (*Eschrichtius robustus*) was also observed in San Diego Bay. Marine mammals may haul out on manmade structures in the vicinity of the action area. Marine mammals occurring in the area routinely experience turbid and noisy conditions due to natural processes and ship traffic within the industrialized north bay. Additional details on ambient noise in the

project area are provided in the Draft Naval Base Point Loma Fuel Pier Replacement and Dredging (MILCON P-151/DESC1306) Environmental Assessment (Navy 2012), and additional details on marine mammals in San Diego Bay are provided in the San Diego Bay INRMP (NAVFAC Southwest and Port of San Diego 2013).

3.4.3 Environmental Consequences

3.4.3.1 Approach to Analysis

The analysis identifies the potential significance of impacts to marine mammals based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration and ecological ramifications of the impact. An impact would be considered significant if it would permanently reduce the population (stock) size or distribution of a marine mammal.

Impacts to marine mammals associated with the Proposed Action would be primarily from increased underwater noise associated with pile driving. Underwater noise levels associated with pile driving were modeled using a NMFS-approved practical spreading model for transmission loss (Caltrans 2013) based on an estimated RMS SPL of 173 dB re 1µPa at 10 m from the source. This RMS SPL is based on 16-inch concrete piles driven at (the former) Naval Weapons Station Concord (Caltrans 2012).

<u>Duration of Activities</u>

No work would begin on the Proposed Action until all required permits and approvals are in place. A total of up to 72 concrete piles would be installed. It is assumed that the contractor would drive approximately three to five piles per day over a period of 13 to 24 days. Each pile is assumed to require up to two hours of driving and would require up to 200 strikes for a worst-case maximum of 1,000 strikes per day. Piles may be jetted to minimize pile driving and associated underwater noise. Pile driving would occur only during daylight hours, 7:00 A.M. to 5:00 P.M, Monday through Friday.

3.4.3.2 Proposed Action

Model results indicate that the zone of potential Level B (behavioral) harassment for marine mammals during pile driving is limited to within approximately 74 m of the pile being driven (see Figure 3-2); the zone of potential Level A (injury) harassment is discountable, being within 3 m. Any marine mammals present in the general vicinity during pile driving and other in-water activities would be able to detect the noise and may temporarily avoid the project area. Marine mammals are only expected to occur on an infrequent basis in the project area, are highly mobile organisms, are not restricted to the project area, and future use of the project area upon construction completion would not be affected.

To eliminate the potential for harassment of a marine mammal, the proposed impact minimization and conservation measures (see Section 2.2.1.5) would encourage marine mammals to disperse away from the immediate area of pile driving by utilizing a soft-start technique involving a gradual ramp-up before pile driving reaches full energy at the start of each day's pile driving activity or when pile driving has ceased for more than an hour. Additionally, a biological monitor would be stationed on Pier 160 and would order a shutdown of pile driving any time a wild marine mammal or sea turtle is observed within or approaching the zone of potential harassment (74 m from the pile being driven).

Implementation of the temporary shelter, transport, and barge/floating boat dock options would have no impact to marine mammals.

LDUUV maintenance activities would only marginally increase activity at the pier and would not affect marine mammals. Therefore, given the relatively small zone of potential harassment, and with the implementation of the described monitoring, implementation of the proposed project is not anticipated to result in any harassment to marine mammals. As such, an Incidental Harassment Authorization from NMFS is not required and impacts to marine mammals would not be significant.

3.4.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to marine mammals.

3.5 THREATENED AND ENDANGERED SPECIES

3.5.1 Definition of Resource

This section describes species protected by the ESA that may occur within areas directly or indirectly affected by the proposed project.

3.5.2 Affected Environment

The California least tern and the green sea turtle (*Chelonia mydas*) are the only two federally threatened or endangered species that occur or have the potential to occur in or adjacent to the proposed project area (Table 3-3) and are discussed in detail below. Of these two, only the California least tern regularly occurs within the vicinity of the proposed project area. There is no designated critical habitat for these species in the proposed project area.

Table 3-3. Federally Threatened and Endangered Species Occurring or Having the Potential to Occur in the Vicinity of the Proposed Project Area

Species	*Status*	*Habitat*	*Occurrence*
California least tern (*Sterna antillarum browni*)	Endangered	Bays, estuaries, lagoons, shoreline, river mouths, sandy unvegetated strips. Spring-summer breeding resident.	Locally common spring-summer resident, feeding in bay and ocean waters. Nesting colonies outside of the project area around San Diego Bay. The nearest breeding habitat outside of the project area, off shore west of Naval Base San Diego (NBSD).
Green sea turtle (*Chelonia mydas*)	Endangered	Warm oceans, eelgrass beds. Non-breeding migrant.	Occurs in south bay, Coronado Bridge, former South Bay Power Plant's warm water discharge channel. Feeds on marine algae and sea grasses, such as eelgrass. No breeding sites occur in San Diego Bay. Possible rare transient near the project area.

Note: Endangered = Listed as endangered under the federal ESA. Threatened = Listed as threatened under the federal ESA.

3.5.2.1 California Least Tern

The California least tern is a migratory bird listed as state and federally endangered and occurs in San Diego Bay from April 1 to September 15. They use open sandy or gravelly shores with light-colored substrates, little vegetation, and nearby fishing waters for nesting. Recently, least terns have nested at seven to nine locations around San Diego Bay, including North Delta Beach, South Delta Beach, Naval Amphibious Base ocean beaches, Naval Air Station North Island, Lindbergh Field, the South Bay National Wildlife Refuge, Chula Vista Wildlife Reserve, D Street Fill/Sweetwater Marsh, and Silver Strand State Beach (NAVFAC 2011). Designated least tern foraging habitat is located adjacent to the project area (NAVFAC Southwest 2004).

3.5.2.2 Green Sea Turtle

The green sea turtle is federally listed as threatened. South San Diego Bay serves as important habitat for a resident population of approximately 50 to 60 juvenile and adult green sea turtles, with individuals seen throughout the summer and winter south of the Sweetwater River. Because the project would only be driving piles between September and April and few turtles ingress and egress past the project site in late summer, there is a very low potential that a transient green sea turtles would be present in northern San Diego Bay during pile driving. Furthermore, green sea turtles have not been detected in the north bay in recent years and do not breed or nest in San Diego Bay because they need undisturbed beaches for nesting (NAVFAC Southwest and Port of San Diego 2013; Richter 2012).

3.5.3 Environmental Consequences

3.5.3.1 Approach to Analysis

The analysis identifies the potential significance of impacts to threatened and endangered species based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration and ecological ramifications of the impact. For example, an impact would be considered significant if it would permanently reduce the population size or distribution of a protected species.

3.5.3.2 Proposed Action

<u>California Least Tern</u>

LDUUV maintenance activities, Flume Bridge and building construction, as well the barge/floating boat dock, if implemented, would have no effect on California least terns. The only proposed project activity with the potential to impact California least terns is pile driving due to underwater noise generated during these activities. Implementation of the proposed impact minimization and conservation measures, however, would ensure that these construction activities would occur outside of the California least tern nesting/foraging season in San Diego Bay, which is April 1 to September 15. Therefore, the proposed pile driving would have no effect on California least terns. In addition, no increase in overwater coverage would occur as a result of the proposed project and there would be no substantive modification of least tern habitat. Therefore, there would be no effect on the California least tern and impacts would not be significant.

<u>Green Sea Turtle</u>

LDUUV maintenance activities, Flume Bridge and building construction, as well as the barge/floating boat dock, if implemented, would have no effect on green sea turtles. The only proposed project activity with the potential to impact green sea turtles is pile driving due to underwater noise generated during these activities. However, since piles would only be driven during the non-tern season (September to April), which is outside of the warmer summer season when turtles are most likely to transit through the project area, the likelihood of sea turtle occurrence within the project area is extremely low. Furthermore, implementation of the proposed monitoring would ensure that these activities are ceased if a sea turtle is observed within or approaching the zone of potential harassment (74 m) surrounding the pile being driven during the pile driving period. As such, the Navy determined that the action is not likely to adversely affect green sea turtles and consulted informally with NMFS regarding this determination. NMFS concurred (Appendix D), and accordingly, implementation of the Proposed Action is not likely to adversely affect green sea turtles and would not have a significant impact.

3.5.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to threatened and endangered species.

3.6 WATER RESOURCES

3.6.1 Definition of Resource

This section is focused on water quality, which describes the chemical and physical composition of water as affected by natural conditions and human activities. The principal federal law protecting water quality is the CWA (33 USC § 1251 et seq.), which is enforced by the U.S. Environmental Protection Agency (USEPA). Water bodies impaired by pollutants are recognized and corrective action developed as appropriate under Section 303(d) of the CWA. Section 404 of the CWA regulates discharge of dredged or fill material in waters of the U.S., including the navigable waters surrounding the project area. Work in the navigable waters is also subject to permitting under Section 10 of the RHA (33 USC § 403 et seq.). The permit requirements of the RHA are integrated with those of CWA Section 404. At the state level, the Porter-Cologne Water Quality Control Act (California Water Code §§ 13000-13999.10) gives the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) responsibilities for protection of the waters within their regions. The regional boards are also responsible for implementing provisions of the CWA delegated to states, such as the NPDES, which regulates point (industrial) and non-point (stormwater) sources of pollutants, and Section 401, which requires certification that discharges to water bodies comply with state water quality standards.

In the Water Quality Control Plan for the San Diego Basin (Basin Plan) the California RWQCB, San Diego Region designated beneficial uses for the surface and ground waters in the San Diego Region, including San Diego Bay (RWQCB 1994). Beneficial uses are defined as the uses of water necessary for the survival or well-being of man, plants, and wildlife, and are protected against degradation of their quality under the state Porter-Cologne Act (RWQCB 1994). Examples include drinking, swimming, industrial, and agricultural water supplies, and the support of fresh and saline aquatic habitats. Specific beneficial uses established for San Diego Bay include the following (RWQCB 1994): Industrial Service Supply; Navigation; Contact Water Recreation; Non-contact Water Recreation; Commercial and Sport Fishing; Preservation of Biological Habitats of Special Significance; Estuarine Habitat; Wildlife Habitat; Rare, Threatened, or Endangered Species; Marine Habitat; Migration of Aquatic Organisms; and Shellfish Harvesting. The Basin Plan sets objectives for water quality that must be maintained to protect the designated beneficial uses of water resources in the San Diego region and conform to the state's antidegradation policy. The California Ocean Plan establishes limits or levels of water quality characteristics for ocean waters to ensure the reasonable protection of beneficial uses and the prevention of nuisance (SWRCB 2005).

3.6.2 Affected Environment

San Diego Bay is a narrow, crescent-shaped natural embayment oriented northwest to southeast with an approximate length of 15 mi (Port of San Diego 2007). The width of the bay ranges from 0.2 to 3.6 mi, and depths range from -74 ft MLLW near the tip of Ballast Point (refer to Figure 1 2) to less than four ft at the southern end (Merkel & Associates, Inc. 2009). About half of the bay is less than 15 ft deep and most of it is less than 50 ft deep (Merkel & Associates, Inc. 2009).

On average, the San Diego region receives 10 inches of rainfall per year, occurring mostly between November and March (Port of San Diego 2007). Seasonal inputs of freshwater from the land to the east are conveyed to the bay through the three sub-watersheds of the San Diego Bay watershed (Port of San

Diego 2007). The Pueblo San Diego sub-watershed encompasses the northern portion of the bay including the project area. This sub-watershed has the smallest drainage area, but is the most densely developed and populated because it includes the City of San Diego (Port of San Diego 2007). Surface water on the Point Loma peninsula comprises ephemeral drainages that convey water to the bay or ocean directly after rain events. In the northern, developed urban portion of the peninsula, seasonal runoff flows to the ocean via gutters and storm drains.

3.6.2.1 Bathymetry and Circulation

The northern portion of the bay has been shaped by historic dredging to support large ship navigation, and filling (Merkel & Associates, Inc. 2009). The bathymetry and bedform of the bay are defined by a main navigation channel that steps up to shallower dredged depths toward the sides and bottom of the bay (Merkel and Associates 2009). USACE dredges the navigation channel to maintain it a depth of -47 ft MLLW (NOAA 2012). Outside the navigation channel, the bay floor consists of platforms at depths that vary slightly (Merkel and Associates 2009). Within the north bay, typical depths range from -36 to -38 ft MLLW to support large ship turning and anchorage (Merkel & Associates, Inc. 2009). Small vessel marinas are typically dredged to depths of -15 ft MLLW (Merkel & Associates, Inc. 2009). Depths in the area of Pier 160 where the infrastructure is proposed to be installed range from -15 to -25 ft MLLW (see Figure 3-1).

Circulation within San Diego Bay is affected by the bay's crescent shape and narrow bay mouth, tides, and seasonal salinity and temperature variations (NAVFAC Southwest and Port of San Diego 2013). The project area is within the North Bay – Marine Region, which extends from the bay mouth to the area offshore from 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 (NAVFAC Southwest and Port of San Diego 2013).

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 larger ebb tide (Largier 1995). The tidal range (difference between MLLW and mean higher high water) is about 5.5 ft (Largier 1995). In general, tidal currents are strongest near the bay mouth, with maximum velocities of 1.6 to 3.3 ft per second (Largier 1995). Tidal current direction generally follows the center of the bay channel (Chadwick et. al. 1999). Tidal flushing and mixing are important in maintaining water quality within the bay. The tidally-induced currents regulate salinity, moderate water temperature, and disperse pollutants (NAVFAC Southwest and Port of San Diego 2013).

3.6.2.2 Marine Water Quality

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

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. Bottom sediments are resuspended by the action of tides, winds, and movements of ships with drafts deeper than 22 ft in the shallow waters of the south bay around NBSD (Chadwick et. al. 1999). Increased turbidity reduces the amount of light available for plant growth underwater, so it can affect the entire ability of the Bay to support living organisms (Tierra Data Inc. 2010). Turbidity in San Diego Bay varies, depending on the tides, seasons, and location within the Bay (Tierra Data, Inc. 2010). The monthly average for the northern portion of the bay varies from approximately 1.0 to 3.7 nephelometric turbidity units (NTU), (Tierra Data, Inc. 2012). The Basin Plan sets limits for allowable increases in turbidity over existing conditions (RWQCB 1994).

Chlorophyll a (a measure of the amount of phytoplankton present in the bay) ranges from 0.2 to 25 micrograms per liter (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 micrograms per liter. 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 per milliliter in the south bay (Chadwick et. al. 1999). Since these discharges ended, bacterial counts typically remain below 10 per milliliter except during some winter storms. These levels are below federal limits for water contact, implying that the bay is generally safe for recreational use (Chadwick et. al. 1999).

Current sources of pollution to the bay include underground dewatering, industries on the bay and upstream, marinas and anchorages, DoD and DHS 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 (PAHs), stormwater runoff from land used for industrial, commercial, and transportation purposes, bilge water discharge, and oil spills (Chadwick et. al. 1999). Changes to Navy procedures include a moratorium on installing new creosote-treated pilings, replacing half of the existing pilings with plastic, concrete, or untreated wood, and eliminating bilge water inputs (Chadwick et. al. 1999). Overall, the levels of contamination in the water and sediment in San Diego Bay appear to be lower now than in decades past, including levels of some metals and PAHs (NAVFAC Southwest and Port of San Diego 2013). However, localized areas of copper concentrations remain routinely higher than federal and state limits for dissolved copper (NAVFAC Southwest and Port of San Diego 2013).

There are no Section 303(d) listed impaired water bodies or record of high pollutant concentrations in sediment in the immediate area of Pier 160 (NAVFAC Southwest and Port of San Diego 2013).

3.6.2.3 Surface Water Quality

Runoff from the Flint Street/Flume Bridge area flows into storm drains and then into the bay. Stormwater runoff from NBPL facilities, including SSC Pacific, is regulated as an industrial discharge under NBPL's NPDES Permit (Permit No. CA 0109363 Order No. R9-2002-0002) (RWQCB 2002). This permit prohibits the discharge of wastes, including water contaminated with oils, fuels, lubricants, solvents, and oily bilge water (RWQCB 2002). The NPDES permit states that the discharger (i.e., NBPL) shall not cause pollution, contamination, or nuisance, and the discharge of wastes shall not cause or contribute to an exceedence of any applicable State or San Diego regional water quality objective or standard (RWQCB 2002).

To fulfill the requirements of the NBPL NPDES permit, NBPL has implemented a Stormwater Discharge Management Plan (NAVFAC Southwest 2009). This Plan includes Basewide and facility-specific best management practices (BMPs) for preventing and minimizing contact of stormwater with potential

pollutants that are present at the project site. The Basewide BMPs include restricting access, regular cleaning and sweeping, controlling spills and reducing waste, avoiding hosing down the site, and regular inspection and maintenance of the storm drain system (NAVFAC Southwest 2009).

3.6.3 Environmental Consequences

3.6.3.1 Approach to Analysis

Water quality impacts are evaluated based on the potential for a substantial increase in turbidity, discharge of suspended sediments, or discharge of contaminants that exceeds federal or state water quality standards or objectives. Impacts to water resources would occur if implementation of the Proposed Action would cause major changes to bathymetry; alter or obstruct patterns of circulation in San Diego Bay; substantially degrade surface water, groundwater, or marine water quality or cause impairment to beneficial use.

3.6.3.2 Proposed Action

Bathymetry and Circulation

Apart from the physical presence of approximately up to 72 16-inch concrete piles within the area between Finger A and Finger B of Pier 160, there would be no changes to bathymetry. The area and volume of the piles would be a small fraction, less than 0.1%, of the bottom area and water volume between the two fingers of the pier and as a result would have negligible effects on circulation through the pier. Therefore, implementation of the Proposed Action would not result in a significant impact to bathymetry and circulation.

Marine Water Quality

Turbidity due to pile installation would be minimal because the sediments are known to be sandy. Surface sediments would be displaced from the area of each individual pile, but would remain near the bottom and not widely dispersed into the water column. Turbidity would be expected to return to background conditions within an hour after the pile installation activity ends (AMEC 2008). Sediments at the pier are not known to contain high concentrations of pollutants, and in any case, the sediments would remain in the same area and would not be widely dispersed. Therefore, impacts of pile installation on marine water quality would be not significant. Consistent with existing regulations and permits (RWQCB 2002, NAVSEA and USEPA 1999), the LDUUVs and RHIBs would be rinsed with fresh water at the boat ramp at SSC Pacific or while suspended over the water at Pier 160. Engine flushing would only occur on the NBPL boat ramp. All operations at the pier would be in compliance with OPNAVINST 5090.1C, Chapters 22 (Environmental Compliance Afloat) and would not be a source of pollutants. The temporary shelter, transport, and barge/floating boat dock options, if implemented, would result in minor shading due to the barge and single floating boat dock (0.19 ac) or two floating boat docks (0.07 ac). These structures would remain in place until they are no longer required. Given the small areas affected and the placement of these components alongside Pier 160 or Pier 159, this shading would be inconsequential. There would be no impact to biological resource habitats and communities from use of the temporary shelter or transport. Therefore, implementation of the proposed action would not result in significant impacts to marine water quality.

Surface Water Quality

The NBPL Storm Water Discharge Management Plan and Basewide BMPs (listed previously) for preventing and minimizing contact of potential pollutants with stormwater would be followed during construction and operations, ensuring that implementation of the Proposed Action would not result in significant impacts to water quality.

3.6.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to water resources.

3.7 HAZARDOUS MATERIALS AND WASTES

3.7.1 Definition of Resource

The terms "hazardous materials" and "hazardous wastes" are defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA [42 19 USC § 6901 et seq]). In general, hazardous materials include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment. Hazardous wastes are regulated under RCRA and defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that either exhibit one or more of the hazardous characteristics of ignitability, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR Part 261.

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

Hazardous material regulations and standards applicable to the existing and proposed future operations at NBPL include but are not limited to:

- OPNAVINST 5090.1C, *Environmental and Natural Resources Program Manual*;
- DoD MIL-STD-1411A, *Standard Practice: Inspection and Maintenance of Compressed Gas Cylinders*;
- SSCPACINST 5090.4, *Hazardous Waste Management at Space and Naval Warfare Systems Center*
- Occupational Safety and Health Administration (OSHA) standards for compressed gas and equipment (29 CFR 1910, Subpart H, available online at http://www.osha.gov/SLTC/compressedgasequipment/index.html);
- U.S. Department of Transportation (DOT) requirements for cylinder maintenance, retest, and certification (49 CFR 173.34);
- National Fire Protection Association (NFPA) 2, Hydrogen Technologies Code;
- NFPA 55, *Compressed Gases and Cryogenic Fluids Code;*
- Navy Region Southwest Waste Management Plan for the San Diego Metro Area (NRSW 2007);
- NRSW Instruction 11350.1A, *Regional Construction & Demolition Debris Landfill Diversion;*
- Site Specific Report SSR-3422-ENV, *Integrated Contingency Plan For Oil And Hazardous Substance Spill Prevention And Response at Naval Base Point Loma* (NAVFAC 2009);
- Naval Sea Systems Command (NAVSEA) Technical Development Document for Phase I Uniform National Discharge Standards for Vessels of the Armed Forces (NAVSEA and USEPA 1999);
- NAVSEA Technical Manual (TM) S9310-AQ-SAF-010, First Revision, *Technical Manual for Batteries, Navy Lithium Safety Program Responsibilities and Procedures* (NAVSEA 2004).

3.7.2 Affected Environment

The region of influence (ROI) of potential effects associated with hazardous materials and hazardous wastes for the Proposed Action is Pier 160, Pier 159, Building 9, Building 68, and the Flume Bridge.

Hazardous Materials

Pier 160 and Building 9 are used for research, development, testing, and evaluation (RDT&E) of both marine systems and harbor security systems. Pier 160 is also used for general mooring & berthing of Navy ships and boats. Pier 159 is presently used by the Navy's MMP. Small amounts of petroleum fuel, hydraulic oils, and other lubricants are present at Building 9. No other hazardous materials are present in the ROI, and there is no record of high pollutant concentrations in sediment in the immediate area of Pier 160 (NAVFAC Southwest and Port of San Diego 2013).

Hazardous Wastes

Hazardous wastes at SSC Pacific are managed according to Chief of Naval Operations Instructions 5090.1C, *Environmental and Natural Resources Program Manual* and SSCPACINST 5090.4, *Hazardous Waste Management at Space and Naval Warfare Systems Center*. The guidance in SSCPACINST 5090.4 specifies that SSC Pacific employees, military members, and contractors manage hazardous waste in accordance with requirements specified in federal, state and local laws and regulations including Title 40, CFR, Title 22, CCR, California Health and Safety Code, and San Diego County Code of Regulatory Ordinances. SSCPACINST 5090.4 contains instructions for hazardous waste minimization, waste characterization, use of proper containers and storage practices, inspection, and disposal via a licensed hazardous waste contractor.

SSC Pacific is permitted by the San Diego County Department of Environmental Health to store hazardous waste at Building 145 Bayside. SSC Pacific stores, profiles and consolidates hazardous waste for pick up by the NAVFAC contractor. The contractor is licensed for hazardous waste storage, transport, and offsite disposal. SSC Pacific maintains documentation associated with the transportation and disposal of hazardous waste.

Hazardous wastes generated as a result of routine operations at Building 9 are managed in accordance with SSCPACINST 5090.4 (e.g., oil-contaminated booms, rags, and absorbent materials are stored in less-than-90-day storage areas). The DEH conducts periodic inspections of hazardous waste management operations and facilities.

3.7.3 Environmental Consequences

3.7.3.1 Approach to Analysis

Federal, DoD, and Navy regulations govern the storage, disposal, and transportation of hazardous materials, hazardous wastes, and non-hazardous solid wastes. These laws and specifications were established to protect human health and the environment from potential impacts. 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, the method of disposal, and whether the Proposed Action would not be in compliance with applicable laws, regulations, or standards, including the WMP (NRSW 2007) and NFPA 2 and 55. Impacts are considered significant if the storage, use, transportation, or disposal of these substances increase human health risks or environmental exposure. The ROI for hazardous materials and wastes is Pier 160, Pier 159, Building 9, Building 68, and the Flume Bridge.

3.7.3.2 Proposed Action

Proposed construction activities would require the use of construction equipment, which could spill oil, gasoline, or other fluids during normal usage or during refueling. Any spills would be managed per the base's spill plan (NAVFAC 2009), and the Navy would oversee contractor operations during construction to ensure compliance with applicable regulations and would require contractors to secure required permits, conduct routine inspections, and comply with established operating procedures and BMPs. This would ensure that the potential for hazardous material impacts is minimized during the construction phase at Pier 160, Building 9, and the Flume Bridge.

Small amounts of petroleum fuel, hydraulic oils, and other lubricants would be stored and used in Building 9 for LDUUV and RHIB maintenance activities. Hazardous materials within Building 9 would be managed (stored and used) in compliance with all applicable laws, regulations, and standards, including the WMP (NRSW 2007). All hazardous materials and wastes associated with project activities would be removed and properly recycled or disposed per the WMP (NRSW 2007).

Sediments at the pier are not known to contain high concentrations of pollutants (NAVFAC Southwest and Port of San Diego 2013), and in any case, the sediments would remain in the same area and would not be widely dispersed.

Under the Proposed Action, two gas compressors (one for oxygen, one for hydrogen), as well as cylinders containing compressed oxygen and hydrogen, would be placed in a controlled recharging area on Pier 160. The controlled area would be surrounded by a fence and by safety bollards. The primary hazard associated with receiving and storing compressed gases (i.e., oxygen and hydrogen) is the potential for the gas-containing cylinder to be damaged or moved in a manner that allows the gases to escape rapidly. Such an incident could cause the cylinder to become a projectile or to explode and create shrapnel. The transportation, storage, and handling of the oxygen and hydrogen cylinders used to recharge the fuel cell LDUUV would be in compliance with all applicable laws, regulations, and standards, including DOT requirements and NFPA 2 and 55 standards (see Section 3.7.1). Gas cylinders are required to be secured when not in use, and routinely inspected. Regulations also include, but are not limited to, limitations on the maximum allowable quantities per storage area and also provide cylinder separation distance requirements. Adherence to these requirements would greatly reduce the potential for an accident or natural disaster to damage the cylinders while simultaneously also reducing the potential hazard in the event that a cylinder is accidentally damaged. No impacts are anticipated from mostly emptying the LDUUV of stored H_2 and O_2 (either by recovery or discharge to the atmosphere) prior to transport to Building 9.

Lithium ion battery charging would occur in Building 9 or at Pier 160 at a safe distance away from the controlled recharging area. Storage, handling, recharging, and other maintenance of the LDUUV and associated batteries would be in compliance with all applicable laws, regulations, and standards, including DOT requirements and NAVSEA TM-S9310-AQ-SAF-010, First Revision, *Technical Manual for Batteries, Navy Lithium Safety Program Responsibilities and Procedures* (NAVSEA 2004) (see Section 3.7.1).

By complying with all applicable laws, regulations, and standards, and for the reasons above, implementation of the Proposed Action would not create risks to public health and safety and there would be no significant impact with respect to hazardous materials and wastes.

3.7.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to hazardous materials and wastes.

3.8 AIRBORNE NOISE

This section provides information on airborne noise, including characterization of existing noise conditions and sensitive receptors in the general vicinity of the proposed project. Underwater noise is discussed in Section 3.2, *Fisheries*, and Section 3.4, *Marine Mammals*. No site specific noise data are available for this project, but information is available for the general San Diego Bay area.

3.8.1 Definition of Resource

Noise is defined as unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive, stationary or transient. There is wide diversity in responses to noise that vary not only according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, time of day, and distance between the noise source (e.g., a bulldozer) and the receptor (e.g., a person or animal).

Noise levels are measured in decibels (dB), and represented on a logarithmic scale of about 20 to 120 dB. On this scale, everyday noises range from 30 dB for a quiet room to 100 dB for a loud power lawn mower at close range. At a constant level of 70 dB, noise can be irritating and disruptive to speech; at louder levels, hearing losses can occur. A difference of 3 dB represents a doubling of sound levels in terms of energy. However, because of how we hear, it is necessary to have a 10-dB increase to be perceived as a doubling in sound. 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 identify that the measurement has been made with this filtering process (A-weighted decibel measurement, or dBA).

Because noise levels vary widely during the day, it is customary to record multiple noise levels over a stated period, such as 24 hours, and then calculate the average noise level. Time-averaged noise levels form the basis for land use compatibility guidelines. For instance, the term Day-Night Average Level (Ldn) is used to describe the average noise level during a 24-hour day with a penalty of 10 dBA added to nighttime sound levels (10 P.M. to 7 A.M.). Community Noise Equivalent Levels (CNEL) add a 5-dBA penalty for noise events that occur in the evening (7:00 P.M. to 10:00 P.M.), as well as a 10-dBA penalty for noise events at night (10:00 P.M. to 7:00 A.M.). Shorter measurement durations (typically 1 hour) are described as Energy Equivalent Levels (Leq) indicating the total energy contained by the sound over a given sample period. The Leq for 1 hour is the energy average noise level during an hour; specifically, the average noise based on the energy content (acoustic energy) of the sound. It can be thought of as the level of a continuous noise that has the same energy content as the fluctuating noise level. The Leq for a 24-hour period (Leq24) is the same as Ldn/CNEL without the penalties.

Airborne sound can be transmitted into the water. However, the amount of acoustic energy directly transmitted from a source is limited due to reflection (sound wave bouncing back) and refraction (sound wave bending away from the original path). Sound transmission in shallow water is also influenced by reflection losses from the bottom and the surface, refraction from sound speed gradients, reflection, and refraction from shallow bottom layers, and scattering from rough surfaces. Underwater noise is discussed in Section 3.2*, Fisheries*, and Section 3.4, *Marine Mammals*.

3.8.2 Affected Environment

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 (Federal Interagency Committee on Urban Noise [FICUN] 1980). Based on the FICUN Land Use Guidelines (1980; Table 2), residential areas and schools are considered compatible where the Ldn is up to 65 dBA;

outdoor recreational activities such as fishing and golfing are compatible with noise levels up to 70 dBA; and parks are compatible with noise levels up to 75 dBA (FICUN 1980).

The City of San Diego has an exterior noise level standard of 65 dBA CNEL for noise-sensitive land uses (e.g., residential areas, hospitals, childcare facilities, schools). 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 dBA or less during the 12-hour period from 7 A.M. to 7 P.M. (City of San Diego 2010). 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 2010). These standards are considered in the noise impact analysis; however, they do not apply to Navy installations.

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 dBA (Lazarus 1990). The American National Standard Institute (ANSI) recommends at least a 15-dBA signal-to-noise ratio in classrooms, to ensure that children with hearing impairments and language disabilities are able to enjoy high speech intelligibility (ANSI 2002). As such, provided that the average adult male or female voice registers a minimum of 50 dBA in the rear of the classroom, the ANSI standard requires that the continuous background noise level indoors must not exceed a Leq of 35 dBA (assumed to apply for the duration of school hours).

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

Pier 160 Modifications

The proposed project site lies outside the 65-dBA noise contours generated by aircraft activity at San Diego International Airport and NAS North Island (City of San Diego 2007). Nearby ambient sources include vessel traffic in the channel, vehicular traffic, and air traffic associated with NAS North Island, the USCG Air Station, and San Diego International Airport. Typical ambient noise levels range from 50 to 65 dBA CNEL in suburban to urban areas, and 65 to 75 dBA CNEL in downtown urban areas (USEPA 1974).

The SSC Pacific waterfront area where the project site is located is an industrial area, where ambient (i.e., background) noise levels are typically higher than in residential areas. Although the project site is on Navy property and not subject to municipal requirements, for comparison, the City of San Diego allows ambient noise levels up to 75 dBA in industrial areas (City of San Diego 2007).

Sensitive receptors within NBPL boundaries include the NBPL child development center (CDC), located at Building 377 on Myers Road about 0.6 mi southwest of the Pier 160, and a cluster of dormitories for NBPL submarine base personnel on Kerrick Road near Ballast Point about 1 mi to the south of Pier 160.

The nearest sensitive receptor outside the NBPL boundary is the suburban residential neighborhood (La Playa) that borders NBPL to the north, with the closest residents in a condominium complex on San Antonio Avenue, approximately 0.3 mi from Pier 160. Vehicle traffic on the roadways that provide the main access to the Point Loma peninsula (Rosecrans Street and Catalina Boulevard) is the main source of ambient noise in the residential neighborhood (Navy 2007). When there is no major construction activity occurring at NBPL, noise is not intrusive or loud (Navy 2007). Also audible are periodic aircraft from San Diego International Airport, and military aircraft on NAS North Island. Noise from trucks, along with

periodic construction in the area, also contributes to the ambient sound levels. Noise from these sources and NBPL operational activities are typical and not significant (Navy 2007).

3.8.3 Environmental Consequences

3.8.3.1 Approach to Analysis

The primary factor considered in determining the significance of noise effects includes the extent or degree to which implementation of the Proposed Action would affect baseline noise environments. The primary issue of concern with regard to noise is the potential for impacts to humans and wildlife. Although the City's noise ordinance does not apply to the Navy, this analysis considers that potentially significant noise impacts would occur if implementation would directly or indirectly do one or both of the following:

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

Both of these criteria represent effects from long-term noise exposure once construction is complete. For this EA, less stringent guidelines are applied to temporary noise sources that are restricted to daytime hours (such as most construction and demolition activities) unless they affect noise-sensitive land uses and result in CNEL levels more than 10 dBA above the respective land use compatibility criteria. Noise levels exceeding the City of San Diego's construction noise limit of 75 dBA Leq between the hours of 7 A.M. and 7 P.M. would be considered significant.

3.8.3.2 Proposed Action

Under the Proposed Action, SSC Pacific would perform pier modifications and facility alterations to accommodate the LDUUV mission. Pier 160 modification includes installing launch and recovery lifts. The project also includes interior modifications to Building 9 to enable it to serve as the LDUUV Maintenance and Integration facility and minor modifications to Building 68 to accommodate a function relocated from Building 9. Reducing the grade over the Flume Bridge on Front Street to avoid the LDUUV mobile boat hoist bottoming out in transit and to meet the mobile boat hoist grade requirements transiting from the pier to Building 9. SSC Pacific would implement Proposed Impact Avoidance and Conservation Measures. SSC Pacific estimates the proposed modifications would require two to six months to complete. However, pile driving would only occur on approximately 13 to 24 days. Construction may begin as early as December 2013.

Facility modifications at Buildings 9 and 68 and at the Flume Bridge would only involve minor noise-generating activities. As such, these project components are not addressed in detail for noise impacts. The implementation of the temporary shelter, transport, and barge/floating boat dock options would entail temporary, non-significant noise due to operation of the crane at Pier 160 but would otherwise have no impact. Similarly, once construction ends and the operations begin, noise levels would revert to ambient levels and noise levels of LDUUV operations are not addressed in detail.

Modifications to Pier 160, particularly pile driving, would be the main noise generating activity associated with the Proposed Action. To assess potential impacts of this noise, estimated on-site equipment usage was modeled using the Federal Highway Administration's Roadway Construction Noise Model (RCNM) (USDOT 2008) (Appendix C). Since the City of San Diego noise ordinances contain specific stipulations for construction noise, the project-related noise assessment focuses on the output of the RCNM model. The results calculated by the model are conservative. Noise levels in the model

originated from data developed by the USEPA, and were refined using an "acoustical usage factor" to estimate the fraction of time each piece of construction equipment would be operating at full power (i.e., its loudest condition) during the project (USDOT 2008).

The RCNM calculates acoustic sound levels at identified receptor points, and reports Lmax and Leq at those points. Under the Proposed Action, noise-generating activities at Pier 160 site would potentially affect receptors in nearby La Playa and potentially at the NBPL Child Development Center (CDC). Noise levels at the sensitive receptors are relative to the noise generated at the center of the construction activities and scheduled timeframe for that particular episode of construction.

Construction of the proposed improvements to Pier 160 would involve the installation of up to 72 16-inch piles. Installation of the Pier 160 launch and recovery lifts and mobile boat hoist tracks would not involve extensive quantities of noise producing construction equipment and would be limited to an impact pile driver, a crane and other miscellaneous equipment. The impact pile driver is the dominant noise producer of all of the construction equipment that would be used at the SSC Pacific site. The noise associated with pile driving would be temporary and would only occur during daylight hours (a normal workday is between 7 A.M. and 5 P.M.).

At the source, i.e., at 50 ft from pile driving equipment, RCNM uses an Lmax of 101.3 dBA and the noise level diminishes as the distance from the noise source increases. This modeled noise level is a standard default for pile driving and is typically applied to steel as well as concrete piles, and to piles of larger size than those of the proposed project. Use of this noise level for the Proposed Action is thus conservative and likely represents a worst case. The datum for noise calculations is in the area between Fingers A and B of Pier 160. Two sensitive receptors landside of the site have been identified: the residential neighborhood of La Playa north of SSC Pacific and the CDC at Building 377 inside NBPL. The nearest residence in La Playa is located approximately 0.3 mi away north of the proposed project site and the CDC is approximately 0.6 mi to the southwest.

Potential noise levels from construction activities during pile driving at the two sensitive receptor areas are listed in Table 3-4. Model results indicate that noise levels at the La Playa neighborhood would be less than the City of San Diego 75 dBA construction noise limit. Consistent with the RCNM methodology used for this assessment, the ambient noise and construction noise are not added as a cumulative level for comparisons to the noise ordinance. At the NBPL CDC, outdoor noise levels would be 58.2 dBA. Sound attenuation inside a building reduces noise levels by 15 to 25 dBA with windows open and closed, respectively. The classroom criterion for recommended indoor noise levels is 35 dBA. With windows closed during pile driving operations, the classroom criteria (58.2 dBA - 25 dBA = 33.2 dBA) for effective hearing would not be exceeded.

Table 3-4. Pile Driving Noise Levels at Representative Receptor Points

Receptor Point	***Distance* Miles (km)**	***Noise Level* (dBA Leq)**
La Playa	0.3 (1.6)	64.2
CDC NBPL (Building 377)	0.6 (3.2)	58.2

Note: Based on the conservative assumptions of the model and with the implementation of the proposed SCMs, actual noise levels would likely be less.

In summary, noise modeling using conservative (worst case) assumptions indicates that the noise associated with the proposed pier modifications would not exceed City of San Diego construction airborne outdoor noise limits for residential areas (75 dB A-weighted) which apply at the boundaries of NBPL. Modeling also indicates that the indoor airborne noise levels at educational facilities in the areas

surrounding the proposed SSC Pacific project would not exceed the classroom criteria levels for effective hearing with windows closed (35 dB A-weighted). Additionally, because the pile driving would be intermittent rather than continual, the noise levels would be considered acceptable. BMPs to reduce airborne noise from pile driving would also be implemented, including the use of a cushion block, and jetting the piles in to reduce the need for pile driving. Therefore, implementation of the Proposed Action would not result in significant impacts to sensitive noise receptors.

3.8.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to airborne noise.

3.9 AIR QUALITY

3.9.1 Definition of Resource

Air quality is defined by ambient air concentrations of specific pollutants that have been determined to be of concern with respect to the health and welfare of the general public by the U.S. Environmental Protection Agency (USEPA). The USEPA has established National Ambient Air Quality Standards (NAAQS) for these pollutants. The major pollutants of concern, called "criteria pollutants," are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$), and lead (Pb). Primary NAAQS are established to protect public health. Secondary NAAQS may also be established to avoid other adverse impacts to the public welfare such as odors or visibility effects. Areas that violate a federal air quality standard are designated as non-attainment areas.

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) that occurs at a particular geographic location. The ambient air quality levels measured at a particular location are determined by the interactions of emissions, meteorology, and chemistry. Emission considerations include the types, amounts, and locations of pollutants emitted into the atmosphere. Meteorological considerations include wind and precipitation patterns affecting the distribution, dilution, and removal of pollutant emissions. Chemical reactions can transform pollutant emissions into other chemical substances. Ambient air quality data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter [$\mu g/m^3$] of air) or as a volume fraction (e.g., parts per million [ppm] by volume).

Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, Pb, and some particulates, are emitted directly into the atmosphere from emission sources. Secondary pollutants, such as O_3, NO_2, and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. PM_{10} and $PM_{2.5}$ are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, fine particulate matter (PM_{10} and $PM_{2.5}$) can also be formed as secondary pollutants through chemical reactions or by gaseous pollutants condensing into fine aerosols. In general, emissions that are considered "precursors" to secondary pollutants in the atmosphere (such as Reactive Organic Gases [ROG] and oxides of nitrogen [NO_x], which are considered precursors for O_3), are the pollutants for which emissions are evaluated to control the level of O_3 in the ambient air.

The California Air Resources Board (CARB) has also established the more stringent California Ambient Air Quality Standards (CAAQS). Areas within California in which ambient air concentrations of a pollutant are higher than the state and/or federal standard are considered to be non-attainment for that pollutant. The State of California has also identified four additional pollutants for ambient air quality standards: visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Table 3-5 details both the federal and state ambient air quality standards.

Table 3-5. Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS[1]		CAAQS
		Primary	Secondary	Concentration
Ozone (O_3)	1-Hour	-	Same as Primary Standard	0.09 ppm (180 µg/m^3)
	8-Hour	0.075 ppm		0.070 ppm (137 µg/m^3)
Carbon Monoxide (CO)	8-Hour	9.0 ppm	None	9.0 ppm (10 mg/m^3)
	1-Hour	35 ppm		20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.053 ppm	Same as Primary Standard	0.030 ppm (57 µg/m^3)
	1-Hour	0.100 ppm		0.18 ppm (338 µg/m^3)
Sulfur Dioxide (SO_2)	24-Hour	-	-	0.04 ppm (105 µg/m^3)
	3-Hour	-	0.5 ppm	-
	1-Hour	75 ppb	-	0.25 ppm (655 µg/m^3)
Respirable Particulate Matter (PM_{10})	24-Hour	150 µg/m^3	Same as Primary Standard	50 µg/m^3
	Annual Arithmetic Mean	-		20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	35 µg/m^3	Same as Primary Standard	-
	Annual Arithmetic Mean	12 µg/m^3		12 µg/m^3
Lead (Pb)	30-Day Average	-	-	1.5 µg/m^3
	Calendar Quarter	1.5 µg/m^3	Same as Primary Standard	-

Pollutant	Averaging Time	NAAQS[1]		CAAQS
		Primary	Secondary	Concentration
_3-Month Rolling Average	Rolling 3-month Average	0.15 µg/m3		
Hydrogen Sulfide (HS)	1-Hour	No Federal Standards		0.03 ppm (42 µg/m3)
Sulfates (SO_4)	24-Hour			25 µg/m3
Visibility Reducing Particles	8-Hour (10 am to 6 pm, Pacific Standard Time)			In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%.
Vinyl chloride[2]	24 Hour			0.01 ppm (26 µg/m3)

[1]NAAQS (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For NO_2, to attain the national standard, the 3-year average of the 98th percentile of the 1-hour maximum daily concentration must not exceed 100 ppb.

[2]The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter.

Sources: CARB 2012, USEPA 2012.

Because vinyl chloride and hydrogen sulfide are not expected to be emitted as a result of the Proposed Action, they are not carried forward in the analysis. Additionally, airborne emissions of lead and visibility reducing particles are not addressed in this EA because there are no known significant emission sources associated with the Proposed Action.

In addition to the ambient air quality standards for criteria pollutants, regulations exist for hazardous air pollutants (HAPs). The National Emission Standards for Hazardous Air Pollutants (NESHAP) regulates 187 HAPs based on available control technologies (40 CFR Parts 61 and 63). The majority of HAPs are volatile organic compounds (VOCs).

HAPs emitted from mobile sources are called Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment which are known or suspected to cause cancer or other serious health and environmental effects. In 2001, USEPA issued its first MSATs Rule, which identified 21 compounds as being HAPs that required regulation (USEPA 2001). A subset of six of these MSAT compounds were identified as having the greatest influence on health and included benzene, 1,3-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 having the greatest impact on health. The rule also identified several engine emission certification standards that must be implemented (USEPA 2007).

Unlike the criteria pollutants, there are no NAAQS for MSATs. The primary control methodologies for these pollutants for mobile sources involves reducing their content in fuel and altering the engine operating characteristics to reduce the volume of pollutant generated during combustion. MSATs would be the primary HAPs emitted by mobile sources during construction and operations. Minor amounts of HAPs are emitted from the combustion of fossil fuels in construction equipment and vehicles. The amounts that would be emitted are small in comparison with the emissions of criteria pollutants; emission factors for most HAPs from combustion sources are roughly three or more orders of magnitude lower than emission factors for criteria pollutants. Additionally, construction equipment would be operated intermittently and would produce negligible ambient HAPs in a localized area. The proposed activities would occur in restricted areas where no sensitive receptors (i.e., residents, schools, hospitals, etc.) are located, no health effects would be anticipated from emissions of HAPs. Therefore HAP emissions are not considered further in this analysis.

3.9.2 Affected Environment

SSC Pacific is located within San Diego County and is under the jurisdiction of the San Diego Air Pollution Control District (APCD). The APCD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies in the San Diego Air Basin (SDAB), which is contiguous with San Diego County.

On April 15, 2004, the SDAB was designated a basic nonattainment area for the 8-hour NAAQS for O_3, and on July 15, 2005, the 1-hour NAAQS for O_3 was rescinded. The Environmental Protection Agency (EPA) was challenged on their justification for "basic" nonattainment designations and reclassified former basic ozone nonattainment areas as marginal, moderate, serious, severe or extreme based on various factors. The SDAB is currently classified as a marginal nonattainment area for the 8-hour O_3 NAAQS (VOCs and NO_x are precursors to the formation of O_3). In 1994, the SDAB attained the standard for CO; the air basin is considered a maintenance area for CO and has been subject to a maintenance plan. The SDAB is currently in attainment for the NAAQS for all other criteria pollutants. The SDAB is currently classified as a nonattainment area under the CAAQS for O_3, PM_{10}, and $PM_{2.5}$ (40 CFR 81.305).

The APCD operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The nearest ambient monitoring station to the project site is located in downtown San Diego, California.

3.9.2.1 Region of Influence (ROI)

Specifically identifying the ROI for air quality requires knowledge of the type of pollutant, emission rates of the pollutant source, proximity to other emission sources, and local and regional meteorology. The ROI for the SSC Pacific is defined by the SDAB. For inert pollutants (all pollutants other than O_3 and its precursors), the ROI is generally limited to a few miles downwind from the source. However, for a photochemical pollutant such as O_3, the ROI may extend much farther downwind. O_3 is a secondary pollutant that is formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors (VOC and NO_x). The maximum effect on O_3 levels from precursors tends to occur several hours after the time of emission during periods of high solar load and may occur many miles from the source. O_3 and O_3 precursors transported from other regions can also combine with local emissions to produce high local O_3 concentrations.

3.9.2.2 Federal Requirements

Under NEPA, air quality impacts must be evaluated and assessed with regard to the significance of their impacts. NEPA is applicable to areas that are within the United States Territory, typically defined as within 12 nautical miles of shore and on land. In addition to NEPA, the CAA, General Conformity Rule, and New Source Review (NSR) are applicable to analyses of impacts to air quality. These federal requirements are discussed in the following sections.

3.9.2.3 Clean Air Act

The USEPA is the agency responsible for enforcing the CAA of 1970 and its 1977 and 1990 amendments. The purpose of the CAA is to establish NAAQS, which classify areas as to their attainment status relative to NAAQS; develop schedules and strategies to meet the NAAQS; and to regulate emissions of criteria pollutants and air toxics to protect public health and welfare. Under the CAA, individual states are allowed to adopt ambient air quality standards and other regulations, provided they are at least as stringent as federal standards. The CAA Amendments established new deadlines for achievement of NAAQS, dependent upon the severity of nonattainment.

The USEPA requires each state to prepare a State Implementation Plan (SIP), which describes how that state will achieve compliance with NAAQS. A SIP is a compilation of goals, strategies, schedules, and enforcement actions that will lead the state into compliance with all federal air quality standards. Each change to a compliance schedule or plan must be incorporated into the SIP. In California, the SIP consists of separate elements for each air basin, depending upon the attainment status of the particular air basin.

The CAA Amendments also require that states develop an operating permit program that would require permits for all major sources of pollutants. The program would be designed to reduce criteria pollutant emissions and control emissions of hazardous air pollutants by establishing control technology guidelines for various classes of emission sources. Under the CAA, state and/or local agencies may be delegated authority to administer the requirements of the CAA, including requirements to obtain permits to operate stationary sources on Navy installations.

3.9.2.4 General Conformity Rule

Under the General Conformity Rule (GCR), which is published in Part 93, Subchapter C, Chapter I, Title 40 of the CFR (40 CFR 93) and 40 CFR 51.851, federal agencies are required to demonstrate that federal actions conform with the applicable SIP. In order to ensure that federal activities do not hamper local efforts to control air pollution, Section 176(c) of the CAA, 42 USC 7506(c) prohibits federal agencies, departments, or instrumentalities from engaging in, supporting, providing financial assistance for, licensing, permitting or approving any action which does not conform to an approved SIP or federal implementation plan.

The USEPA GCR 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 emission thresholds that trigger requirements of the conformity rule are called *de minimis* levels. Table 3-6 (see Section 3.9.3.2) identifies the federal nonattainment pollutants and the relevant *de minimis* emission thresholds.

In order to demonstrate conformity with the CAA, a project must clearly demonstrate that it does not cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard, any required interim emission reductions, or other milestones in any area. A conformity applicability analysis is required for each of the nonattainment pollutants or its precursor emissions.

Compliance with the conformity rule can be demonstrated in several ways. Compliance is presumed if the net increase in direct and indirect emissions from a federal action would be less than the relevant *de minimis* level. If the net direct and indirect emissions exceed the relevant *de minimis* value, then a formal conformity determination process must be followed.

3.9.2.5 Greenhouse Gases

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The most significant of the human activities emitting GHGs is the burning of fossil fuels. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Scientific evidence indicates a trend of increasing global temperature over the past century correlating with an increase in GHG emissions from human activities.

The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons and perfluorocarbons) and sulfur hexafluoride. Each GHG is assigned a global warming potential, which is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential scale is standardized to CO_2, which has a value of one. For example, CH_4 is typically defined as having a global warming potential of 21, which means that it has a global warming effect 21 times greater than CO_2 on an equal-mass basis. CO_2 is the dominant gas in terms of quantities of total GHG emissions, although other GHGs have a higher global warming potential than CO_2. Total GHG emissions from a source are often reported as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emission rate representing all GHGs.

Federal agencies are addressing emissions of GHGs by mandating GHG reductions in federal laws and EOs, most recently EO 13423 (*Strengthening Federal Environment, Energy, and Transportation Management*) and EO 13514 (*Energy Efficient Standby Power Devices*). Several states have passed GHG related laws as a means to reduce statewide levels of GHG emissions. In particular, the California Global Warming Solutions Act of 2006 (*Assembly Bill 32*) directs the State of California to reduce statewide GHG emissions to 1990 levels by the year 2020.

In an effort to reduce energy consumption, reduce dependence on petroleum, and increase the use of renewable energy resources in accordance with goals set by EO 13423 and the Energy Policy Act of 2005, the Navy has implemented a number of renewable energy projects. The types of projects currently in operation within military installations include thermal and photovoltaic solar energy systems, geothermal power plants, and wind energy generators (NAVFAC 2006).

The potential effects of GHG emissions are by nature global and cumulative, and it is not possible to attribute climate change to individual projects. Therefore, the impact of GHG emissions associated with this project is discussed in the context of cumulative impacts in Section 4.2.9 of this EA.

3.9.2.6 New Source Review (NSR)

A NSR is required when a source has the potential to emit any pollutant regulated under the CAA in amounts equal to or exceeding specified major source thresholds (100 or 250 tons per year), predicated on the source's industrial category. A major modification to the source also triggers a NSR. Any new or modified stationary emission source requires construction and operating permits from the SDAPCD. Through the SDAPCD's permitting process, all stationary sources are reviewed and are subject to a NSR process. The NSR process ensures that factors such as the availability of emission offsets and their ability to reduce emissions are addressed and conform to the SIP. There are no major stationary sources proposed as part of the action. Therefore NSR is not carried forward in the analysis.

3.9.2.7 Local Requirements

In San Diego County, the SDAPCD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies. Included in the SDAPCD's tasks are monitoring of air pollution, 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 O_3 standard within San Diego County. The SIP elements are taken from the Regional Air Quality Strategy and the SDAPCD plan for attaining the state O_3 standard, which is more stringent than the federal standard. The SDAPCD's rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts (SDCAPCD 2012).

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 stationary sources of air pollutants to obtain and maintain Permits to Operate for all stationary sources subject to the requirements of Regulation II (SDCAPCD 2012). The Navy must submit applications to the SDAPCD for their review and approval. The SDAPCD is responsible for the review of applications and for the approval and issuance of these permits. Once a permit is issued, the Navy is responsible for compliance with the conditions specified in the permit, and is responsible for quantification of emissions associated with the permitted unit. The SDAPCD does not have quantitative emissions limits for construction activities, nor for long-term emissions that may result from increased vehicle use or other mobile sources. The SDPACD does not require permits for mobile sources, including engines on ground vehicles and barges used for propulsion or electric power. Stationary reciprocating internal combustion engines that are less than 50 brake horsepower are also exempt from permitting requirements. Other equipment, including diesel-powered pile drivers, engines larger than 50 brake horsepower, and other portable equipment not specifically exempt from permitting requirements must be either permitted or registered in accordance with SDAPCD rules and regulations. The construction contractor will be required to obtain and maintain the necessary permits and/or registrations for equipment that is subject to these requirements.

3.9.2.8 Current Mitigation Measures

The Navy currently has a comprehensive air quality management program to comply with all federal, state, and local requirements. Mitigation measures that are part of the Navy's air quality management practices are implemented at SSC Pacific. Equipment is maintained and meets applicable emission standards (such as smog certification for on-road vehicles) in accordance with state requirements.

3.9.3 **Environmental Consequences**

This resource section focuses on activities that have the potential to result in an impact to the ambient air quality. Types of emission sources associated with the LDUUV test program relocation that could affect air quality include construction and operation activities. Air quality impacts from proposed construction and operation activities would occur from combustion emissions due to the use of fossil fuel-powered equipment. Due to the nature of the project there would be no earthmoving or grading activities. There would be very limited asphalt paving of an existing Flume Bridge surface. Pile-driving activities would not generate fugitive dust as the marine sediments that would be impacted are subsurface.

3.9.3.1 Approach to Analysis

The air quality analysis is based on estimates of emissions from combustion of fossil fuels in heavy construction equipment and vehicles. The estimated equipment required for construction activities, including tugboats, heavy construction equipment, truck trips, and workforce estimates, are provided in

Appendix A, along with the emission calculations for all activities. It is assumed that all construction activities would take place during an approximately two-month period starting in December 2013.

Emissions Evaluation Methodology

The methodology for estimating construction emissions involves quantifying the number and type of heavy construction equipment, truck trips, worker trips, and marine vessels that would be used for the SSC Pacific pier, Flume Bridge, and building modifications.

Emissions from heavy construction equipment were estimated based on emission factors for specific equipment from the CARB's OFFROAD emission model (CARB 2007), which provides emission factors for offroad equipment. Emissions were estimated by multiplying the number of each type of equipment by the hours per day, days per year, and emission factor. Emissions from the pile driving hammer were calculated based on the DELMAG D12 hammer, assuming the hammer would use 0.95 gallons of diesel fuel per hour (DELMAG 2012).

Emissions from ground vehicles (worker vehicles and truck trips) involved in the SSC Pacific pier and building modification activities include combustion emissions from delivery vehicles such as trucks, and emissions from the construction workforce traveling to and from the site. Emissions associated with ground vehicles were estimated based on emission factors for specific equipment, or for ground vehicles, from the CARB's Emission Factors (EMFAC) 2011 model (CARB 2011), which provides emission factors for on-road vehicles. Emissions were estimated by multiplying the number of each type of vehicle times the estimated mileage traveled per day, and the number of days for each construction/renovation activity.

It is assumed that the impact hammer used to drive the required pilings at Pier 160 will be located on a crane barge. The barge will require limited assistance from a small tugboat. The methodology for estimating marine vessel emissions involves the power rating of the propulsion engine, the typical engine load, and the number of hours of activity. Emission factors were obtained from the USEPA (USEPA 2009).

Operational emissions would primarily be from mobile sources associated with LDUUV operations, including replacement of gas cylinders used to recharge the one fuel-cell powered LDUUV, which is expected to occur approximately once a month. Movement of LDUUVs between Pier 160, Pier 159, or the Main Base piers and Building 9 would occur approximately twice per month. RHIBs would operate in conjunction with LUUDV operations. These operations are anticipated to involve 3 craft for 2 hours, twice a month. If the temporary shelter, transport, and barge/floating boat dock options were implemented, these operations are anticipated to involve, at most, 1 RHIB and 1 pin barge for up to 8 hours, six times a month. As such, the total number of LDUUV operations would be unchanged if the temporary shelter, transport, and barge/floating boat dock options were implemented. These options would also entail the use of a crane for movement of the RHIB and LDUUV to and from the water. This operation is conservatively assumed to require approximately one hour for movement of the two craft for access to the water, and one hour for removal at the conclusion of the operation. Based on this assumption, the crane would operate approximately 12 hours per month. For the purposes of the air quality analysis, a 250-horsepower truck crane was selected for this activity as a worst case scenario that includes driving of the truck to and from SSC Pacific for each operation. The Conolift, if used, would be operated up to four hours per day, three days per week. Detailed emission calculations can be found in Appendix A.

3.9.3.2 Proposed Action

Construction/Renovation Activities

Implementation of the Proposed Action would include the following activities:

Construction at Pier 160 would require installation of up to 72 16-inch piles in the water adjacent to the pier. Re-grading the Flume Bridge would require the addition of a small amount of asphalt to lessen the grade at either end. A total of 1,125 cubic ft of asphalt is estimated to achieve the desired grading. Minor renovation of the interior of Building 9 would be required to accommodate the LDUUV test program activities. Very minor renovations would be required in Building 68 to accommodate an activity that would vacate Building 9.

Implementation the temporary shelter, transport, and barge/floating dock options would involve the use of two floating boat docks or a pin barge and a floating boat dock alongside Pier 160 or Pier 159, until no longer needed. There would be no actual construction associated with this activity; the pin barge, if used, would transported to SSC Pacific by truck, rail, and/or tug as needed and left onsite. The floating boat dock pieces would be delivered by truck and/or rail and assembled onsite. Placement of the floating dock(s) into the water would be a short term event that could occur within one day and the floating dock(s) would then remain in the water until they are no longer required. The brevity and singular occurrence of these activities would result in negligible emissions and therefore were not quantified.

To evaluate the maximum possible emissions, the construction and operations under the Proposed Action are assumed to occur simultaneously with implementation of the temporary shelter, transport, and barge/floating boat dock options.

Operations

Under the Proposed Action, operation emissions generated from the LDUUV test program would be limited to mobile source emissions occurring monthly as a result of delivery of gas cylinder replacements, RHIB operations, and transport of LDUUVs between Pier 160, Pier 159, or the Main Base piers and Building 9.

If implemented, the temporary shelter, transport, and barge/floating boat dock options would provide an additional 144 hours of crane operation per year to place and extract one RHIB and one LDUUV from the basin for operational purposes, and the movement of the truck crane from a location in the San Diego area to SSC Pacific to perform the activity six days per month. Each roundtrip is assumed to be 60 miles. If implemented, these operations would continue until no longer needed. Detailed emissions calculations are provided in Appendix A.

As shown in Table 3-6, the maximum emissions that could be generated in any year, which would include construction occurring at the same time as operations under the temporary shelter, transport, and barge/floating boat dock options, would be below *de minimis* thresholds. Therefore, the maximum emissions possible would not have a significant impact to air quality. As such, the implementation of the Proposed Action would not have a significant impact to air quality.

Table 3-6. Maximum Potential Emissions for LDUUV Test Program with Evaluation of Conformity

Activity	Emissions (tons/year)					
	VOCs[1]	CO[2]	NOx[1,3]	SOx[3]	PM_{10}[3]	$PM_{2.5}$[3]
Maximum Possible Emissions	0.09	1.01	1.45	0.00	0.06	0.06
de minimis Threshold/ Major Source Threshold[5]	100	100	100	100	100	100
Exceeds Threshold?	No	No	No	No	No	No

Notes: (1) SDAB is currently classified as a marginal nonattainment area for the 8-hour O_3 NAAQS; VOCs and NOx are precursors to the formation of O_3.
(2) SDAB is considered a maintenance area for the CO NAAQS.
(3) SDAB is in attainment of the NAAQS for NOx, SOx, PM_{10}, and $PM_{2.5}$.
(4) *de minimis* thresholds are developed from the General Conformity Rule for nonattainment and maintenance pollutants; NAAQS attainment pollutants (i.e., SOx, PM_{10}, and $PM_{2.5}$) are evaluated based on SDCAPCD major source thresholds.
Sources: USEPA 2010

General Conformity Applicability Analysis

The estimated construction and operational emissions associated with the Proposed Action would be below the *de minimis* threshold levels for CAA conformity. Therefore, locating the LDUUV test program at SSC Pacific would conform to the SDAB SIP and would not trigger a conformity determination under Section 176(c) of the CAA. The Navy has prepared a Record of Non-Applicability (RONA) for CAA conformity (Appendix A).

Conclusion

For the reasons described above, implementation of the Proposed Action would not result in significant impacts to air quality.

3.9.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged. With no construction or operation emissions, the No-Action Alternative is exempt from the General Conformity Rule. Therefore, implementation of the No-Action Alternative would have no impact to air quality.

3.10 TRANSPORTATION AND CIRCULATION

3.10.1 Definition of Resource

Transportation and circulation refer to the operational characteristics of a transportation network, including the network's capacity to accommodate the additional demand resulting from a proposed project. Networks may encompass many different types of facilities that serve a variety of transportation modes, such as vehicular traffic, public transit, and non-motorized travel.

3.10.2 Affected Environment

Roadway access to the Point Loma peninsula and NBPL is limited. There is no immediate freeway access. Rosecrans Street, which is a City of San Diego street, is the main route leading to the SSC Pacific complex. SSC Pacific employees driving to locations between Pier 160 or Pier 159, Building 9, and the Main Base piers would likely travel on Kephart Road, Fort Rosecrans Boulevard, Rosecrans Street, Gate Road, Dock Street, Front Street, and Craig Road, all of which are located on Navy property. The Flume Bridge connects Front Street and Craig Road.

3.10.3 Environmental Consequences

3.10.3.1 Approach to Analysis

For the purpose of this analysis, the proposed project would result in significant impacts to transportation and circulation if it would result in changes in accessibility of public roads that would constitute long-term effects to transportation and circulation.

3.10.3.2 Proposed Action

The proposed project site is part of SSC Pacific's bayside compound. Vessel and vehicle traffic on and near Pier 160, Pier 159, the Main Base piers, the Flume Bridge, and Building 9 are almost exclusively associated with SSC Pacific activities.

Construction Traffic

Any impacts to transportation would be short term and limited to the construction phase. Potential transportation impacts associated with pier construction would be primarily limited to marine transit and vessel docking. However, proposed construction activities would take place inside an existing restricted navigation zone (Security Zone) that is off-limits to civilian vessels. Therefore, significant impacts to civilian vessel traffic would not occur.

Pier 160 is currently under-utilized; current activities at Pier 160 would not be affected by the proposed construction and operation activities. Pier 159 is currently utilized by the Navy MMP and would only be utilized if the temporary shelter, transport, and barge/floating boat dock options were implemented. If these options are implemented, Pier 159 would only be used after the Navy MMP has been relocated and is no longer using the pier. The Main Base piers (north, middle, and south) are currently used to dock, load, and unload Navy ships. These piers would only be used temporarily to launch and recover the LDUUVs if the pier is not otherwise being used.

The concrete piles and other components and construction materials would be barged or trucked to Pier 160. Construction staging would occur entirely within the SSC Pacific facility, on existing paved surfaces. There would be no demolition associated with the proposed project, so no hauling of demolition materials to an off-site location would be required.

Construction activities related to Pier 160, including pile installation, would take place from work barges. Construction equipment and materials requiring trailers greater than 50 ft would be brought to the site by barges or other vessels. The addition of these vessels may result in temporary and localized constraints on vessel traffic flow near the site.

Significant ground transportation impacts are not anticipated because the construction-related vehicle trips would be primarily non-peak hour related and would be of limited duration (occurring within the approximately two to six month construction period). The number of construction workers needed during the concrete pile installation period is expected to be minimal and not anticipated to result in a significant increase in traffic. SSC Pacific worker commutes would be temporarily impacted by the delivery and export of concrete and construction materials and closure of Flume Bridge during re-grading. During closure of the bridge, alternate routes would include using Gate Road to reach facilities on Craig Road, or using Dock Street to reach facilities on Front Street.

Implementation of the temporary shelter, transport, and barge/floating boat dock options would result in a minor, temporary increase in traffic due to the placement and removal of the temporary shelter, barge, or floating boat docks at Pier 160.

Commercial, recreational, and military vessels would be fully informed of construction activities, and measures, such as vessel scheduling and communication protocols, would be developed to ensure that navigation is impeded as little as possible. The contractor shall adhere to all U.S. Coast Guard rules and regulations, including publishing a Notice to Mariners.

During construction, the contractor would implement standard traffic control measures for landside construction traffic. In the event that the construction requires a temporary roadway closure, or could otherwise substantially interfere with standard traffic circulation, the contractor would provide a traffic control plan for review and approval. The traffic control plan would ensure that adequate emergency ingress and egress is maintained and that traffic is allowed to move efficiently and safely in and around the SSC Pacific complex. Therefore, no impacts to transportation would occur under the Proposed Action.

Operational Traffic

With construction of the proposed project, future operations of the SSC Pacific Pier 160 area would be similar to current operations. Truck traffic associated with long-term maintenance activities is anticipated to equal two truck trips per month. LDUUV test activities in which the RHIBs would transit the bay with an LDUUV, departing from and returning to Pier 160, are assumed to occur twice per month.

Implementation of the temporary shelter, transport, and barge/floating boat dock options would result in a minor increase in traffic at Pier 160, Pier 159 (if used), and the Main Base piers (if used). However, any such increase would not substantially alter current activity at these piers and would be coordinated with SSC Pacific.

In summary, implementation of the Proposed Action would not cause significant temporary impacts to traffic and circulation. Implementation of the Proposed Action would not result in changes in accessibility of public roads that would constitute long-term effects to transportation and circulation. Therefore, implementation of the Proposed Action would not result in significant impacts to transportation and circulation.

3.10.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to transportation and circulation.

3.11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.11.1 Definition of Resource

Socioeconomics is a social science discipline that focuses on the attributes of human social and economic interactions within an area. Socioeconomic analyses typically address issues such as population demographics, business activity, employment and income, and environmental justice. In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued with the intent to ensure that the environmental effects of federal actions do not fall disproportionately on low-income and minority populations.

3.11.2 Affected Environment

The primary focus of the socioeconomic analysis in this EA is on the net effect on the economy, demographics, and minority and low-income populations in the local community, related to the proposed pier and building modifications and associated construction.

3.11.3 Environmental Consequences

3.11.3.1 Approach to Analysis

As part of the Proposed Action, the U.S. Navy would engage in a construction project to modify Pier 160, Flume Bridge, Building 9, and Building 68, all of which are located on Navy property. It is estimated that the proposed modifications would require two to six months to complete, potentially beginning in December of 2013.

The construction project may bring some small and temporary amount of new economic activity to the local construction sector. Potential impacts to local housing supply, population, demand for housing, and public services were also examined.

With regard to environmental justice, Shelter Island (adjacent to the project site) has a low-income population area, defined as Census Block Groups where 20 percent or more of the population has income below the poverty line (U.S. Census 2010). There are no minority population areas within four miles of the proposed project site (defined as Census Block Groups where 50% or more of the population is either Black or African-American, Hispanic or Latino, Asian, American Indian or Native Alaskan, Native Hawaiian, or Other Pacific Islander).

3.11.3.2 Proposed Action

The proposed project construction would occur entirely on Navy property, requiring no property acquisition. The scope and intensity of future operations would be similar to current operations. With the exception of a crane operator if the temporary shelter, transport, and barge/floating boat dock options are implemented, no additional employees would be required to meet operational needs. Due to the limited timeframe for construction and scale of the proposed construction, impacts to the local economy and local labor pool would be negligible. The Proposed Action would not involve a change in housing supply, population, demand for housing, or public services. Therefore, implementation of the Proposed Action would not result in significant impacts to socioeconomics.

There would be no disproportionately high environmental or health impacts on low-income or minority populations. In addition, no residential areas would be disproportionally affected by noise, traffic, or other impacts. Therefore, implementation of the Proposed Action would not result in significant impacts with respect to environmental justice.

3.11.3.3 No-Action Alternative

Under the No-Action Alternative, existing conditions would remain unchanged and there would be no impact to socioeconomics and environmental justice.

CHAPTER 4
CUMULATIVE IMPACT ANALYSIS

Federal regulations and Navy Procedures for Implementing NEPA require that the cumulative impacts of a Proposed Action be assessed. CEQ regulations define cumulative impacts as:

> The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1507).

To analyze cumulative impacts, the following must be considered:

1. The area in which the effects of the proposed project will be felt;
2. The impacts that are expected in the area from the proposed project;
3. Other actions past, present, and reasonably foreseeable that have had or are expected to have impacts in the same area;
4. The impacts or expected impacts from these other actions; and
5. The overall impact that can be expected if the individual impacts are allowed to accumulate.

The primary impacts of the Proposed Action are associated with construction, which would not occur until the fall of 2013 or the spring of 2014. The area of project effects, where cumulative impacts may occur is relatively small and includes Pier 160 and the adjacent area of NBPL and northern San Diego Bay. The cumulative projects described in Section 4.1 focus on other military projects and a civilian project that would occur adjacent to the Proposed Action. The analysis presented in Section 4.2 considers additional impacts arising from the impacts of implementing the Proposed Action combined with the impacts of the other known past, present, and reasonably foreseeable future actions within this region.

4.1 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE PROJECTS

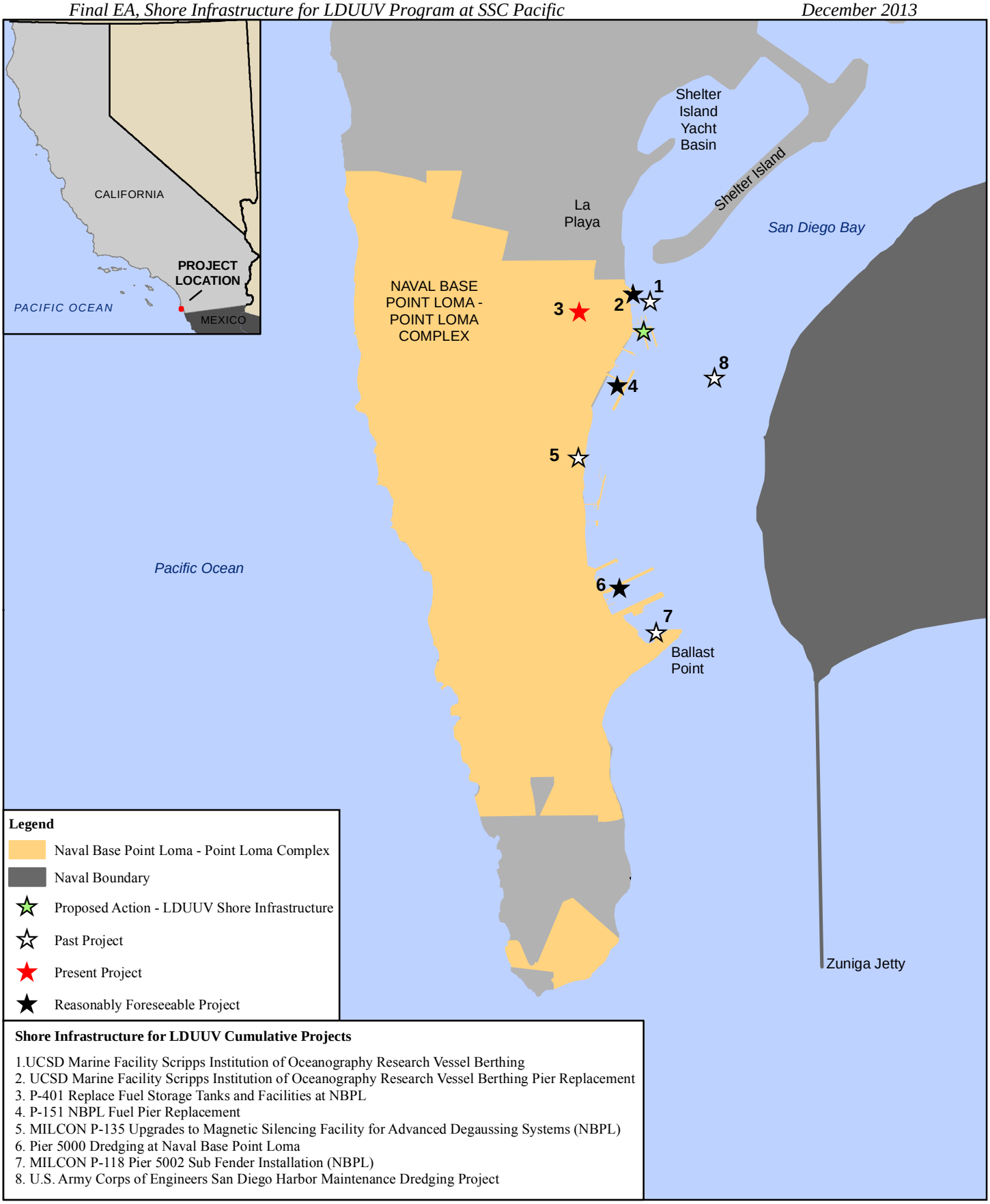
Past, present and reasonably foreseeable projects in the vicinity of the proposed project are illustrated on Figure 4-1.

4.1.1 Past Projects

4.1.1.1 Upgrades to Magnetic Silencing Facility for Advanced Degaussing Systems MILCON P-135 (NBPL)

MILCON Project P-135 upgraded the Magnetic Silencing Facility at NBPL so that it could support newer class Pacific Fleet surface ships. Upgrades occurred at pre-existing piers and associated underwater grids, vessel mooring system, Anti-terrorism/Force Protection floating barriers, and power supply systems (which required the installation of a new on-shore electrical cable distribution system and on-shore building demolition, repair, and construction).

As part of the project, the Navy marine mammals maintained by Explosive Ordnance Disposal Mobile Unit 1 and their floating enclosures were moved to Pier F122, where they were located with other Navy marine mammals maintained by Space and Naval Warfare Systems Center (SSC) Pacific. A new access pier was constructed at Pier F122 for the co-located Navy marine mammal facilities. A Finding of No Significant Impact (FONSI) was signed for this project. Project activities were completed in 2010.



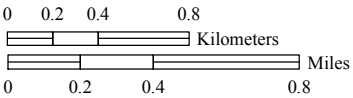
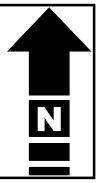


Figure 4-1
Locations of Present and Reasonably Foreseeable Cumulative Projects



Source: Navy, NAVFAC Southwest, and Port of San Diego 2010

4.1.1.2 Pier 5002 Sub Fender Installation MILCON P-118 (NBPL)

MILCON Project P-118 modified Submarine Pier 5002, south of the P-135 project area, at NBPL. It allowed mooring of submarines next to the maintenance building. The principal modification was removal of deteriorating timber piles and replacement with composite piles with an expected life of 50 years. Supplemental foam-filled fenders were interspersed between the submarine fenders to accommodate surface ships. There was no increase in the pier footprint and no dredging was done. New power supply booms routing shore power to moored submarines and extra communications lines were installed. A Categorical Exclusion (CATEX) was signed for the project. The project occurred in 2008.

4.1.1.3 U.S. Army Corps of Engineers (USACE) San Diego Harbor Maintenance Dredging Project

This project included the removal of up to 550,000 cy of beach compatible material from the entrance to the San Diego Harbor Federal Channel and discharged the dredged material for beneficial reuse in the nearshore zone at Imperial Beach and Coronado Beach. The project was required to maintain federally authorized channel configurations, and to restore and ensure safe navigation within the harbor. The Final Supplemental EA (USACE 2012) prepared for this project concluded that there would be no significant impact to any resource area, and a FONSI was signed on 12 June 2012 (USACE 2012). Maintenance dredging began in November 2012 and was completed in December 2012.

4.1.1.4 Scripps Institution of Oceanography (SIO)/ University of California San Diego (UCSD) Pier Fender Pile Replacement Project

This project replaced 12 concrete and wood fender piles at the existing Scripps Institution of Ocean Oceanography (SIO) University of California San Diego (UCSD) Nimitz Marine Facility Research Vessel Berthing Pier and associated wharf on NBPL and UCSD lands adjacent to the north of NBPL (Figure 2-5). The 12 fender piles replaced failed or were missing completely, thus the work was considered urgently needed, i.e., ahead of the replacement of the entire pier and wharf facility as described below in Section 4.1.3.2. At seven designated locations on the pier (Navy lands) and five locations on the wharf (UCSD lands), broken piles or visible pile stubs were removed or cut at the mudline. The fender piles were replaced in-kind with 14-in square concrete fender piles installed using jetting and an impact hammer. The fender pile replacement did not expand the existing pier footprint or change its use. Construction for this project began on 5 November 2012 and ended on 13 November 2012. The total construction time was less than two weeks. UCSD-SIO coordinated all pile-driving activities with SSC Pacific such that the Navy's marine mammals could be observed during construction. If any unexpected adverse effects were observed, SSC Pacific was prepared to take preventive actions such as moving disturbed individuals.

4.1.2 Present Projects

4.1.2.1 Replace Fuel Storage Tanks and Facilities at NBPL (MILCON P-401)

This project consists of modernizing the existing Defense Fuel Support Point (DFSP) Point Loma fuel storage and distribution facility. All existing bulk fuel storage tanks, both above and underground (and their associated pipelines and pumping facilities) are being demolished or closed in place. Eight new multi-product, aboveground bulk fuel storage tanks are being constructed to provide a total fuel storage capacity of 42 million gallons. New pumping facilities and transfer pipelines are also being constructed, as well as new access roads within DFSP Point Loma and new sedimentation basins for stormwater management. The construction plan is divided into two phases: construction activities followed by the in-place closure of underground storage tanks. While construction is ongoing, fueling operations will continue from underground storage tanks that will be decommissioned when the new tanks are functional.

No significant impacts to any resource area were identified in the EA prepared for this project. Work on the P-401 project began in March 2009 and is expected to be completed in January 2014.

4.1.3 Reasonably Foreseeable Projects

4.1.3.1 MILCON P-151 NBPL Fuel Pier Replacement Project

The Navy proposes to demolish the existing Fuel Pier (Pier 180) at NBPL, construct a new enhanced Fuel Pier with optimum capability to support current and projected fueling needs of the Navy and Department of Homeland Security (DHS), and perform associated dredging. As part of the project, the Navy Marine Mammal Program, which is administered by SSC Pacific and includes pens for the mammals inshore of Pier 160, would be temporarily relocated to the Naval Mine and Anti-submarine Warfare Center. An EA and signed FONSI for the project were completed in August 2013. Project demolition, construction, and dredging would occur simultaneously over an approximately four-year period scheduled to start in September 2013 and end in January 2017. The project includes the installation of 36- and/or 48-inch steel pipe piles by vibratory and impact hammer.

4.1.3.2 Scripps Institution of Oceanography UCSD Marine Facility Research Vessel Berthing Pier Replacement

This project would replace the existing SIO (UCSD) Nimitz Marine Facility Research Vessel Berthing Pier and associated wharf on NBPL and UCSD lands adjacent to the north of NBPL (Figure 2-5). The existing pier and wharf that were originally constructed in 1965 replaced and expanded in 1973, would be demolished. A new, modern replacement pier and wharf of the same size and configuration would be constructed with upgrades including: cold-iron berthing for ships in port; improved lighting for nighttime operations; fiber optic lines for telecommunications and data transfer; and modern systems for potable water, management of oily water, waste oil, sanitary sewage, and storm water. The Scripps Pier project would install 137 24-in diameter concrete piles over the course of a 20-month construction period. In-water work for this proposed project would also be scheduled to coincide with the temporary relocation of the Navy's MMP that is planned for the proposed MILCON P-151 fuel pier replacement project. Dredging would not be required for the Scripps Pier project but design would allow for future dredging and expansion. The slope under the Scripps Pier wharf and landward would be stabilized with cement deep soil mixing. All concrete and steel debris would be recycled; treated wood waste wood be disposed at an appropriately permitted facility. An EA for the project is in process. Construction for this project is estimated to begin in the spring of 2014, and be completed in the fall/winter of 2015.

4.1.3.3 Pier 5000 Dredging at Naval Base Point Loma

This project involves dredging sediment at NBPL Pier 5000 (located at Submarine Base NBPL about 0.9 miles south of Pier 160) and off-site sediment disposal. The proposed dredge footprint is adjacent to the north side of Pier 5000, starting approximately 800 ft from the shoreline and extending to the end of the pier. Dredging would most likely involve a barge-mounted clamshell or backhoe dredge. The NBPL Pier 5000 Dredging project requires dredging approximately 6,380 cubic yards of sediment. The proposed dredging project is very small when taken in comparison with other typical area dredging projects. Depending upon the dredging method used, the dredging operation may be complete in as few as three days. Therefore, while any dredging at the NBPL Pier 5000 site can be considered relatively intense when considered in combination with MILCON P-151, its very short duration and very small size makes it relatively insignificant. There is also consideration of rescheduling the project to Fiscal Year 16. The project includes two options for sediment disposal: nearshore replenishment (beneficial reuse) or ocean disposal. Sediment disposal for this project would adhere to the Marine Protection, Research, and Sanctuaries Act of 1972; the Clean Water Act Sections 404 and 401; and Rivers and Harbors Act Section

10 Regulatory Programs. A Draft Environmental Assessment for this project was completed in October 2012. Construction for this project is estimated to begin and be completed in November 2013.

4.1.3.4 Construct Mooring Improvements at Pier 160 (RM13-1913)

SSC Pacific proposes to construct a concrete floating dock system to support mooring of small boats at Finger C of Pier 160 on NBPL. Finger C is the western most finger of a three finger pier designed to dock and moor large boats and ships and consists of 191 ft x 48 ft of standing concrete decking and several unused guide piles extending southward from the pier. The proposed modifications would provide two gangways down to two floating observation platforms and install 329 ft x 8 ft floating decking running parallel to the existing Finger C and 53 ft x 8 ft floating decking running perpendicular to the Finger C to enable mooring of approximately eight small boats. The work includes removing two existing 18-inch concrete guide piles, reusing 16 existing concrete guide piles, installing 29 new 18-inch concrete guide piles, installing 5,350-square feet of floating dock, installing electrical service and lighting to the new sections, and relocating a jib crane from Finger-B to Finger-C. Project is a capital improvements special project approved for funding in FY14 and currently scheduled for contract award prior to September 30, 2014.

4.2 APPROACH TO CUMULATIVE IMPACTS ANALYSIS

4.2.1 Context and Intensity

The goal of the cumulative impacts section is the same as the goal of analysis for individual direct and indirect impacts. It is to furnish the decision makers with sufficient information to judge whether the Proposed Action "significantly affects the human environment" within the meaning of NEPA (40 CFR 1508.27). Per the CEQ regulations, "significantly" for an impact is a matter of "context" and "intensity" of that impact. Context varies with the scale and nature of the action, whereas intensity refers to the level, magnitude, volume, or quantity of impact.

4.2.2 Acute Impacts and Lingering Impacts

The first distinction to make with regard to a particular impact is the question of whether it is transitory or "acute," or has a lingering effect. For acute impacts to be additive, they must overlap in time. In addition, the impacts have to take place in sufficient geographic proximity that one can potentially add to another. The less intense an impact is, the closer it has to be before it could contribute to a cumulative impact. Unless a cumulative impact is close enough and intense enough to reasonably have the potential to significantly align with, magnify, or exacerbate environmental impacts of a Proposed Action, it is irrelevant. It is often relevant to use quantitative and/or modeling analysis to analyze acute effects. It is important where and when each cumulative action takes place. The environmental resources that fall under the acute impact category include: airborne noise; underwater noise; land-based traffic; and water quality as related to turbidity.

To summarize, there are three major factors in determining whether a cumulative project warrants a quantitative or modeling approach to determine how it adds to a proposed project's impact. These are:

1. Temporal Overlap. If there is no overlap in time, purely acute effects do not add to the proposed project, so they need not be quantified.
2. Geographic Proximity. An acute impact cannot be additive if it is too far away.
3. Intensity. Intensity modifies the relevance of geographic proximity. The more intense the impact, the farther away it can be measured.

In contrast, lingering impacts must be looked at in terms of current impacted baseline conditions and current trends for the future. The resources that fall under the lingering impact category include air quality and biological resources-habitats and communities.

It should be noted that hazardous materials are handled by each individual industrial facility around the bay, but since each facility is individually permitted and held responsible for such materials and wastes, they are not discharged to the environment unless they are mishandled. To analyze scenarios in which multiple facilities mishandle materials and wastes would be speculation.

There are comprehensive regulatory systems now in place that didn't exist when NEPA was first enacted. These regulatory systems are based on the current environmental baselines, reflecting past and present impacts, together with future trends and environmentally protective goals. Compliance or non-compliance with applicable environmental laws is therefore relevant to the term "significantly (see also 40 CFR 1508.27(b)(10)." Environmental regulation also offers a source of standards and thresholds that reflect environmental baseline conditions and future trends and goals. As a practical matter, concerning air quality, this means that the screening criteria for "significance" were derived by adapting regulatory thresholds determined by the U.S. EPA. These are thresholds that become smaller and more stringent as the level of "nonattainment" of air quality standards in a given air basin becomes more serious. This methodology makes primary or direct impact air quality analysis inseparable from cumulative air quality analysis. They are the same because screening standards reflect the past, present, and foreseeable future impacts and regulatory goals.

In addition to the laws and regulations, there are studies such as the San Diego Bay INRMP that also help with analyzing cumulative impacts. These studies document historical conditions leading up to the current baseline that reflects the cumulative impact of past actions. They also document future trends and goals, so that the significance of a project's impacts can be judged in light of those trends and goals. This becomes another example, where the primary or direct impact analysis cannot be separated from the cumulative impact analysis. There is no other meaningful way to determine significance of impact – primary, secondary, or cumulative – than to look at it in the context of the current baseline condition of the bay in light of future trends and goals.

The foregoing should not be taken to say that enumeration and quantification of impacts of individual cumulative projects is never appropriate for analyzing lingering impacts in an urban environment. It is possible that an individual future project could completely alter the baseline such that it should be individually considered. No such projects are presently reasonably foreseeable in the project area.

It should also be noted that an impact may be both acute and lingering. In-water noise is an example, where the impact of the noise disappears completely after the noise is gone. However, noise can contribute to a lingering impact, by "take" of a protected animal.

4.2.3 Quantitative Analysis for Cumulative Impacts

The first step in the process of considering which of these projects require quantitative analysis for acute impacts involved identifying the projects which have a reasonable probability of temporal overlap with the Proposed Action. The next factor is proximity – how close geographically are the projects to the location of the Proposed Action. Past, present and reasonably foreseeable projects in the vicinity of the project are illustrated on Figure 4-1. The third factor is intensity or magnitude of the relevant acute impacts. To warrant quantitative treatment, an impact must at least have some discreet, measurable impacts at the site of the proposed LDUUV infrastructure and have at least some potential to significantly align with, magnify, or exacerbate those environmental impacts.

Applying the above factors resulted in the selection of three nearby, concurrent projects for quantitative analysis:

- MILCON P-151 NBPL Fuel Pier Replacement Project
- MILCON P-401 - Replace Fuel Storage Tanks and Facilities at NBPL
- Scripps Institution of Oceanography UCSD Marine Facility Research Vessel Berthing Pier Replacement

The estimated periods of construction for these projects partially overlap the estimated period of construction timeframe for the Proposed Action (i.e., temporal), they are geographically located in the same vicinity (i.e., proximity), and some of the same resource areas would be affected (i.e., resource intensity). The remaining projects near the project area (refer to Figure 4-1 and preceding descriptions) were not selected to be analyzed quantitatively because their timing, location, and expected resource impact intensity does not indicate a potential, in combination with the Proposed Action, to jointly cause significant environmental impacts.

4.3 CUMULATIVE IMPACTS ANALYSIS

4.3.1 Habitats and Communities

With implementation of the Proposed Action, the effects on habitats and communities would consist of temporary underwater noise and sediment disturbance to open water and benthic communities during construction. The Scripps Pier replacement project, which does not include dredging that would contribute to turbidity, could overlap in time with the Proposed Action and would add incrementally by a small amount to areas of marine water column and benthic habitat affected by the Proposed Action. However, the combined impacts would still be small in the context of the bay, temporary, and not significant in a cumulative sense. The Proposed Action would not impact sensitive habitats such as eelgrass, and the proposed modifications to Pier 160 would be small and inconsequential in the context of the surrounding bay habitats, resulting in no potential for significant cumulative impacts to these resources.

4.3.2 Fish

As noted above under approach to analysis, underwater noise falls under the acute impact category. With implementation of the Proposed Action, the effects on fish populations and EFH would largely consist of small-scale, temporary underwater noise and sediment disturbance during construction. Mortality or injury to fish is unlikely because the potential ZOI for fish injury would be only 7-14 m from the pile being driven, and fish would most likely move away as soon as pile driving begins.

The area of potential behavioral disturbance to fish would extend up to 341 m from the source during pile driving. This is approximately the distance to the Scripps Pier as well as the Fuel Pier, and these projects may occur within the same timeframe. Pile driving for the Scripps project is estimated to have a sound source level of 175 dB re 1μPa (Navy 2013), which results in a slightly larger ZOI of 464 m for behavioral disturbance. Hence there is some possibility for underwater noise from the two projects to combine and increase disturbance to fish, or for fish that move away from one project to then be disturbed by the other project. In contrast, the fish disturbance ZOIs for steel pile driving at the MILCON P-151 Fuel Pier Replacement Project, with sound source levels of 180 dB re 1μPa and 195 dB re 1μPa for vibratory and impact driving, respectively, extend farther from the source, completely overlapping those of the Proposed Action and the Scripps project with much louder sound pressure levels (Navy 2013). Because of the logarithmic nature of sound pressure, adding the sound from the Scripps project and the

Proposed Action to that of the Fuel Pier project makes little difference. In any case, the affected areas are still small, and the combined effect would not be significant.

4.3.3 Birds

With implementation of the Proposed Action, birds may be deterred from perching or diving in the immediate area of construction due to the presence of people and noise, but given the limited scale of the activities and potential disturbance, such effects would not extend beyond Pier 160. Conversely, bird activity at Pier 160 is not likely to be affected by the Scripps or Fuel Pier projects, each being several hundred meters distant. Finally, there are abundant structures and access to resting and foraging habitat along the northern San Diego Bay shoreline, such that birds disturbed at any one location would find similar habitats nearby. Therefore, the Proposed Action in conjunction with other projects listed in Section 4.1 would not result in significant cumulative impacts to birds.

4.3.4 Marine Mammals

The Proposed Action is not anticipated to result in any harassment to marine mammals. As a result, there is no potential for a cumulative impact with the other projects. It should also be noted that pile driving sound from the MILCON P-151 Fuel Pier Replacement Project is so loud, and the ZOIs so large, that the added effect of the Proposed Action would be negligible and the combined effect would not be significant.

4.3.5 Threatened and Endangered Species

The Proposed Action would have no effect on threatened and endangered species, and hence no potential for cumulative impacts exists.

4.3.6 Water Resources

With implementation of the Proposed Action, acute impacts on water quality would be limited to temporary turbidity in the immediate area of each pile as it is driven at Pier 160. Since sediment in the project area is known to be sandy, the impact area would be highly localized, and the amount of sediment disturbance would be relatively small, the possibility of a combined cumulative effect with the Scripps and/or Fuel Pier projects is considered negligible. Therefore, the Proposed Action in conjunction with other projects listed in Section 4.1 would not result in significant cumulative impacts to water resources.

4.3.7 Hazardous Materials and Wastes

There is no hazardous waste associated with the Proposed Action. Hazardous materials consisting of oxygen and hydrogen in pressurized tanks, petroleum fuel and lubricants, and lithium batteries would be properly managed according to applicable federal and state regulations. No potential for cumulative impacts exists.

4.3.8 Airborne Noise

With implementation of the Proposed Action, airborne noise levels would be below established limits and construction noise would cease upon completion of construction activities. The Proposed Action and most of the present and reasonably foreseeable projects would not likely occur at the same time and location; except possibly the proposed fuel pier project on NBPL and the Scripps pier. The fuel pier project is scheduled to start in August 2013, but pile driving activities would not occur until March 2014. The Scripps Pier would not begin until the Spring of 2014. Although the proposed LDUUV project could start in December 2013 and last two to six months, cumulative noise impacts with pile driving occurring at the same time as the fuel pier and Scripps pier are analyzed in case the schedule of the Proposed Action slips to the spring of 2014.

The Scripps Institution of Oceanography Pier Replacement project would be located approximately 400 ft from residential areas in the La Playa neighborhood north of NBPL. Assuming similar construction activities as the Proposed Action using only one pile driver and little other construction equipment, estimated noise levels for cumulative impacts considering the fuel pier, the Scripps Pier, and the Proposed Action are shown in Table 4-1 and model results are provided in Appendix C. Noise levels in La Playa would be strongly dominated by the noise generated at the Scripps Pier, which alone would generate 76.2 dBA, and 76.7 dBA when combined with the fuel pier and the Proposed Action. The additional 0.5 dBA from the Proposed Action and the fuel pier would be virtually unnoticeable and is considered negligible. On the other hand, noise levels at the NBPL CDC would be 65.0 dBA cumulatively but would be due primarily to the fuel pier project, which by itself would exceed the classroom criteria (Table 4-1). Again, the contribution from the Proposed Action is small and considered minor in terms of any cumulative impact. The noise levels would not be continuous and it is likely that modern construction design and materials used in the CDC building would provide a sufficient sound buffer so that indoor noise levels would not exceed the classroom criteria. As noted previously, the noise modeling for the Proposed Action is conservative, and with the implementation of noise reduction measures, noise levels would, if anything, would be less than predicted. Therefore, implementation of the Proposed Action would contribute a minor additional increment to cumulative noise levels and would not have a significant cumulative impact.

Table 4-1. Cumulative Noise Levels at La Playa and NBPL CDC

Receptor Point	***Distance to Proposed Action*** **miles (km)**	***Distance from Fuel Pier*** **miles (km)**	***Distance from Scripps Pier*** **miles (km)**	***Construction-Related Noise (dBA Leq)***			
				Proposed Action only	**Fuel Pier only[1]**	**Scripps Pier only**	**Combined noise levels**
La Playa	0.3(0.5)	0.47 (0.73)	0.07 (0.12)	64.2	62.3	76.2[2]	76.7[2]
CDC NBPL (Building 377)	0.6(1.0)	0.42 (0.68)	0.68 (1.1)	58.2	63.2[3]	59.0	65.0[3]

Notes [1]Approach pier construction used for cumulative impacts since it is the highest noise levels relative to La Playa.
[2] Exceeds City of San Diego construction noise ordinance limit criteria of 75 dBA.
[3] Exceeds recommended classroom criteria of 60 dBA Leq outdoor noise levels for an interior noise level of 35 dBA with windows closed.

4.3.9 Air Quality

4.3.9.1 Criteria Pollutants

As noted above under approach to analysis, air quality falls under the lingering impact category. The ROI in this air quality cumulative effects analysis includes the San Diego Air Basin. With implementation of the Proposed Action, the minor impacts to air quality that could contribute to potential cumulative impacts would be from the short term air emissions from trucks and vehicles used during the construction of the project. Operational air emissions would be extremely small and would not result in long term increases in air emissions. Cumulative projects would also be required to conform to Clean Air Act (CAA) conformity requirements and the San Diego Air Basin State Implementation Plan and would not produce significant amounts of air emissions.

Nominal cumulative impacts would result from the Proposed Action, in conjunction with impacts from other potentially cumulative projects (listed in Section 4.1). For all projects, construction and operation activities would produce air emissions that would be well below applicable CAA conformity significance thresholds.

4.3.9.2 Greenhouse Gas Cumulative Effects Analysis

Currently, there are no formally adopted or published NEPA thresholds of significance for GHG emissions stemming from proposed actions. Formulating such thresholds is problematic, as it is difficult to determine what level of proposed emissions would substantially contribute to global climate change.

Annual GHG emissions associated with construction of the Proposed Action occurring simultaneously with operations associated with implementation of the temporary shelter, transport, and barge/floating boat dock options represent the maximum possible emissions, presented as CO_2e. These emissions are compared to U.S. 2011 greenhouse gas emissions in Table 4-2. The estimated CO_2e emissions from implementing the Proposed Action essentially represent zero percent of the total CO_2 emissions generated by the United States in 2011.

Table 4-2. Estimated Annual GHG Emissions from Construction and Operations

Proposed Action	Metric Tons CO_2e per Year	% of U.S. 2011 GHG Emissions	% of California 2010 GHG Emissions
Maximum Emissions (Construction + Operations)	139.09	0.0000	0.0000
[1]U.S. 2011 Total GHG Emissions	$6{,}708.3 \times 10^6$		
[2,3]California 2010 Total GHG Emissions	451.60×10^6		

[1]U.S. EPA 2013
[2]CARB 2013
[3]Does not include Forested Lands Net CO_2, not available at this time for 2010 inventory.

The small quantity of GHG emissions from the maximum emission scenario alone would not cause appreciable global warming that would lead to climate changes. At present, no methodology exists that would enable estimating the specific impacts (if any) that this increment of emissions would produce locally or globally.

Potentially cumulative projects near the Proposed Action (listed in Section 4.1) could also release a nominal amount of GHGs from construction and operation activities when compared to the total annual CO_2e emissions in the United States. In addition, in response to DoD directives such as EO 13221 *Energy Efficient Standby Power Devices* and EO 13423 *Strengthening Federal Environment, Energy, and Transportation Management*, the Navy has taken a number of steps to reduce GHG emissions from their activities. These actions include developing energy efficient technologies and weapons systems, improving military and civilian vehicles' fuel efficiency, utilizing alternative fuel vehicles and electric vehicles, improving energy efficiency at Navy facilities, and installing solar and other renewable energy sources at Navy facilities. Therefore, implementation of the Proposed Action, in conjunction with other potentially cumulative projects, would not result in significant cumulative impacts to GHGs or climate change.

4.3.10 Transportation and Circulation

As noted above under approach to analysis, transportation and circulation falls under the acute impact category. Traffic from present and reasonably foreseeable future projects is included in the Baseline condition, which consists of existing traffic volumes, plus an annual traffic growth factor. (Note that the traffic generation associated with past projects is included in the existing traffic data collection.) The annual traffic growth factor includes traffic generated by each of the present and reasonably foreseeable

future projects described above in Section 4.1, plus traffic generated by projected future projects lying outside the ROI, but whose trips would traverse the street network that provides access to the Proposed Action. The proposed project construction and operation would not add any additional trips to any street segments that are characterized by as having unpredictable or unstable traffic flow under Baseline conditions. Accordingly, the proposed project would not contribute toward any significant cumulative traffic effect.

The Navy would coordinate with the U.S. Coast Guard to issue a Notice to Mariners when in-water components of this project are occurring. All of the in-water construction zone for the proposed fuel pier replacement project would be within an existing navigation restricted area (Security Zone) that is off-limits to civilian vessels. Most of the Scripps Pier in-water construction zone is in Navy waters, and it would lie within the Security Zone as well. Therefore, implementation of the Proposed Action, in conjunction with other projects listed in Section 4.1, would not result in significant cumulative impacts to transportation, circulation, and marine traffic.

4.3.11 Socioeconomics and Environmental Justice

As the Proposed Action would have no impact to Socioeconomics or Environmental Justice, there is no potential for cumulative impacts.

4.4 Cumulative Impacts Conclusion

Cumulative impacts to the environmental resource areas evaluated herein from the Proposed Action in conjunction with other past, present, and reasonably foreseeable actions would not be significant.

4.5 Possible Conflicts Between the Action and the Objectives of Federal, Regional, State, and Local Plans, Policies, and Controls

Implementation of the Proposed Action would be consistent with federal, regional, state and local plans, policies, and controls to the extent required by federal law and regulation. No potential conflicts have been identified. Table 4-3 provides a summary of environmental compliance with implementation of the Proposed Action.

Table 4-3. Status of Compliance with Relevant Land Use Plans, Policies, and Controls

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
NEPA (42 USC § 4321 *et seq.*) Department of the Navy Procedures for Implementing NEPA (32 CFR 775)	U.S. Navy	This EA has been prepared in accordance with the CEQ Regulations implementing NEPA and U.S. Navy NEPA procedures.
Coastal Zone Management Act (16 CFR § 1451 *et seq.*)	U.S. Navy	The Coastal Zone Management Act (CZMA) of 1972 (16 USC Section 1451) encourages coastal states to be proactive in managing coastal zone uses and resources. CZMA established a voluntary coastal planning program and participating states submit a Coastal Management Plan to the National Oceanic and Atmospheric Administration for approval. Under the CZMA, federal agency actions within or outside the coastal zone that affect any land or water use or natural resource of the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved state management programs. Each state defines its coastal zone in accordance with the CZMA. Excluded from any coastal zone are lands the use of which by law is subject solely to the discretion of the federal government or

Table 4-3. Status of Compliance with Relevant Land Use Plans, Policies, and Controls

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
		which is held in trust by the Federal government (16 USC 1453). Accordingly, although Naval Base Point Loma land is federal government property and therefore, excluded from the coastal zone, the Navy nonetheless conducted an effects analysis as part of its determination of the action's effects for purposes of federal consistency review under the CZMA. This was done to factually determine whether the action (even if conducted entirely within a federal enclave) would affect any coastal use or resource. A Coastal Consistency Negative Determination was prepared and submitted to the California Coastal Commission, and the Commission concurred with the Navy's determination (Appendix D, *Public Involvement and Agency Correspondence*).
CWA (§§ 401-402 and 404, 33 USC § 1251 *et seq.*)	USEPA, U.S. Army Corps of Engineers (USACE)	The installation of piles requires a permit pursuant to Section 10 of the Rivers and Harbors Act (33 U.S.C. § 401 et seq.). No dredge or fill is required, and per USACE (33 CFR 323.3(c)), pilings do not normally constitute fill. Therefore, a Section 404 permit requirement is not anticipated but could be accommodated through the same process if necessary, in which case a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB) would also be required. The Los Angeles District of USACE Carlsbad Field Office regulatory branch has advised that the project qualifies for a non-notification nationwide permit (#9) and due to Regional General Condition 3, a pre-construction notification (PCN) is required. The PCN was submitted in September 2013 and confirmation of receipt by the USACE was received. Nationwide Permit #9 is pre-certified by the RWQCB and notification of use was provided in September 2013.
CAA, as amended (42 USC § 7401 *et seq.*)	USEPA	Per CAA regulations, the Proposed Action would not compromise air quality attainment status or conflict with attainment status and maintenance goals established in the SDCAPCD SIP. A formal CAA conformity determination is not required. The Proposed Action would be in compliance with the CAA and would comply with all applicable SDCAPCD Rules and Regulations.
ESA (16 USC § 1531)	NMFS/USFWS	The Navy has concluded that the Proposed Action may affect but is not likely to adversely affect the ESA-listed green sea turtle, and consulted informally with NMFS regarding that conclusion, receiving NMFS' concurrence (Appendix D). Consultation is not required for other ESA-listed species, which would not be affected.
Marine Mammal Protection Act of 1972 (16 USC § 1361-1407)	NMFS	Harassment of marine mammals under the MMPA would not occur; therefore, no action is required.
EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 Federal Register 7629)	U.S. Navy	There would be no disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. The Proposed Action would be in compliance with EO 12898.
EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (62 Federal Register 19885)	U.S. Navy	The Proposed Action poses no environmental risks to children and is, therefore, in compliance with EO 13045.
Magnuson-Stevens Fishery Conservation and Management Act 16 U.S.C § 1801, et. Seq. as amended by the Sustainable Fisheries Act of (Public Law 104-267)	NMFS	The Proposed Action would have only minimal and temporary effects within a very small area of EFH for federally managed fish species within the Coastal Pelagic Species and West Coast Groundfish FMPs. In conjunction with the NEPA process, the Navy prepared an EFH Assessment as part of Section 3.2 of this EA, and consulted informally with NMFS. NMFS concurred with the assessment, and, therefore, the Proposed Action is in compliance with the Magnuson-Stevens Fishery Conservation and Management Act.

Table 4-3. Status of Compliance with Relevant Land Use Plans, Policies, and Controls

Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*
EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (66 Federal Register 3853)	U.S. Navy	The Proposed Action would not have a measurable negative effect on migratory bird populations and would be in compliance with EO 13186.
NHPA (Section 106, 16 USC 470 *et seq*.)	Advisory Council in Historic Preservation, California State Historic Preservation Office	The Proposed Action would have no effect on NRHP or eligible properties. The action would not affect any *known* archaeological sites or other *known* cultural resources at NBPL, as none are found within the Area of Potential Effect (APE) at, as defined under the Navy Region Southwest (NRSW) Metro San Diego Programmatic Agreement (PA). The Proposed Action does not entail excavation and therefore has no potential to impact previously undiscovered buried cultural resources. Therefore, the Proposed Action would be in compliance with the NHPA.

4.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and other 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.

Although proposed construction activities would result in the consumption of fuel, concrete and steel, the Proposed Action would not result in a significant irreversible or irretrievable commitment of resources at NBPL.

4.7 RELATIONSHIP BETWEEN SHORT-TERM ENVIRONMENTAL IMPACTS 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 refers to the possibility that choosing a single development option reduces future flexibility in pursuing other options, or that giving over a parcel of land or other resource to a certain use often eliminates the possibility of other uses being performed at that site.

The Proposed Action would, reversibly, dedicate an area of land, 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 project. However, these impacts are considered negligible, as the facilities and geographic areas associated with the Proposed Action are designated for and have historically accommodated the types of uses proposed. 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.

CHAPTER 5
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Agencies

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CHAPTER 7
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Appendix A

Record of Non-Applicability for Clean Air Act Conformity (RONA) and Air Quality Data

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

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

The U.S. Environmental Protection Agency (USEPA) published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule*, in the 30 November 1993 Federal Register (40 CFR Parts 6, 51, and 93), and published revisions in the 5 April 2010 Federal Register (40 CFR 51 and 93) . The U.S. Navy published *Navy Guidance for Compliance with the Clean Air Act Conformity Rule*, dated 30 July 2013. These publications provide implementing guidance to document Clean Air Act Conformity Determination requirements.

Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the Federal Agency to determine whether a Federal action conforms to the applicable implementation plan, before the action is taken (40 CFR 93.150).

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

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

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

PROPOSED ACTION

Action Proponent: U.S. Navy

Location: SSC Pacific, Naval Base Point Loma

Proposed Action Name: Shore Infrastructure for LDUUV Program at SSC Pacific

Proposed Action and Emissions Summary: The Proposed Action would involve locating the LDUUV test program at Space and Naval Warfare Systems Center (SSC) Pacific's bayside compound, San Diego, California. SSC Pacific is part of the Naval Base Point Loma (NBPL) Complex, located on the Point Loma peninsula and adjacent to northern San Diego bay. To accommodate the LDUUV test program, SSC Pacific facilities that are proposed to be modified include Pier 160, the Flume Bridge on Front Street, and Buildings 9 and 68. The proposed modifications include: 1) the installation and use of boat lifts, travel hoist tracks, and installation of compressors and compressed gas storage at Pier 160; 2) internal modifications to Building 9 to enable it to serve as the LDUUV Maintenance and Integration facility; 3) reducing the grade over the Flume Bridge on Front Street to avoid the LDUUV transport trailer bottoming out in transit and to meet the travel hoist grade requirements transiting from the pier to building 9; and 4) minor modifications to Building 68 to accommodate a function relocated from Building 9.

Operational emissions under the Proposed Action are limited to (1) delivery trucks switching out gas cylinders monthly at Pier 160, (2) transport of LUUDVs approximately 1/5 mile from Building 9 to Pier 160 twice monthly, (3) operation of a Conolift for transport of LUUDVs up to 4 hours per day and 3 days per week, (4) operation of two 150-HP outboard motors associated with a pin barge that could be operated up to 8 hours per day for 6 times per month, and (3) operation of three rigid-hulled inflatable boats during LUUDV in-water testing, which would involve running the boats for approximately eight hours twice monthly. Operations are anticipated to involve one RHIB craft for eight hours, six times a month.

To accommodate immediate LDUUV program testing needs, the Proposed Action also includes temporary shelter, transport, and barge/floating boat dock options until they are no longer required. If implemented, a truck crane would be used to move one RHIB and LDUUV between the water and the floating boat dock or barge, and from the floating boat dock or barge to topside of the pier at Pier 160 or the Main Base piers (North, Middle, and South). This operation is conservatively assumed to require approximately one hour for movement of the two craft for access to the water, and one hour for removal at the conclusion of the operation. Based on this assumption, the crane would operate approximately 12 hours per month. For the purposes of the air quality analysis, a 250-horsepower crane was selected for this activity. The truck crane is assumed to travel from and return to a location in the San Diego area to perform the activity six days per month; each roundtrip is conservatively assumed to be 60 miles.

Air Emissions Summary: The Proposed Action would result in air emissions from construction and operation activities. The maximum possible emissions that would be generated would occur if the temporary shelter, transport, and barge/floating boat dock options were implemented, in which case all proposed construction and operations would occur within the same year. Therefore, this scenario is used to evaluate conformity. Annual operation emissions were calculated for 2014, although actual project emissions are expected to be lower than the calculated emissions as newer, more efficient vehicles would replace older vehicles over time. Based on the air quality analysis for the proposed action, the maximum estimated emissions would be below conformity *de minimis* levels (Table 2).

Table 2
Estimated Total Net Project Emissions - Tons per Year

Calendar Year (CY)	Pollutant		
	CO	VOC	NOx
Construction + Operations	**1.01**	**0.09**	**1.45**
General Conformity *De minimis* Thresholds (Tons per year)	100	100	100
Exceed threshold?	**No**	**No**	**No**
Exceed threshold?	**No**	**No**	**No**

Date RONA prepared: 25 November 2013

EMISSIONS EVALUATION AND CONCLUSION

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

RONA APPROVAL

Date:_____

Signature: CHICHESTER.ROBERT.ALLEN.1096687210 Digitally signed by CHICHESTER.ROBERT.ALLEN.1096687210 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=CHICHESTER.ROBERT.ALLEN.1096687210 Date: 2013.11.29 08:46:24 -08'00'

Robert A. Chichester, NBPL IEPD

Construction

TAB A. CONSTRUCTION/RENOVATION AIR EMISSIONS

Table 1. Pier 160 Modification

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	[1]Emission Factors in lb/hr									Total Emissions in Pounds								
				VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Barge Crane - 150 T	168	250	0.41	0.104	0.295	0.995	0.001	0.035	0.034	112.159	0.009	0.095	17.48	49.52	167.12	0.21	5.90	5.72	18843	1.58	15.88
Delmag Hammer	168	36	0.50	0.08	0.27	0.27	0.00	0.02	0.02	27.99	0.01	0.03	14.14	46.03	45.49	0.06	3.83	3.72	4702	1.28	4.32
Marine Equipment	**Hours of Operation**	**Engine Power in kW**	**Load Factor**	**[2]Emission Factors in g/kw-hr**									**Total Emissions in Pounds**								
				VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Tugboat	112	75	0.85	0.27	5.00	6.80	0.006	0.30	0.29	690.00	0.09	0.02	4.25	78.71	107.04	0.09	4.72	4.58	10861	1.42	0.31
On-road Equipment	**# Trips**	**Miles per Day**	**Total Miles**	**[3]Emission Factors in lb/mi**									**Total Emissions in Pounds**								
				VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Delivery Truck	15	30	450	0.0024	0.0059	0.0287	0.0001	0.0005	0.0003	0.0093	0.0003	0.0001	1.08	2.68	12.93	0.02	0.21	0.16	4	0.11	0.02
												Subtotal (lbs):	**36.95**	**176.93**	**332.58**	**0.39**	**14.66**	**14.17**	**34410**	**4.38**	**20.54**
												Tons per Year:	**0.018**	**0.088**	**0.166**	**0.000**	**0.007**	**0.007**	**17**	**0.002**	**0.010**
												CO2e in Metric Tons per Year:							**19**		

[1]Emission Factors from Offroad 2007, CARB. PM2.5 conservatively estimated to be 97% of PM10.

[2] Emission Factors from Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories, Final Report. USEPA 2009, except PM2.5 from Summary of Discussions on Generating Baseyear and Future Year Emission Inventories for Aircraft, Commerical Marine Vessels and Locomotives for IAQR, USEPA 2004.

[3]Emission Factors from EMFAC 2007 HDD

Table 2. Regrade Flume Bridge

Off-road Equipment	Hours of Operation	Engine HP	[1]Emission Factors in lb/hr									Total Emissions in Pounds								
			VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Grader	16	120	0.1254	0.5310	0.7729	0.0009	0.0676	0.0655	74.9648	0.0113	0.0734	2.01	8.50	12.37	0.01	1.08	1.05	1199.44	0.18	1.17
Roller	16	50	0.1025	0.2911	0.2583	0.0003	0.0245	0.0237	25.9831	0.0092	0.0245	1.64	4.66	4.13	0.01	0.39	0.38	415.73	0.15	0.39
Paving Machine	16	120	0.1387	0.5057	0.8357	0.0008	0.0729	0.0707	69.1964	0.0125	0.0794	2.22	8.09	13.37	0.01	1.17	1.13	1107.14	0.20	1.27
On-road Equipment	**Daily Trips**	**Total Miles**	**[2]Emission Factors in lb/mi**									**Total Emissions in Pounds**								
			VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Dump Truck	2	60	0.0024	0.0059	0.0287	0.0001	0.0005	0.0003	0.0093	0.0003	0.0001	0.144	0.357	1.724	0.003	0.028	0.021	0.558	0.015	0.003
											Subtotal (lbs):	**6.01**	**21.60**	**31.59**	**0.04**	**2.67**	**2.58**	**2,722.87**	**0.54**	**2.84**
											Tons per Year:	**0.003**	**0.011**	**0.016**	**0.000**	**0.001**	**0.001**	**1.361**	**0.000**	**0.001**
											CO2e in Metric Tons per Year:							**1.64**		

[1]Emission Factors from Offroad 2007, CARB. PM2.5 conservatively estimated to be 97% of PM10.

[2] Emission Factors from EMFAC 2007 HDD

Table 3. Interior Modifications to Bldgs 9 and 68

On-road Equipment	Estimated Trips	Miles per Day	Total Miles	[1]Emission Factors in lb/mi									Total Emissions in Pounds								
				VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Delivery Truck	30	30	900	0.0024	0.0059	0.0287	0.0001	0.0005	0.0003	0.0093	0.0003	0.0001	2.15	5.35	25.87	0.05	0.42	0.31	8.36	0.23	0.05
												Tons per Year:	**0.001**	**0.003**	**0.013**	**0.000**	**0.000**	**0.000**	**0.004**	**0.000**	**0.000**
												CO2e in Metric Tons per Year:							**0.01**		

[1]Emission Factors from EMFAC 2007 HDD

Construction

Table 4. [1]Construction Worker Trips

Construction Phase	# Vehicles	# Days	Miles per day	VOCs Running Exhaust (g/mi)	VOCs Start-Up (g/start)	VOCs Hot-Soak (g/trip)	VOCs Resting Loss (g/hr)	VOCs Running Evap (g/mi)	VOCs Diurnal Evap (g/hr)	CO Run Exhaust (g/mi)	CO Start-Up (g/start)	NO_X Run Exhaust (g/mi)	NO_X Start-Up (g/start)	SOx Run Exhaust (g/mi)	SOx Start-Up (g/start)	PM10 Run Exhaust (g/mi)	PM10 Start-Up (g/start)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)
Pier 160 Modifications	6	21	40	0.080	0.621	0.193	0.024	0.043	0.049	2.851	8.891	0.271	0.429	0.004	0.002	0.004	0.017	0.008	0.013
Regrade Flume Bridge	6	3	40	0.080	0.621	0.193	0.024	0.043	0.049	2.851	8.891	0.271	0.429	0.004	0.002	0.004	0.017	0.008	0.013
Interior Modifications to Bldgs 9	8	30	40	0.080	0.621	0.193	0.024	0.043	0.049	2.851	8.891	0.271	0.429	0.004	0.002	0.004	0.017	0.008	0.013

Construction Phase	# Vehicles	# Days	Miles per day	PM2.5 Run Exhaust (g/mi)	PM2.5 Start-Up (g/start)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Run Exhaust (g/mi)	CO2 Start-Up (g/start)	CH4 Run Exhaust (g/mi)	CH4 Start-Up (g/start)	N2O Run Exhaust (g/mi)	N2O Start-Up (g/start)
Pier 160 Modifications	6	21	40	0.003	0.016	0.002	0.005	329.567	202.414	0.020	0.035	0.026	0.041
Regrade Flume Bridge	6	3	40	0.003	0.016	0.002	0.005	329.567	202.414	0.020	0.035	0.026	0.041
Interior Modifications to Bldgs 9	8	30	40	0.003	0.016	0.002	0.005	329.567	202.414	0.020	0.035	0.026	0.041

[1]Emission Factors from EMFAC 2011.

Table 5. Total Construction Worker Trip Emissions

Construction Phase	Total Emissions in Pounds								
	VOCs	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Pier 160 Modifications	1.98	36.62	3.25	0.05	0.28	0.12	3774	0.24	0.31
Regrade Flume Bridge	0.28	5.23	0.46	0.01	0.04	0.02	539	0.03	0.04
Interior Modifications to Bldgs 9 & 68	3.78	69.75	6.20	0.09	0.54	0.24	7189	0.46	0.59
Subtotal (lbs):	**6.05**	**111.60**	**9.92**	**0.14**	**0.86**	**0.38**	**11503**	**0.74**	**0.94**
Tons per Year:	**0.003**	**0.056**	**0.005**	**0.000**	**0.000**	**0.000**	**5.75**	**0.000**	**0.000**
CO2e in Metric Tons per Year:							**5.36**		

Table 6. Estimated Total Construction Emissions

Total Emissions in Tons						
VOCs	CO	NOx	SOx	PM10	PM2.5	CO2e
0.03	**0.16**	**0.20**	**0.00**	**0.01**	**0.01**	**25.55**

Operations

TAB B. OPERATIONAL EMISSIONS

Table 1. LDUUV and Gas Transport

Off-road Equipment	Hrs of Operation	Engine HP	[1]Emission Factors in lb/hr									Total Emissions in Pounds								
			VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Forklift	96	50	0.0445	0.1623	0.1431	0.0002	0.0121	0.01175	14.7	0.0040	0.0136	4.27	15.58	13.74	0.02	1.16	1.13	1409	0.39	1.31
On-road Equipment	**Miles per Month**	**Annual Miles**	**[2]Emission Factors in lb/mi**									**Total Emissions in Pounds**								
			VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Delivery/Transport Truck	31	370	0.002	0.006	0.029	0.00005	0.0005	0.00035	0.0093	2.51E-04	5.29E-05	0.88	2.20	10.62	0.02	0.17	0.13	3	0.09	0.02
Subtotal (lbs):												**5.16**	**17.78**	**24.36**	**0.04**	**1.34**	**1.26**	**1,412**	**0.48**	**1.32**
Tons per Year:												**0.003**	**0.009**	**0.012**	**0.000**	**0.001**	**0.001**	**0.706**	**0.000**	**0.001**
CO2e in Metric Tons per Year:																		**0.83**		

[1]Emission Factors from Offroad 2007, CARB. PM2.5 conservatively estimated to be 97% of PM10.

[2]Emission Factors from EMFAC 2007 HDD

Table 2. Conolift, RHIB, and Pin Barge Operations

Equipment	Hours of Operation	Engine Power in kW	Load Factor	[1]Emission Factors in lb/hr									Total Emissions in Pounds								
				VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Conolift	624	63	0.40	0.10	0.41	0.63	0.001	0.05	0.05	59	0.01	0.06	3.38	13.92	21.42	0.02	1.83	1.77	2020.96	0.30	2.04
Equipment	**Hours of Operation**	**Engine Power in kW**	**Load Factor**	**[2]Emission Factors in g/kw-hr**									**Total Emissions in Pounds**								
				VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
RHIBs	576	75	0.85	0.27	5.00	6.80	0.006	0.30	0.29	690	0.09	0.02	21.86	404.77	550.49	0.49	24.29	23.56	55,858	7.29	1.62
Pin Barge outboard motors (2)	1,152	112	0.85	0.27	5.00	6.80	0.006	0.30	0.29	690	0.09	0.02	65.28	1,208.92	1,644.13	1.45	72.53	70.36	166,830	21.76	4.84
Tons per Year:													**0.05**	**0.81**	**1.11**	**0.00**	**0.05**	**0.05**	**112.35**	**0.01**	**0.00**
CO2e in Metric Tons per Year:																			**103.40**		

[1]For Conolift generator:

soxdsl	0.0015	weight percent of sulfur in diesel (CARB ULS Diesel)
soxcnv	0.02247	fraction of fuel sulfur converted to PM

From Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling - Compression Ignition, USEPA July 2010.

[2] Emission Factors from Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories, Final Report. USEPA 2009, except PM2.5 from Summary of Discussions on Generating Base year and Future Year Emission Inventories for Aircraft, Commerical Marine Vessels and Locomotives for IAQR, USEPA 2004.

Operations

Table 3. Crane Operation

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	[1]Emission Factors in lb/hr									Total Emissions in Pounds								
				VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
140 T Truck Crane	144	250	0.41	0.104	0.295	0.995	0.001	0.035	0.034	112.159	0.009	0.095	14.98	42.45	143.24	0.18	5.05	4.90	16,151	1.35	13.61
On-road Equipment	**# Trips**	**Miles per Day**	**Total Miles**	[3]Emission Factors in lb/mi									Total Emissions in Pounds								
				VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Truck movement to/from SSC Pacific	72	60	4320	0.0024	0.0059	0.0287	0.0001	0.0005	0.0003	0.0093	0.0003	0.0001	10.34	25.69	124.16	0.23	2.02	1.50	40	1.09	0.23
												Tons per Year:	**0.013**	**0.034**	**0.134**	**0.000**	**0.004**	**0.003**	**8.096**	**0.001**	**0.007**
												CO2e in Metric Tons per Year:							**9.31**		

Table 4. Estimated Total Operations Emissions

Total Emissions in Tons						
VOCs	**CO**	**NOx**	**SOx**	**PM10**	**PM2.5**	**CO2e**
0.06	**0.86**	**1.25**	**0.00**	**0.05**	**0.05**	**113.54**

Table 5. Maximum Possible Annual Emissions: Construction and Operations, Including Crane, Occurring in the Same Year

Total Emissions in Tons						
VOCs	**CO**	**NOx**	**SOx**	**PM10**	**PM2.5**	**CO2e**
0.09	**1.01**	**1.45**	**0.00**	**0.06**	**0.06**	**139.09**

For Conolift generator:

soxdsl	0.0015	weight percent of sulfur in diesel (CARB ULS Diesel)
soxcnv	0.02247	fraction of fuel sulfur converted to PM
		From Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling - Compression Ignition, USEPA July 2010.

Appendix B

Caulerpa and Eelgrass Survey Report

EFH Survey Report, Paul Wade (certified Caulerpa survey technician)

30 April 2013

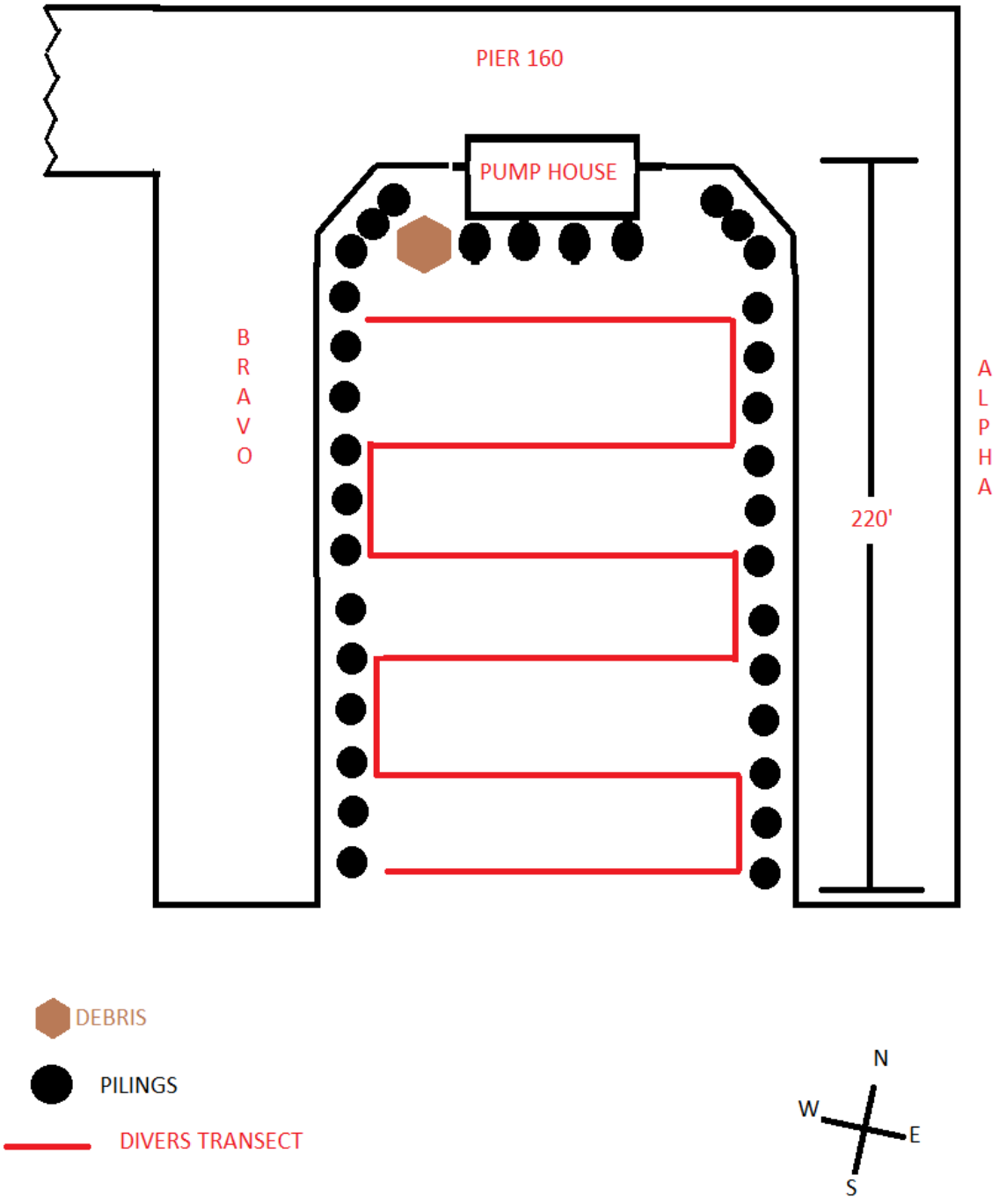
Max Depth: 30’

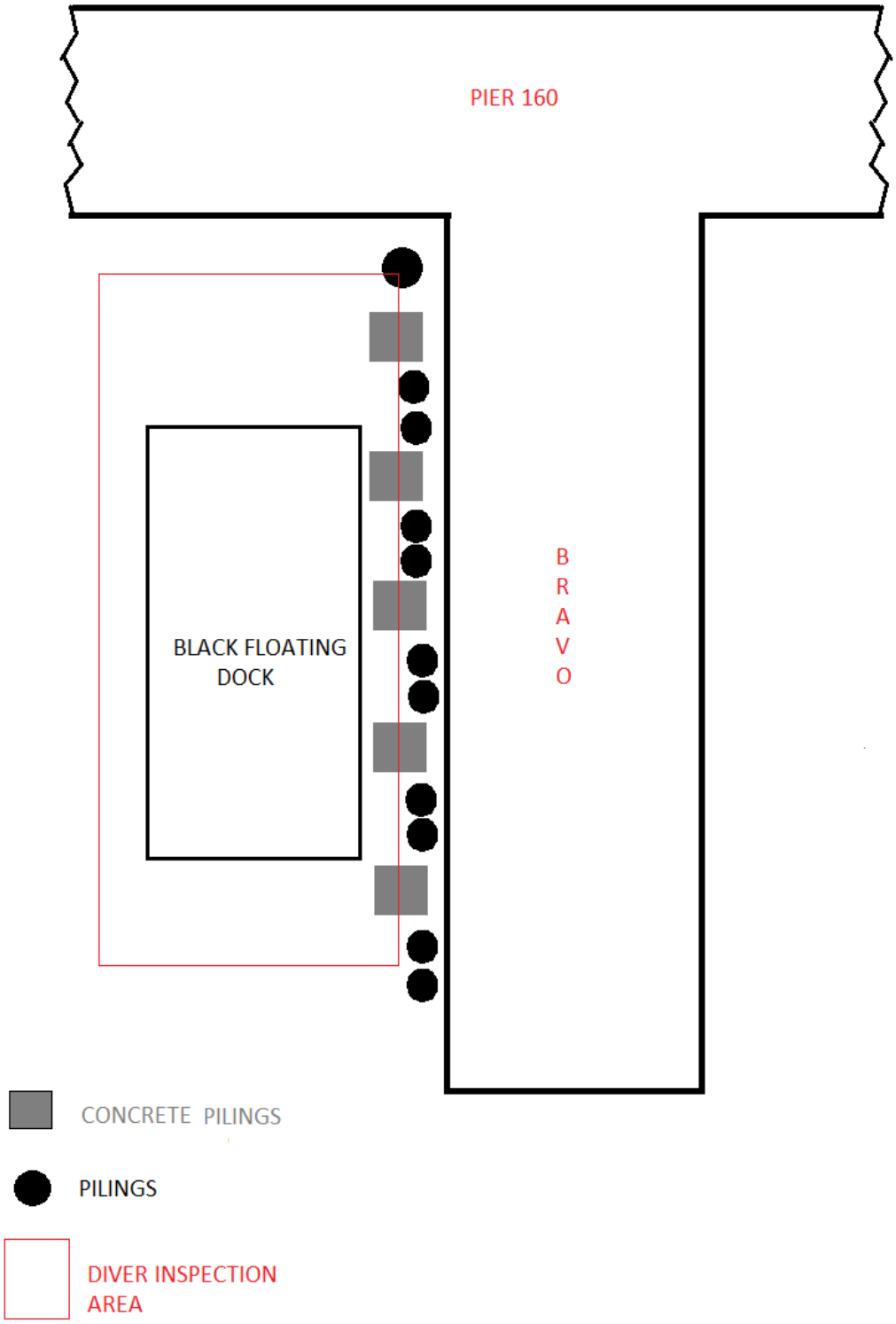
Visibility: 15’

Tide: low -0.6

1030-1130

Divers conducted visual survey between Alpha and Bravo finger on Pier 160 and below Bravo finger floating dock. Divers inspected areas for substrate type, vegetation (eelgrass, kelp, and *Caulerpa* spp.), and debris. Substrate was all muddy bottom. No sensitive vegetation species were found. Brown algal mats were very sporadically found within the survey area (nothing larger than a 1’ x 2’ area). Loose/unattached kelp was wrapped around pier pilings. Debris was found throughout the area with nothing larger than 1’ x 2’ except in the northwest corner where grating and a metal structure were found (noted on map).


PIER 160
PUMP HOUSE
BRAVO
ALPHA
220'
DEBRIS
PILINGS
DIVERS TRANSECT
N
W
E
S


PIER 160
BLACK FLOATING DOCK
B R A V O
CONCRETE PILINGS
PILINGS
DIVER INSPECTION AREA

Appendix C

Airborne Noise Modeling Data

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/03/2013
Case Description: Proposed Action CDC and La Playa

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
La Playa - San Antonio Ave	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Impact Pile Driver	Yes	20		101.3	1600.0	0.0
Crane	No	16		80.6	1600.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Impact Pile Driver	71.2	64.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	50.4	42.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	71.2	64.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

C-1

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/03/2013
Case Description:

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
CDC	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Impact Pile Driver	Yes	20		101.3	3200.0	0.0
Crane	No	16		80.6	3200.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Impact Pile Driver	65.1	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	44.4	36.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.1	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/02/2013
Case Description: Cumulative with Scripps Pier

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
La Playa	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	400.0	0.0
Impact Pile Driver	Yes	20		101.3	400.0	0.0
Impact Pile Driver	Yes	20		101.3	1600.0	0.0
Crane	No	16		80.6	1600.0	0.0
Tug boat	No	100		87.0	2470.0	0.0
Impact Pile Driver	Yes	20		101.3	2470.0	0.0
Concrete Batch Plant	No	15	83.0		2470.0	0.0
Workboat	No	40		80.0	2470.0	0.0
Hydra Break Ram	Yes	10	90.0		2470.0	0.0
Concrete Saw	No	20		89.6	2470.0	0.0
Excavator	No	40		80.7	2470.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20		90.3	2470.0	0.0
All Other Equipment > 5 HP	No	50	85.0		2470.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	62.5	54.5	85.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Impact Pile Driver	83.2	76.2	90.0	75.0	N/A	N/A	N/A	N/A	None	1.2	N/A	N/A	N/A	N/A
Impact Pile Driver	71.2	64.2	90.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Crane	50.4	42.5	85.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Tug boat	53.1	53.1	85.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Impact Pile Driver	67.4	60.4	90.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Concrete Batch Plant	49.1	40.9	85.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Workboat	46.1	42.1	85.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Hydra Break Ram	56.1	46.1	90.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Concrete Saw	55.7	48.7	85.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Excavator	46.8	42.9	85.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	56.4	49.4	90.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	51.1	48.1	85.0	75.0	N/A	N/A	N/A	N/A	None	None	N/A	N/A	N/A	N/A
Total	83.2	76.7	85.0	75.0	N/A	N/A	N/A	N/A	None	1.7	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
CDC (bldg 377)	Commercial	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	3600.0	0.0
Impact Pile Driver	Yes	20		101.3	3600.0	0.0
Impact Pile Driver	Yes	20		101.3	3200.0	0.0
Crane	No	16		80.6	3200.0	0.0
Tug boat	No	100		87.0	2220.0	0.0
Impact Pile Driver	Yes	20		101.3	2220.0	0.0
Concrete Batch Plant	No	15	83.0		2220.0	0.0
Workboat	No	40		80.0	2220.0	0.0
Hydra Break Ram	Yes	10	90.0		2220.0	0.0
Concrete Saw	No	20		89.6	2220.0	0.0
Excavator	No	40		80.7	2220.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20		90.3	2220.0	0.0
All Other Equipment > 5 HP	No	50	85.0		2220.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	43.4	35.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Impact Pile Driver	64.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Impact Pile Driver	65.1	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	44.4	36.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tug boat	54.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Impact Pile Driver	68.3	61.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Batch Plant	50.1	41.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Workboat	47.1	43.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydra Break Ram	57.1	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	56.6	49.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	47.8	43.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	57.3	50.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	52.1	49.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	68.3	65.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix D

Public Involvement and Agency Correspondence

U-T San Diego

P.O. Box 120191, San Diego, CA 92112-0191

AFFIDAVIT OF PUBLICATION

CARDNO TEC
18 S. GEORGE STREET SUITE 400
YORK, PA 17401

STATE OF CALIFORNIA} ss.
County of San Diego}

The Undersigned, declares under penalty of perjury under the laws of the State of California: That he is a resident of the County of San Diego. That he is and at all times herein mentioned was a citizen of the United States, over the age of twenty-one years, and that he is not a party to, nor interested in the above entitled matter; that he is Chief Clerk for the publisher of

The San Diego Union-Tribune

a newspaper of general circulation , printed and published daily in the City of San Diego, County of San Diego, and which newspaper is published for the dissemination of local news and intelligence of a general character, and which newspaper at all the times herein mentioned had and still has a bona fide subscription list of paying subscribers, and which newspaper has been established, printed and published at regular intervals in the said City of San Diego, County of San Diego, for a period exceeding one year next preceding the date of publication of the notice hereinafter referred to, and which newspaper is not devoted to nor published for the interests, entertainment or instruction of a particular class, profession, trade, calling, race, or denomination, or any number of same; that the notice of which the annexed is a printed copy, has been published in said newspaper in accordance with the instructions of the person(s) requesting publication, and not in any supplement thereof on the following dates, to wit:

Aug 16, 2013, Aug 17, 2013, Aug 18, 2013

Chief Clerk for the Publisher

8/19/13

Date

Affidavit of Publication of

Legal Advertisement
Ad # 0010770365#
ORDERED BY: MIKE DUNGAN

NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR SHORE INFRASTRUCTURE MODIFICATIONS TO SUPPORT TESTING AND EVALUATION OF THE LARGE DISPLACEMENT UNMANNED UNDERSEA VEHICLE PROGRAM AT SPAWAR SYSTEMS CENTER PACIFIC, NAVAL BASE POINT LOMA (NBPL), SAN DIEGO

The Department of the Navy (Navy) announces the availability of, and invites public comments on, a Draft EA for the proposed Shore Infrastructure Modifications to Support Testing and Evaluation of the Large Displacement Unmanned Undersea Vehicle (LDUUV) Program at SPAWAR Systems Center Pacific, NBPL, San Diego, California. The public review period will be from 16 August 2013 through 3 September 2013.

The Draft EA is available for review on-line at http://www.navyregionsouthwest.com/go/doc/4275/1873878/ and at the Point Loma Public Library, 3701 Voltaire Street, San Diego, CA 92107. Comments on the Draft EA should be submitted in writing to SPAWAR Systems Center Pacific, Environmental Readiness Program Manager, 53560 Hull Street, Code 56470, Bldg 1, San Diego, CA 92152-5001. Comments must be postmarked by 3 September 2013. During the development of the Final EA the Navy will consider all comments submitted during the comment period.

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

5090
Ser N45/437
August 8,2013

National Marine Fisheries Service
Attn: Mr. Eric Chavez
Southwest Regional Office
501 W. Ocean Blvd, Suite 4213
Long Beach, CA 90802-4213

Dear Mr. Chavez:

SUBJECT: ESSENTIAL FISH HABITAT ASSESSMENT FOR SHORE INFRASTRUCTURE MODIFICATIONS TO SUPPORT TESTING AND EVALUATION OF THE LARGE DISPLACEMENT UNMANNED UNDERSEA VEHICLE (LDUUV) PROGRAM AT SPACE AND NAVAL WARFARE (SPAWAR) SYSTEMS CENTER PACIFIC

As required under the Magnuson-Stevens Fisheries Conservation and Management Act (MSA), and in compliance with Navy Policy Regarding Essential Fish Habitat (EFH) Assessments and Consultations (March 22, 2011), the Navy has determined that the proposed Large Displacement Unmanned Underwater Vehicle (LDUUV) Infrastructure project on Naval Base Point Loma (NBPL) may adversely affect EFH and hereby requests consultation with your office. The enclosed Draft Environmental Assessment (EA) contains the Navy's EFH Assessment. The inclusion of the EFH Assessment within the EA is appropriate per Navy policy as follows:

> "A NEPA document may be submitted for consultation (with all EFH Assessment information clearly identified) if an action is likely to result in minimal adverse effects on EFH. Minimal adverse effects could be those that are limited in duration and that allow the affected area to recover before measurable long-term impacts to EFH occur, or those that may result in relatively small and insignificant changes to EFH and its ecological functions."

Following is a summary of the Navy's EFH Assessment. Please refer to the enclosed EA for more details.

The area of potential effects on EFH is limited to the immediate area of SPAWAR Systems Center Pacific's Pier 160 and Pier 159 at NBPL. Water depths in the project area range from approximately 15 to 25 ft below mean lower low water. The project area contains EFH for species that are part of two managed fisheries: Coastal Pelagics and Pacific Coast Groundfish. Eelgrass, a Habitat Area of Particular Concern, occurs roughly 100 feet inshore and 100 ft to the north of the project area but has never been detected within the project area in the Navy's

repeated eelgrass surveys of San Diego Bay. A dive survey on April 30, 2013 (EA, Appendix B) confirms the absence of eelgrass from the project site at Pier 160.

Under the Proposed Action, 64 to 72 16-inch concrete piles would be driven with an impact hammer to enable the installation of up to five launch and recovery lifts for two LDUUVs and three Rigid Hulled Inflatable Boats (RHIBs) alongside Fingers A and B at Pier 160. Pile driving would take 13 to 24 days. As shown in the EA, the launch and recovery lifts would be open structures that would not shade the bottom. Sediment disturbance and resulting turbidity would be minimal as the sediments are sandy. Over time, the concrete piles would provide a structural habitat for plants, invertebrates, and fish that would not negatively affect, and may enhance, the ecological functions of EFH.

In assessing potential noise impacts from pile driving, we estimate a maximum root mean square (RMS) sound pressure level (SPL) of 173 decibels (dB) re- 1 µPa at 10 m from the source. Assuming practical spreading loss (approximately 4.5 dB reduction per doubling of distance), sound levels would attenuate to the nominal threshold for behavioral effects to fish (150 dB) at a distance of 341 m from the source. Assuming a maximum worst case of 1,000 hammer blows in a single day, the threshold for a sound exposure level (SEL) that could cause injury to small (< 2 grams) fish would not be exceeded more than 14 m from the source. A cushion block would be used to reduce noise generated during pile driving, and piles may be jetted to minimize the number of hammer blows required to set each pile. Given sandy bottom conditions, sediments disturbed during pile installation would settle out of suspension in close proximity to Pier 160. We conclude that the effects of pile driving and/or jetting to EFH would be of limited scope and duration, and that fish, if disturbed, would immediately move back into the affected area following the cessation of pile driving. Hence the changes to EFH due to pile driving would be small and insignificant.

The Proposed Action also includes an option to use structures that could be rapidly installed, consisting of either: (a) two floating boat docks, one for an LDUUV and one for a RHIB; or (b) a single floating barge with a single floating boat dock. A crane positioned on Pier 160, Pier 159, or on the barge (as applicable) would be used to lift and lower the LDUUVs and RHIBs. This option requires no pile driving. With this option, the proposed infrastructure described above would still be built and pile driving would occur as described previously. If implemented, the floating docks and the barge, as applicable, would shade the bottom, with a maximum surface area (the barge and single floating boat dock option) of 0.19 acre. Given the absence of eelgrass and the placement of these components alongside Pier 160 or Pier 159, this amount of temporary shading would be inconsequential in terms of EFH.

Under the Proposed Action, operational use of the LDUUVs would involve transiting the bay at slow speeds with the RHIBs providing escort weekly, or as needed. These routine activities would have no effect on EFH. LDUUV testing activities otherwise are being analyzed in the Hawaii-SOCAL Training and Testing EIS, and the Navy is consulting with NMFS on EFH as part of that process.

Please provide your review of the Navy's EFH Assessment within 30 days if possible. If you have any questions, please feel free to contact Mr. Jerry Olen at 619-553-1443, or via email, jerry.olen@navy.mil.

Sincerely,

T. J. ROGERS
By direction

From: Olen, Jerry M CIV SPAWARSYSCEN-PACIFIC, 56470
To: Dungan, Mike
Subject: FW: Navy SPAWAR LDUUV Project
Date: Thursday, September 05, 2013 10:32:20 AM

-----Original Message-----
From: Eric Chavez - NOAA Federal [mailto:eric.chavez@noaa.gov]
Sent: Thursday, September 05, 2013 10:21 AM
To: Olen, Jerry M CIV SPAWARSYSCEN-PACIFIC, 56470
Cc: Wilson, Walter L CIV CNRSW, N40
Subject: Re: Navy SPAWAR LDUUV Project

Jerry,

NOAA's National Marine Fisheries Service (NMFS) has reviewed the Draft Environmental Analysis and Essential Fish Habitat (EFH) Assessment for the Shore Infrastructure Modifications to Support Testing and Evaluation of the Large Displacement Unmanned Undersea Vehicle (LDUUV) Program at SPAWAR Systems Center Pacific, San Diego, California. The proposed project would include permanent modifications to Pier 160, a temporary barge/floating dock option, as well as other land-based construction activities. Modifications at Pier 160 would include: 1) installing up to five 70,000 pound capacity launch and recovery lifts between Fingers A and B to raise/lower three 11-meter rigid hulled inflatable boats (RHIB) and two LDUUVs; 2) installing two tracks for a mobile boat hoist on Finger B of the pier; 3) installing three floating walkways approximately 50 feet long (a possible fourth U-shaped walkway, approximately 106 feet long, may be located in the interior of the mobile boat hoist) - all walkways would be 6 feet wide and be constructed of grated material to reduce shading impacts; 4) up to 72 16-inch concrete piles would be installed either by jetting and/or a small impact hammer to support the new structures. These facilities would be used to launch and recover LDUUVs and RHIBs (weekly or as needed) and to maintain and repair the LDUUVs topside of the pier, but the LDUUVs and RHIBs would be stored at a facility on land. The temporary barge/floating dock option would include either two floating boat docks, or a floating, modular barge and a floating boat dock, placed near the end of Pier 159 or between Fingers B and C of Pier 160. However, based on our Sep. 4th phone call, it is unlikely that the barge option will be pursued. Any temporary structures would remain in place until they are no longer needed.

The proposed project occurs within EFH for various federally managed fish species within the Coastal Pelagic Species and Pacific Coast Groundfish Fishery Management Plans (FMPs). In addition, the proposed project occurs within an estuary and in the vicinity of eelgrass habitat, which have been identified as habitat areas of particular concern (HAPC) for various federally managed fish species within the Pacific Coast Groundfish FMP.

Dredging activities would adversely impact EFH through direct burial or removal of organisms, increased turbidity/siltation, and/or contaminant release. However, the total volume of sediments to be dredged is low, construction best management practices will be implemented to minimize impacts to sensitive habitats, and pre-construction (and post-construction, as necessary) surveys in accordance with the Southern California Eelgrass Mitigation Policy and Caulerpa Control Protocol will be performed to protect eelgrass resources and prevent the spread of Caulerpa taxifolia, respectively. Should any eelgrass mitigation be required, it will be provided from the Navy San Diego Bay Eelgrass Mitigation Bank. Shading impacts are also being reduced through the use of grated material for walkways. In addition, with regard to the temporary barge/floating dock option, the Navy has agreed to notify NMFS of the anticipated timeline for when these structures will be in place and when they are removed. Therefore, as long as these conservation measures are adhered to, NMFS has determined that any adverse effects to EFH would be temporary and no more than minimal in nature and has no additional EFH Conservation Recommendations to provide at this time. Thank you for consulting with NMFS.

Regards,

Eric

On Wed, Aug 28, 2013 at 8:51 AM, Olen, Jerry M CIV SPAWARSYSCEN-PACIFIC, 56470 <Jerry.Olen@navy.mil> wrote:

Mr. Chavez,

Please see below for accessing the EA online (pdf also attached). I provided this information to Dan Lawson in your office. I will give you a courtesy call later today with regard to the project.

Thank you,
Jerry

Mr. Lawson,

Thanks for the call today with regard to our Large Displacement Unmanned Undersea Vehicle (LDUUV) Infrastructure Project and Environmental Assessment (EA). Please find the attached Draft EA. This version has been released to the public for a 15 day comment period. The website where the EA can be found is:

http://www.navyregionsouthwest.com/go/doc/4275/1873878/ <http://www.navyregionsouthwest.com/go/doc/4275/1873878/>

Please let me know if I can answer any questions for you with regard to our analysis. Also, feel free to contact me in the future with regard to visiting our facility and seeing the vehicles.

Best regards,

Jerry Olen

SPAWAR 8.3.5e/56470

Head, Environmental Readiness in Acquisition

Phone: (619) 553-1443 <tel:%28619%29%20553-1443> Cell: (619) 300-3718 <tel:%28619%29%20300-3718>

Email: jerry.olen@navy.mil <mailto:jerry.olen@navy.mil>

From: Perdue, Mitchell A CIV NAVFAC SW
Sent: Wed 8/28/2013 8:35 AM
To: 'Eric Chavez - NOAA Federal'; Wilson, Walter L CIV CNRSW, N40; Olen, Jerry M CIV SPAWARSYSCEN-PACIFIC, 56470
Subject: RE: Navy SPAWAR LDUUV Project

Walt/Jerry - that would be you - I haven't seen the EFH doc - Mp

Mitchell A. Perdue, CRM, DDC
Senior Biologist
Deputy Dive Safety Coordinator
Naval Facilities Engineering Command Southwest Coastal IPT
2730 McKean St., Bldg 291 San Diego, CA 92136-5198
Phone - (619) 556-7594 <tel:%28619%29%20556-7594> FAX - (619) 556-0195 <tel:%28619%29%20556-0195>
email - mitchell.perdue@navy.mil

-----Original Message-----
From: Eric Chavez - NOAA Federal [mailto:eric.chavez@noaa.gov]
Sent: Wednesday, August 28, 2013 8:31 AM
To: Wilson, Walter L CIV CNRSW, N40; Olen, Jerry M CIV SPAWARSYSCEN-PACIFIC, 56470
Cc: Perdue, Mitchell A CIV NAVFAC SW
Subject: Navy SPAWAR LDUUV Project

Gents,

When I returned from the field on Monday, there was a certified letter on my desk regarding the above project that referenced an enclosed EA and EFH Assessment. Unfortunately, although it appears like there may have been a cd in the envelope originally, there was no cd in the package I received, which had already been opened by whoever processed our mail. I've asked around our office and had no luck locating it so far. Would you mind either providing the EA and EFH Assessment electronically (email, ftp) or mailing me a new cd? Thanks and my apologies for the inconvenience.

Eric

--
Eric Chavez
Habitat Conservation Division
NOAA's National Marine Fisheries Service

--
Eric Chavez
Habitat Conservation Division
NOAA's National Marine Fisheries Service

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

IN REPLY REFER TO:
5090
Ser N45/439
August 8, 2013

National Marine Fisheries Service
Attn: Regional Administrator
Southwest Regional Office
501 West Ocean Boulevard
Long Beach, CA 90802-4213

Dear Mr. McInnis:

The United States Navy, SSC Pacific requests informal Section 7 consultation for the Navy's proposed Large Displacement Unmanned Underwater Vehicle (LDUUV) Infrastructure project (Project Description attached). The project consists of in-water construction and is located at SPAWAR Systems Center (SSC) Pacific, Pier 160 on Naval Base Point Loma (NBPL). Pier 160 at SSC Pacific is centered at 32.703533, -117.235494. The Navy is requesting consultation regarding the project's potential to affect the endangered Green Sea Turtle (*Chelonia mydas*). No threatened or endangered species of marine mammals are expected to occur in the project action area.

The proposed project in-water construction would take place over the course of two to six months beginning as early as October 2013 and would be completed by the spring of 2014 in order to avoid the California Least Tern breeding season. Monitoring for sea turtles and marine mammals is proposed to ensure the avoidance of impacts to these sensitive resources (see below).

The proposed infrastructure is needed for two LDUUVs which, along with three rigid-hulled inflatable boats (RHIBs), are due to arrive in late 2013 and early 2014 to begin testing on the SOCAL Range Complex. Test activities have been previously planned and are analyzed in the current Hawaii-SOCAL Training and Testing (HSTT) Environmental Impact Statement (EIS). The LDUUV Infrastructure project is needed to enable the LDUUVs and RHIBs to dock at Pier 160 and to be transported between the pier and Building 9 (See Project Description) for maintenance. The Proposed Action would install up to five permanent launch and recovery lifts and associated floating walkways alongside Pier 160. A total of 64 to 72 16-inch piles would be driven in with an impact hammer. By reference to the CalTrans compendium of pile driving sound (CalTrans 2012), we estimate that pile driving will generate a maximum root mean square (RMS) sound pressure level (SPL) of 173 decibels (dB) re- 1 µPa at 10 m from the source. Assuming practical spreading loss, sound levels would attenuate to the nominal threshold for behavioral effects (160 dB) at a distance of 74 m from the source.

The Navy proposes to monitor for Green Sea Turtles (GST) as well as marine mammals throughout this potential zone of influence (ZOI), and to immediately curtail pile driving if a GST or marine mammal is within this distance. If new data or a change in the size of the

piles indicates a different sound source level, the Navy will adjust the ZOI monitoring accordingly. With the relatively small zone of influence, the Navy is confident of our ability to detect any sea turtle or marine mammal that might enter this area and to avoid the potential for harassment.

The Proposed Action also includes an option to use structures that could be rapidly installed, consisting of either two floating boat docks, one for an LDUUV and one for a RHIB; or a single barge with a single floating boat dock. A crane positioned on Pier 160, Pier 159, or on the barge (as applicable) would be used to lift and lower the LDUUVs and RHIBs. This option requires no pile driving. However, the proposed infrastructure described above would still be built at a later time.

Under the Proposed Action, operational use of the LDUUVs would involve transiting the bay at slow speeds with the RHIBs providing escort weekly, or as needed. Standard operating procedures would be applied to avoid interactions with GSTs or marine mammals in San Diego Bay.

The San Diego Bay population of GST includes both year-round and seasonal (winter) residents and in recent years has numbered between 30 and 90 individuals (Eguchi et al. 2010). GSTs in San Diego Bay forage in eelgrass beds, consuming a mixed diet of invertebrates, eelgrass, and algae (Lemons et al. 2011). Water depths at the pier are approximately 15 to 25 feet. There is no historic occurrence of eelgrass at the project site, and a dive survey conducted in April 2013 confirms the absence of eelgrass at Pier 160.

San Diego Bay's GSTs have historically resided in south San Diego Bay, attracted by warm-water discharge from the South Bay Power Plant. Mark-recapture studies have shown greater mobility during warm water months, suggesting that during winter, cold water in the northern bay acted as a barrier to GST movements resulting in their confinement to the warm-water area of the south bay. We recognize that with the closure of the power plant in 2011 and its recent demolition, the seasonal distribution of GST in San Diego Bay may change and that other locations with eelgrass or more stable temperature regimes may be attractive to GSTs.

Although no GST have been observed or are expected in the project area, findings of the study indicate that GST may seasonally move through the northern part of San Diego Bay. The possibility of seasonal occurrence in the project area is borne out by mark-recapture studies conducted by NOAA researchers (Eguchi et al. 2010). The likelihood of encountering GSTs during construction is discountable and the implementation of avoidance and minimization measure during construction will further reduce any potential effects to sea turtles.

Navy has determined that the proposed project may affect but is not likely to adversely affect GST. Pursuant to Section 7 of the

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August 8, 2013

Endangered Species Act we request your concurrence with this determination within 30 days.

If you have any questions, please feel free to contact me at 619-553-1443, or via email, jerry.olen@navy.mil.

Sincerely,

T. J. ROGERS
By direction

References

CalTrans. 2012. Compendium of Pile Driving Sound Data, Updated October 2012. Appendix I of Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Available online at http://www.dot.ca.gov/hq/env/bio/fisheries_bioacoustics.htm.

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Lemons , G., R. Lewison , L. Komoroske, A. Goas, C.T. Lai, P. Dutton , T. Eguchi, R. LeRoux , and J . 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.

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

SEP 13 2013

In response, refer to:
2013/9778:DDI.

T. J. Rogers
U.S. Department of the Navy
Naval Base Point Loma
140 Sylvester Road
San Diego, California 92106-3521

Dear Mr. Rogers:

NOAA's National Marine Fisheries Service (NMFS) has reviewed a letter from the U.S. Department of the Navy (Navy), received August 20, 2013, initiating informal consultation on a proposed infrastructure construction project to accommodate Large Displacement Unmanned Underwater Vehicles (LDUUVs) planned for the Point Loma area in San Diego Bay, California. The purpose of this project is to provide the necessary infrastructure to accommodate two LDUUVs and three rigid-hulled inflatable boats (RHIBs) used for the operational testing of the LDUUVs slated to begin in late 2013 or early 2014. NMFS has also reviewed the supporting project description and background information provided, including a draft Environmental Assessment (EA) prepared by the Navy in August, 2013. In addition, there have been direct exchanges between Navy and NMFS staff. For this proposed project, the Navy determined that green sea turtles (*Chelonia mydas*) may be affected, but were unlikely to be adversely affected, by the associated project activities. In response, NMFS offers the following response pursuant to section 7 of the Endangered Species Act (ESA), and comments pursuant to the Marine Mammal Protection Act (MMPA).

Proposed Project

The proposed project involves the construction of infrastructure that will enable the launch, recovery, and transport of LDUUVs and RHIBs at Pier 160, located at SPAWAR Systems Center Pacific on Naval Base Point Loma, located near the entrance into San Diego Bay in San Diego, California. The proposed project involves the installation of up to five permanent 70,000 lb-capacity launch and recovery lifts and associated walkways alongside the current Pier 160 structure. The launch and recovery lifts are required to raise/lower the project's three 11-meter (m) rigid hulled inflatable boats (RHIBs) and two LDUUVs. Each launch and recovery lift would require the installation of eight 16-inch concrete piles (total of 40 piles). The installation of two tracks for a mobile boat hoist is also required. These tracks would be installed on Finger B of the pier and require installation of up to 20 16-inch concrete piles. To provide access to the RHIBS and LDUUVs while on the launch and recovery lifts, three or four small floating walkways would also be installed. Three of the floating walkways would be approximately 50 ft long, and would each require two piles to be installed. A fourth walkway may be located in the interior of the mobile boat hoist. If so, it would be U-shaped, approximately 106 ft long, and would require up to 6 concrete piles. All walkways would be approximately 6 ft wide and would use an open design (e.g., grating) to reduce shading. Altogether, up to 72 16-inch concrete piles would be installed using jetting and/or a small impact hammer.

Additional facility upgrades and improvements to shore-based infrastructure including buildings and a transportation bridge, and pier modifications that do not require in-water construction activity are also associated with this project. In total, the project is expected to take two to six months to complete beginning in October, 2013, with pile driving expected to occur over a period of 13 to 24 days based on the expectation of 3 to 5 piles being installed per day. Pile installation is expected to occur with a hammer, although piles may also be jetted into place. All work is expected to occur during normal working daylight hours for 8 hours each day. There would be no pile driving or other in-water construction activities occurring during the least tern foraging season (from April 1 through September 15).

In their letter received August 20, 2013, the Navy indicated they would employ avoidance and minimization measures to avoid adverse effects to green sea turtles and marine mammals. These mitigation measures included visual monitoring of the project area out to a distance where sound pressure levels resulting from the driving of 16-inch concrete piles would be expected to be less than levels that are assumed to create behavioral disruption to marine mammals (160 dB re 1 μPa_{RMS}). Based on the CalTrans compendium of pile driving sound, the Navy estimates that the driving of these 16-inch concrete piles will generate a maximum root mean square (RMS) sound pressure level of 173 dB re 1 μPa_{RMS} at 10 m from the source. Assuming practical spreading sound loss[1], the Navy expects sound levels to attenuate below 160 dB at a distance of 74 m from the source. The Navy proposes to monitor the project area out to this distance. If a sea turtle or marine mammal enters this zone, the biological monitor will order an immediate shutdown. To encourage wildlife dispersal away from the immediate area of pile driving, at the start of each day's pile driving activity or when pile driving has ceased for more than an hour, the Navy indicates that a soft-start technique would be used involving a gradual ramp-up of pile driving intensity before pile driving reaches full energy.

Endangered Species Act Consultation

Effects on Green Sea Turtles

In the letter received August 20, 2013, requesting ESA Section 7 informal consultation with NMFS, the Navy determined that the action may affect, but was not likely to adversely affect, green sea turtles. Green turtles are the only species identified by the Navy listed under the ESA and under NMFS' jurisdiction that could be expected to occur in the proposed action area and may be affected by this project. South San Diego Bay serves as important habitat for a resident population of up to about 60 juvenile and adult green turtles in this area (Eguchi *et al.* 2010). Based on genetic analyses and tracking studies conducted by NMFS' Southwest Fisheries Science Center, green turtles found in San Diego Bay likely represent the endangered population of turtles breeding on the Pacific coast of Mexico. There are no areas designated as critical habitat under the ESA in San Diego Bay.

Scientists believe that San Diego Bay may be one of the northern-most foraging areas for green turtles, with the shallow inlet providing valuable food resources such as marine algae and seagrass. While some of the San Diego Bay green turtles are year-round residents, others migrate through central and north San Diego Bay in order to reach their southern breeding grounds, located in the southern state of Michoacán, Mexico, and at the Revillagigedos Islands, offshore central Mexico. Since the early 1960s, sea turtles have been sighted aggregating in the vicinity of the South Bay Power Plant, where warm water effluent was discharged throughout the year. During the warm

[1] Spherical sound attenuation model that assumes received sound energy decreases at a rate of 4.5 dB per doubling of distance for which transmission loss is calculated (typically 10 meters).

summer months, the turtles generally moved out of the effluent channel and into the Bay, especially when temperatures within the channel exceed 90°F. During incursions of warm equatorial currents (e.g., during El Niño events), more turtles have been found within the Bay. In December, 2010, the South Bay Power Plant shut down operations permanently, and NMFS is currently in the process of studying any response from the green sea turtles in San Diego including changes in their distribution and movement patterns within the Bay.

Green turtles are also attracted to the high concentrations of eelgrass in San Diego Bay, and the presence of this important food item and habitat for other preferred prey species likely influences sea turtle activity patterns within the Bay (Lemmons *et al.* 2011). Evidence from telemetry studies prior to the plant shut down show that they generally move back and forth between eelgrass beds and the warm effluent channel, with little time spent in between. Data generated from tag-recapture studies suggest that San Diego Bay is a productive habitat for green sea turtles, with green turtles from the Bay showing fast growth rates comparable to green turtles found in more tropical environments (Eguchi *et al.* 2012). Surveys show that the sea turtles generally foraged and could typically be located within the confines of the South Bay, in relative proximity to the effluent channel (MacDonald *et al.* 2012). Because scientists have generally focused their studies to the south Bay, however, less is known of sea turtle movement within the central and northern areas of the Bay, including the importance of eelgrass beds in these areas to the turtles in the Bay. Recent information produced from monitoring during construction activities and a research project designed to track green turtle movements throughout the Bay have indicated some green turtle activity outside of south San Diego Bay during the winter months (Mitch Purdue, Navy, personal communication, April 11, 2013). Satellite tracking telemetry studies have revealed that individuals which are heading back to nesting beach sites in Mexico typically leave the Bay in late March and April (Jeff Seminoff, NMFS, personal communication, February 24, 2009).

Potential impacts to any green turtles in the area from this project primarily arise from disturbance or injury to sea turtles as a result of construction activities, including use of cranes, boats, and other equipment as needed (e.g. pile impact hammer), to construct the infrastructure necessary to support the LDUUV project. Any turtle present in the project area could receive significant injuries if struck by a vessel or equipment being used. These types of construction activities, in particular the installation of 16-inch concrete piles, can also be relatively loud and have the potential to disturb any animals that are in the vicinity. Other potential impacts include disturbance or degradation of any habitat that sea turtles may beneficially use as a result of this project.

The Navy indicated they would employ the avoidance and minimization measures described above to avoid adverse effects to green sea turtles. The Navy expects these actions to minimize the risk of potential adverse effects to green sea turtles from this proposed project, in the unlikely event that green sea turtles do enter the vicinity of the project area.

In assessing the risk of this project, NMFS considers the location of project activities in relation to the probability that green turtles may be found in the vicinity. As the project area for the LDUUV project lies near Point Loma in the northern part of San Diego Bay, the probability that vessels or construction equipment will encounter any sea turtles is low as turtles are not likely to spend much time, if any, present in the north part of San Diego Bay near the proposed project area. While it is possible that turtles could be transiting in/out of San Diego Bay past Point Loma, turtles are expected to be swimming in the water column and not immediately along the shore within the confines of the project area and the active working waterfront, and therefore, are not likely to encounter vessels and equipment associated with the proposed project activities. Although sound levels from pile driving

which could disturb or injure sea turtles might occur in the immediate construction site, sea turtles are not expected to be in that zone of impact when such impact occurs for the reasons discussed herein.

Currently, there are no specific guidelines for safety criteria that directly relate to sea turtle injuries or behavioral response changes resulting from sound levels. In general, NMFS and other federal agencies have relied upon the noise criteria for marine mammals (cetaceans or pinnipeds) and the safety zones that have been employed for projects to minimize the risk of injury to these species as a conservative proxy for managing impacts of very loud sound on sea turtles. While sea turtle hearing has not been studied nearly as much as marine mammal hearing, the general consensus is that, given what is known about the relative complexity of hearing and underwater communication abilities of many marine mammal species compared to sea turtles, it is likely that most, if not all, marine mammal species are more sensitive to underwater sound than sea turtles. Regardless of the specific noise exposure that sea turtles might experience during this proposed project, it is likely that any disturbance from this project would lead to turtles avoiding the immediate project area once the activity has commenced, reducing the likelihood of turtles coming in direct contact with construction equipment.

As proposed by the action agency, if a sea turtle is seen in the construction site during the corresponding activity, the activity would cease. In addition, if any turtles are in the construction site area but avoid detection, the use of ramp-up procedures to slowly increase the intensity of pile-driving gives sea turtles an opportunity to detect the commencement of project activities and an opportunity to move away. Based on our understanding of their behavior, they are expected to avail themselves of this opportunity. Adequate habitat exists beyond the construction zone, with adequate carrying capacity to support any avoiding sea turtles without any reduction in their fitness. As a result, the risk of direct contact and injury or death as a result of the proposed project is discountable and insignificant.

Sound pressure levels expected to be produced by this proposed project has been estimated and modeled by the Navy. Pile driving for the LDUUV construction project is expected to produce sound levels that might be of concern (in excess of 160 dB) only a short distance from the project site, so there is no expectation of injury or harassment to sea turtles far away from the construction site. The monitoring program that has been proposed as part of this project to protect sea turtles and marine mammals should be sufficient to minimize the risk of adverse effects from sound pressure levels produced by construction to sea turtles to the point at which no reduction in individual fitness is expected to occur. The duration of any exposure to high sound pressure levels is expected to be minimal, as sound sources will cease shortly after detection of a turtle, and any turtle will most likely head out of the area before or shortly after noise levels get loud. Given that green sea turtles are not likely to spend much time in north San Diego Bay to begin with, avoidance of this portion of San Diego Bay for any period of time is not likely to limit their ability to forage or have any detectable effect on health. Therefore, the potential effects of noise disturbance are expected to be insignificant and discountable given the proposed mitigation and monitoring requirement that the Navy will employ, the low probability that sea turtles will be in north San Diego Bay for any length of time, and the lack of any detectable impact on health and fitness that avoidance of north San Diego Bay would have on green sea turtles.

NMFS recommends that the Navy initiate monitoring at least 15 minutes prior to commencement and during the initial stages of potentially harmful construction activities, as well as after a break of more than 30 minutes in project activity. If a green sea turtle or marine mammal is observed prior to or

during corresponding activities, activities should not begin or continue until at least 15 minutes has passed since the last sighting.

Personal communication with regional staff from the NMFS Habitat Conservation Division indicated that any potential impacts to Essential Fish Habitat (EFH), including eelgrass, were addressed during the EFH consultation. Potential impacts to eelgrass are not expected to be a concern as a result of this project as eelgrass is not located within the project area. Therefore no impacts to this important green sea turtle habitat are expected.

Based on all of the above, NMFS concurs with the Navy's determination that the proposed action may affect, but is not likely to adversely affect, green sea turtles.

Marine Mammal Protection Act Comments

Marine mammals are protected under the Marine Mammal Protection Act (MMPA) (16 U.S.C. § 1361 et. seq.). Under the MMPA, it is generally illegal to "take" a marine mammal without prior authorization from NMFS. "Take" is defined as harassing, hunting, capturing, or killing, or attempting to harass, hunt, capture, or kill any marine mammal. Except with respect to military readiness activities and certain scientific research conducted by, or on behalf of, the Federal Government, "harassment" is defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal in the wild, or has the potential to disturb a marine mammal in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

During the monitoring associated with this proposed project, the Navy should be watching for marine mammal presence and behaviors indicative of potential harassment. In the draft EA, the Navy indicates that use of the monitors and the protocols described earlier are designed to minimize the potential for marine mammal harassment or injury under the MMPA, even though sound pressure levels in excess of 160 dB are possible within a relatively small zone surrounding the project area. If biological monitors see evidence of potential marine mammal disturbance occurring during the project, the Navy should cease activity and contact NMFS before proceeding further.

In the unlikely event of an injury or mortality of a marine mammal due to this project, please immediately contact our regional stranding coordinator, Sarah Wilkin at (562) 980-3230. As part of the Navy's ongoing efforts to understand the sound levels generated by large construction activities in San Diego Bay in cooperation with NMFS, including pile installation, NMFS is anticipating that the Navy will be collecting data on the sound attenuation associated with the driving of various types of piles. NMFS believes this information will be invaluable in understanding the impact of future projects that may occur in San Diego Bay, as well as other places. NMFS fully encourages the Navy to conduct these studies and requests that any data gathered on the sound pressure levels produced by these activities or impacts to any living marine resources resulting from this project be shared to NMFS regional staff at the earliest convenience. NMFS regional staff is available to help assist in these studies or interpretation of data as needed upon request from the Navy.

This concludes informal consultation for the proposed action. Reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;

(2) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered; or (3) a new species is listed or critical habitat designated that may be affected by the action. As noted above, injury or death of sea turtles are not expected from this project; evidence of such an outcome would require re-initiation under (1) of this paragraph. In such a case, the Navy should immediately cease operations and contact our regional stranding coordinator, Sarah Wilkin, at (562) 980-3230.

Thank you for consulting with NMFS and consideration of our comments. If you have any questions pursuant to this letter or other ESA or MMPA issues, please contact Dan Lawson at (562) 980-3209 or Dan.Lawson@noaa.gov, or Monica DeAngelis at (562) 980-3232 or Monica.DeAngelis@noaa.gov, respectively.

Sincerely,

for William W. Stelle
Acting Regional Administrator

cc: Administrative File: 151422SWR2013PR00250

References

Eguchi, T., J.A. Seminoff, R.A. LeRoux, P.H. Dutton, D.L. Dutton. 2010. Abundance and survival rates of green turtles in an urban environment: coexistence of humans and an endangered species. Marine Biology 157:1869-1877.

Lemmons, G., R. Lewison, L. Komoroske, A. Goas, C.T. Lai, P. Dutton, T. Eguchi, R. LeRoux, and J. 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.

MacDonald B.D., R.L. Lewison, S.V. Madrak, J.A. Seminoff, T. Eguchi. 2012. Home ranges of East Pacific green turtles *Chelonia mydas* in a highly urbanized temperate foraging ground. Mar Ecol Prog Ser 461:211-221.

DEPARTMENT OF THE NAVY
Commanding Officer
Naval Base Point Loma
140 Sylvester Road
San Diego, California 92106

IN REPLY REFER TO:
5090
Ser N45/438
August 8, 2013

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

Dear Mr. Delaplaine:

SUBJECT: COASTAL CONSISTENCY NEGATIVE DETERMINATION FOR SHORE INFRASTRUCTURE MODIFICATIONS TO SUPPORT TESTING AND EVALUATION OF THE LARGE DISPLACEMENT UNMANNED UNDERSEA VEHICLE (LDUUV) PROGRAM AT SPACE AND NAVAL WARFARE (SPAWAR) SYSTEMS CENTER PACIFIC

I am submitting this Coastal Consistency Negative Determination (CCND) for the Environmental Assessment for the Shore Infrastructure Modifications to Support Testing and Evaluation of the Large Displacement Unmanned Undersea Vehicle (LDUUV). The proposed project is needed to support testing and evaluation of the LDUUV.

This submittal is in compliance with Section 930.35 (d) of the National Oceanic and Atmospheric Administration (NOAA) Federal Consistency Regulations (15 CFR 930). The Navy has determined that the proposed action would have no effect to coastal resources for the reasons identified in enclosure (1).

I request your concurrence on this proposed project. When completed, please fax letter of concurrence to Ms. Suzanne Smith, Fleet NEPA Coordinator, at (619) 532-2283. If you have any questions or need further information, please contact Ms. Suzanne Smith at (619) 532-2284.

Sincerely,

T. J. ROGERS
By direction

Enclosure: (1) Coastal Consistency Determination

In accordance with the Federal Coastal Zone Management Act of 1972 as amended, Section 307c(1), the United States Department of the Navy (DoN) has determined that the proposed action to provide the Large Displacement Unmanned Undersea Vehicle (LDUUV) Infrastructure at SPAWAR Systems Center (SSC) Pacific, Naval Base Point Loma (NBPL), San Diego, will not adversely affect the resources or uses of the coastal zone. Therefore, the Navy has concluded that a Coastal Consistency Determination is not required and are requesting your concurrence with this Coastal Consistency Negative Determination (CCND) in compliance with the Ocean and Coastal Resource Management regulations (15 CFR 930.35).

SSC Pacific has prepared an Environmental Assessment (EA) for the proposed action, available on the Navy Region Southwest website. This submittal is similar to previously concurred with consistency determinations for pier construction and dredging in San Diego Bay (Naval Base Point Loma P-151 Fuel Pier CD-011-13; Naval Base San Diego CCND-011-011, CD-031-01, CD-51-94, CD-64-92, CD-51-87; and at Naval Air Station North Island CD-89-99). There are no dredging activities associated with the proposed action for the LDUUV project.

There is one action alternative, the proposed action, which is primarily comprised of permanent infrastructure to support the docking and maintenance of two LDUUVs, one powered by a fuel cell and the other by lithium (Li) batteries, and three rigid-hulled inflatable boats (RHIBs). The proposed action also includes an option to use infrastructure (floating dock) that can rapidly be put in place at Pier 160 or Pier 159 to allow the docking and maintenance of a single LDUUV and one RHIB, as well as temporary use of existing NBPL main base piers to raise and lower the vessels by crane. The proposed permanent modifications would require two to six months to complete. Construction may begin as early as October, 2013.

PROJECT LOCATION

The LDUUV test program is proposed to be located at SSC Pacific's bayside compound in San Diego, California. SSC Pacific is part of the NBPL Complex, located on the Point Loma peninsula and adjacent to northern San Diego Bay (Figure 1). The bayside compound is bordered on the north by Scripps Institute of Oceanography facilities and the Navy's Fuel Facility to the south. The SSC Pacific facilities that are proposed to be permanently modified to accommodate the LDUUV test program include Pier 160, the Flume Bridge on Front Street, and Buildings 9 and 68.

As defined in Section 304 of the Coastal Zone Management Act (CZMA), the term "coastal zone" does not include "lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government." NBPL is owned and operated by the Navy and, therefore, is excluded from the coastal zone. The Navy recognizes that actions outside the coastal zone may affect land or water uses or natural resources of the coastal zone via "spill over" and, therefore, are subject to the provisions of CZMA. The Navy analyzed the impacts of the proposed action on the coastal zone by looking at reasonable foreseeable direct and indirect effects on the coastal use or resources, and reviewing relevant management program enforceable policies and the Coastal Resources Planning and Management Policies (CRPMP).

PROJECT DESCRIPTION

The purpose of the proposed action is to provide the necessary modifications to existing infrastructure at SSC Pacific to enable LDUUV test activities to proceed as scheduled. This

action is needed in order to meet critical milestones for testing and evaluation that have been established for the LDUUV program.

Initial testing of the LDUUV in the Southern California (SOCAL) Range Complex is already addressed in the current Hawaii-SOCAL Training and Testing (HSTT) Environmental Impact Statement (EIS) and does not require further analysis. Under the HSTT EIS, LDUUV testing would not start until early 2014, after the Record of Decision is signed. SSC Pacific is the proposed location for the LDUUV program in Southern California. SSC Pacific currently has the required infrastructure and is in close proximity to the open ocean and SOCAL Test Ranges.

The proposed action includes the following key elements:

- ***Pier 160 Modification*** – Permanent modifications to Pier 160 include the installation of launch and recovery lifts and fuel cell recharging equipment to enable recharging operations for the LDUUV (Figure 2). Up to five 70,000 pound-capacity launch and recovery lifts would be installed at Pier 160, four on the middle Finger B and one on the outer Finger A. Each launch and recovery lift will require the installation of eight 16-inch concrete piles (total of 40 piles). Piles would be installed using a small impact hammer.

  The installation of two tracks for a mobile boat hoist is also required (Figure 3). These tracks would be installed on Finger B of the pier and require installation of up to 20 16-inch concrete piles. To provide access to the RHIBS and LDUUVs while on the launch and recovery lifts, four small floating walkways would also be installed. Three floating walkway would require two piles to be installed while the fourth would require six pile and each would use an open design (e.g., grating) to prevent shading. Altogether, approximately 72 16-inch piles would be installed using jetting and/or a small impact hammer. LDUUV and Rigid Hull Inflatable Boat (RHIB) launch and recovery events will occur at this location. These facilities would also be used to maintain and repair the LDUUVs topside of the pier.

  Four 8' x 20' ISO vans will be placed on Finger A of the pier. Each of the following will be contained in its own ISO van: compressed hydrogen (H_2) storage tanks, compressed oxygen (O_2) storage tanks, an H_2 compressor, and an O_2 compressor.

  Recharging operations for the LDUUV fuel cell are 3-5 day events. Recharging of the fuel cell would only occur at the launch and recovery lift located near the ISO vans on Finger A, whereas the LDUUV with Li batteries would be recharged in Building 9 or at Finger B of Pier 160 (Figure 4). The recharging for each vehicle could occur monthly depending on test requirements.

- ***Building 9 Modifications*** – The current use of this building is to stage and store research and testing equipment. The building can accommodate the Maintenance and Integration facility needed for the LDUUV. This facility would be used to integrate new payloads into the vehicle, for routine maintenance of the LDUUV, for storage of the LDUUV(s) during non-testing periods, storage of other equipment and tools, and for recharging the battery-powered LDUUV. Modification would include construction of office space, installation of fencing, and modification of supporting utility systems. The fuel cell LDUUV would be mostly emptied of H_2 and O_2 prior to transport to Building 9 by recovering the gases or by discharging them to the atmosphere.

- ***Building 68 Modifications*** – Building 68 is currently used for research activities and includes a large storage room in the rear of the building. Proposed modifications to this building include replacement of an existing double door with an automated roll-up door tall enough to accommodate forklift access, installation of chain link fence within the room, striping for an adjacent parking space, additional overhead lighting, raising the existing overhead lighting to allow for forklift access, and clearance of an existing double door on the rear wall of the building. Building 68 is separate from Building 9.

- ***Flume Bridge Modifications*** – The Flume Bridge is located on Front Street and is on the route from Pier 160 to Building 9. The current slope of the Flume Bridge, which is about 12-20% grade, is problematic for the mobile boat hoist holding the LDUUV and transiting the LDUUV on a trailer. The proposed modification would add concrete or asphalt to each side of the bridge over the current concrete and/or asphalt to decrease the grade (Figure 5).

- ***Barge/Floating Dock Option*** – To ensure the Navy is able to provide the necessary out-of-water mooring required for one LDUUV and one RHIB until the launch and recovery lifts and mobile boat hoist tracks at Pier 160 can be installed, either two floating boat docks, or a floating, modular barge and a floating boat dock, would be placed near the end of Pier 159 or between Fingers B and C of Pier 160 (Figures 6 and 7). These structures would remain in place until no longer needed. A crane positioned on Pier 160, Pier 159, or on the barge (as applicable) would be used to lift and lower the LDUUVs and RHIBs. Implementation of this option would not result in any additional pile driving. Existing infrastructure at the NBPL Main Base piers (north, middle and south) could also be used to move the vessels between the water and topside of the pier.

- ***Operations*** – LDUUV testing would involve transiting the bay at slow speeds with the RHIBs providing escort weekly, or as needed. Test activities are covered under the HSTT EIS.

NEGATIVE DETERMINATION ANALYSIS

Public Access (CRPMP Section 30211) and Recreation (CRPMP Section 30220)

The proposed action would not interfere with public access or boater recreation. The project is located in an industrial area on NBPL where access is controlled by the DoN and is restricted to military personnel. Public access is also restricted by the U.S. Coast Guard security zone that encompasses Pier 160 as well as other piers at NBPL. Vehicles traveling between Pier 160 and Building 9 would likely travel on Craig Road and Front Street and would use the Flume Bridge. Navy-owned property would be used for all travel and public roads would not be impacted. Public access to the project area would remain restricted with implementation of the preferred alternative. The project would be compatible with existing adjacent land uses and no changes to public access or recreational opportunities would occur. Therefore, there will be no effect to public access.

Marine Environment (CRPMP Sections 30230 and 30231)

The project would have no long-term effects on biological productivity or water quality. No dredge or fill is required for the installation of the piles.

Project activities would result in increases in noise and human activity, and very localized turbidity during pile driving. These actions would constitute a minor disturbance to migratory birds and marine biota and would not be significant because of their limited scale and duration. Furthermore, the project area is routinely subject to the noise and activity of workers and equipment associated with common industrial and waterfront practices (Figure 8). Finally, because the project area is developed and similar resting and foraging habitats occur nearby, common shorebirds and waterbirds, if disturbed by the activity, would move to other nearby, similar habitats and return when the project is complete.

Relatively low sound pressure levels are associated with driving 16-inch concrete piles. The Navy will closely monitor the corresponding zone of influence (ZOI), a distance of 74 m, where, if present, marine mammals or sea turtles, could be affected by underwater sound. The Navy will enforce the cessation of pile driving if a marine mammal or sea turtle approaches this ZOI. As a result, no incidental harassment of marine mammals or adverse effects to sea turtles would occur. Underwater noise from pile driving would temporarily disturb fish in the vicinity of the project site. A separate submittal to the National Marine Fisheries Service (NMFS) provides the Navy's Essential Fish Habitat (EFH) Assessment and concludes that the project would have no more than minimal and temporary effects on EFH.

Pile driving activities would avoid the spring-summer breeding season (April 1 through September 15) of the California least tern when it forages in the project area; hence there would be no disturbance to this species. Transient occurrence of the green sea turtle in northern San Diego Bay during pile driving is remotely possible, but monitoring provisions (see below) would avoid any potential impact. Fish and marine mammals are highly mobile and would be able to move out of the area during project activities and return after in-water project activities are completed. Any marine mammals present in the general vicinity would be able to detect the noise and associated in-water activities and may temporarily avoid the project area. To avoid and minimize potential impacts to the marine environment and protected species, the following measures would be implemented:

- The approved NMFS and California Department of Fish and Wildlife (CDFW) *Caulerpa* Control Protocol (Version 4, February 25, 2008), including a pre-construction *Caulerpa* survey and follow-up action if necessary, would be followed.

- Pile driving would occur outside of the California least tern nesting/foraging season in San Diego Bay, which is April 1 to September 15.

- Piles may be jetted to minimize pile driving and associated underwater and airborne noise.

- A cushion block would be used to reduce noise generated during pile driving activities.

- To reduce noise impacts, pile driving would only occur during normal work hours (between 7 A.M. and 5 P.M.) Monday through Friday.

- To encourage fish and wildlife dispersal away from the immediate area of pile driving, at the start of pile driving activity or when pile driving has ceased for more than an hour, a soft-start technique would be used involving a gradual ramp-up before pile driving reaches full energy.

- A biological monitor would be stationed on Pier 160 and would order a shutdown of pile driving any time a wild marine mammal or sea turtle is observed within or approaching the zone of potential harassment defined by a root mean square (RMS) underwater sound pressure level (SPL) of 160 decibels (dB) referenced to 1 micro Pascal (re 1 μPa). This is currently estimated as extending 74 m from the source, based on an estimated RMS SPL of 173 dB re 1μPa at 10 m from the source, and application of the NMFS-approved practical spreading model for transmission loss.

- The barge and floating boat docks, if used at Pier 159, would be positioned so that no eelgrass is shaded.

Given the temporary, localized nature of disturbance due to project activities, the proposed action is expected to have minor, less than significant effects on fish, sea turtles, marine birds or marine mammals. Based on the above analysis, all water quality impacts would be temporary and localized, therefore, there would be no long-term effects to water quality.

Oil and Hazardous Substance Spills (CRPMP Section 30232)

Through the use of the preventive measures described in the EA and proper management of hazardous materials and waste during the proposed construction, no increase in human health risk or environmental exposure to hazardous materials or hazardous wastes would result from implementation of the preferred alternative. Therefore, there would not be coastal resource affects associated with the use, storage, or disposal of hazardous materials or hazardous wastes.

Sensitive Habitat (CRPMP Section 30240)

The two groups of managed species with Essential Fish Habitat (EFH), including Habitat Areas of Particular Concern, likely to occur in the project area, include: **Coastal Pelagic Species** (Northern anchovy *E. mordax*, Pacific sardine *S. sagax*, Jack mackerel *T. symmetricus*, Pacific chub mackerel *S. japonicas*), and **Groundfish Species** (Curlfin sole *Pleuronichthys decurrens*, English sole *Pleuronichthys vetulus*, California scorpionfish *Scorpaena guttata*, grass rockfish *Sebastes rastrelliger,* Leopard shark *Triakis semifasciata*, Soupfin shark *Galeorhinus zyopterus*). These species are highly transient and can be found throughout San Diego Bay. Temporary effects to EFH species may occur from increased suspended sediments and increased noise levels from pile driving activities. However, EFH species are highly mobile and would likely leave the immediate project area during pile driving activities and return when these activities are completed. The analysis of underwater sound from pile driving indicates a limited area of potential behavior disturbance to fish and a very small area within which there would be any potential for injury.

Eelgrass is not found near the proposed project site and would not be disturbed during the proposed pile driving activities. Therefore, the proposed pier and building modifications and installation of associated LDUUV maintenance equipment would not result in significant impacts to marine plants and no significant effects to special aquatic sites would occur.

Neither upland nor shoreline habitat would be significantly impacted since all development that would occur is either on land previously developed or is within the marine environment. Implementation of the preferred alternative would not result in long-term affects to marine or terrestrial plants, habitats, or to marine communities or special aquatic sites.

Archaeological or Paleontological Resources (CRPMP Section 30244)

There will be no effect on historic properties since none exist within the project area. The project area falls under the coverage of the San Diego Metropolitan Area Programmatic Agreement (Metro Area PA) executed in February 2003 between Commander, Navy Region Southwest (CNRSW), the Advisory Council on Historic Preservation, and the California State Historic Preservation Officer. In conformance with Stipulation 8A of the Metro Area PA, CNRSW has determined that the proposed action would not affect listed, contributing or eligible National Register of Historic Places (NRHP) properties. Consistent with 36 CFR 800.4(d)(1), CNRSW has accordingly made a determination of "no historic properties affected" for the proposed action. Therefore, there would be no effect to cultural resources.

Scenic and Visual Qualities (CRPMP Section 30251)

The proposed action would not affect views available to the public and would be consistent with the industrial visual aesthetic of NBPL. Construction activities would be visible to military personal working near Pier 160, boaters in the south bay, and from multiple view corridors around San Diego Bay. However, Pier 160 construction activities would be short-term and would occur in a developed area that is accessible only to authorized military and government personnel. After construction, the project area would be visually consistent with the current marine-industrial and military activities that take place in adjacent areas. Therefore, there would be no effect to aesthetics.

Air Quality (CPPMP Section 30253)

Operational emissions would primarily be from mobile sources associated with the use of the pier, including Navy marine vessels and ground vehicles that would service the pier. The purpose of the proposed action is to provide the necessary modifications to existing infrastructure at SSC Pacific to facilitate LDUUV test activities. Therefore, the air quality analysis focuses on construction activities required to complete those infrastructure modifications.

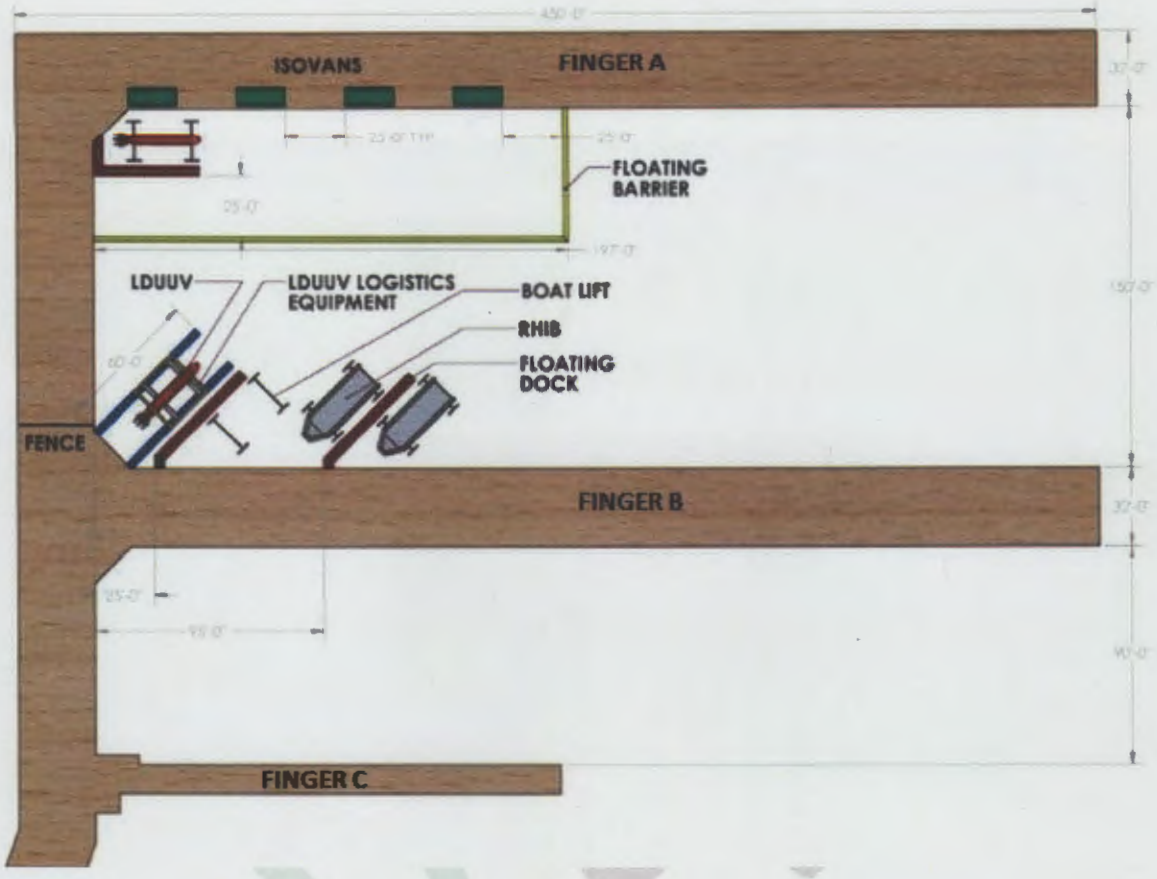
Estimated construction emissions with implementation of the preferred alternative would be below the de minimis threshold levels for Clean Air Act (CAA) conformity. Therefore, the preferred alternative would conform to the San Diego Air Basin State Implementation Plan and would not trigger a conformity determination under Section 176(c) of the CAA. The Navy has prepared a Record of Non-Applicability. Therefore, the proposed action will conform to the SDAB State Implementation Plan and will not trigger a conformity determination under the Clean Air Act, as amended.

CONCLUSION

In accordance with the Federal Coastal Zone Management Act of 1972, as amended, Section 307 (c)(1), the Coastal Consistency Negative Determination demonstrates that the proposed action will be undertaken in a manner as to not affect coastal uses or resources. The Navy respectfully requests your concurrence. If you need additional information, or if you have any questions, please do not hesitate to contact Suzanne Smith at (619) 532-2284 or email at Suzanne.M.Smith@navy.mil.

Figure 1- Proposed Action Location

Figure 2 – Pier 160 Modifications and Lift



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- Custom Bunking Systems

Specifications

Figure 3 – Hoist on Tracks

Figure 4 – Compressed Gas Recharging Process for Fuel Cell LDUUV

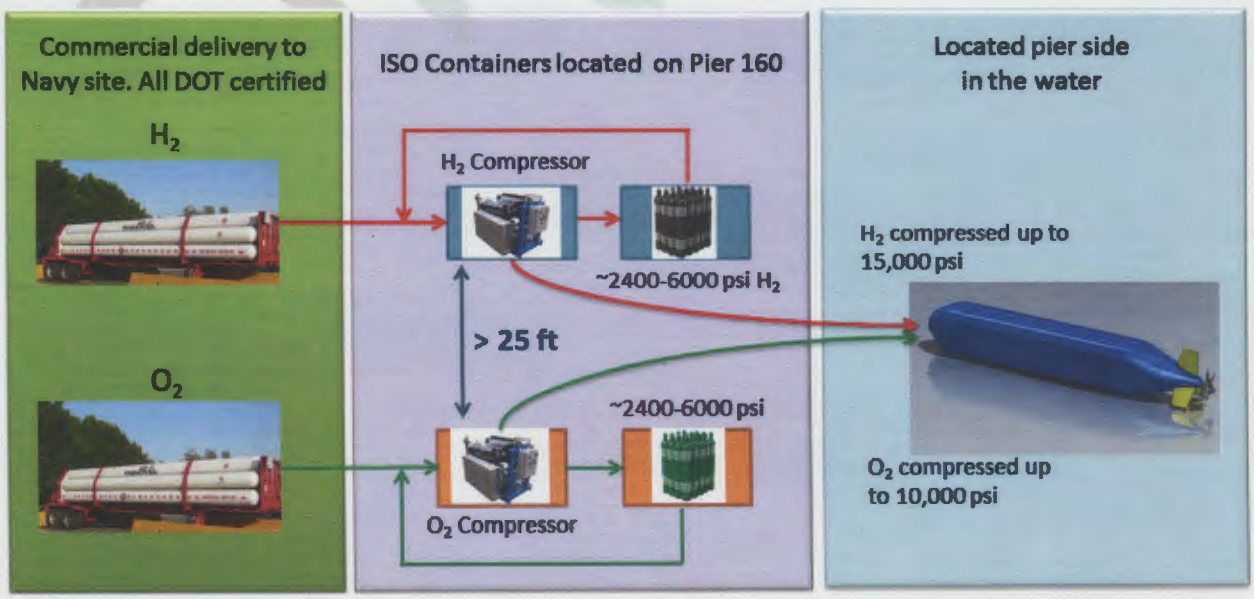

Figure 5 – Flume Bridge Proposed Modifications

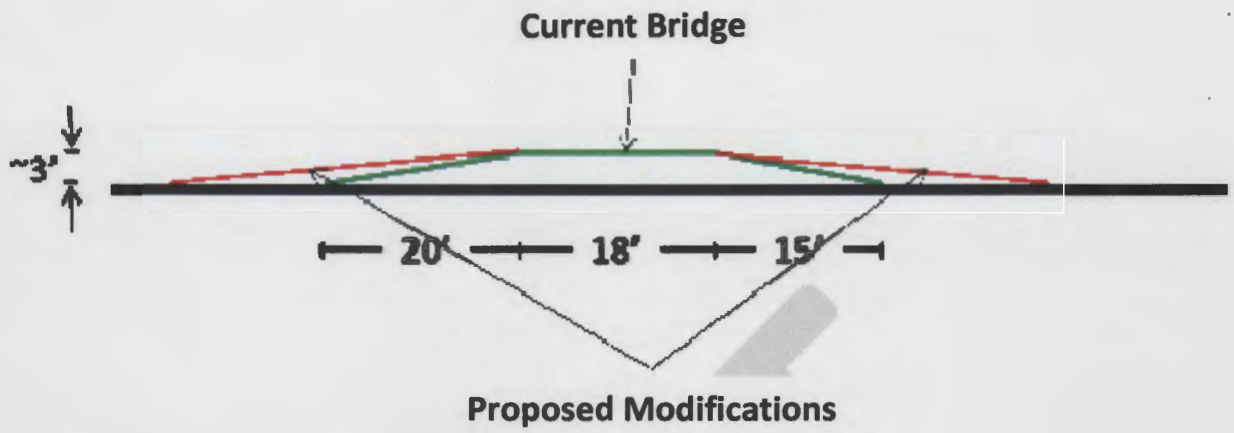

Figure 6 – Floating Dock Example

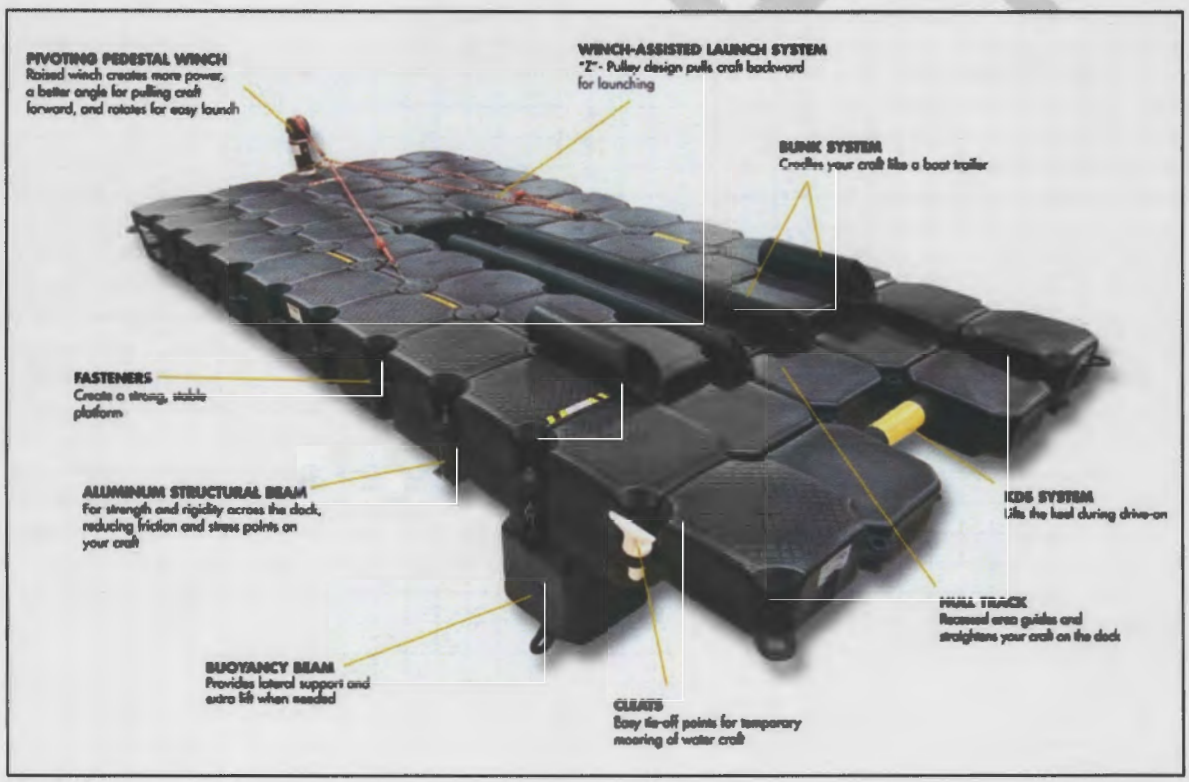

Figure 7 – Proposed LDUUV and RHIB Floating Boat Docks and Truck Crane at Pier 160

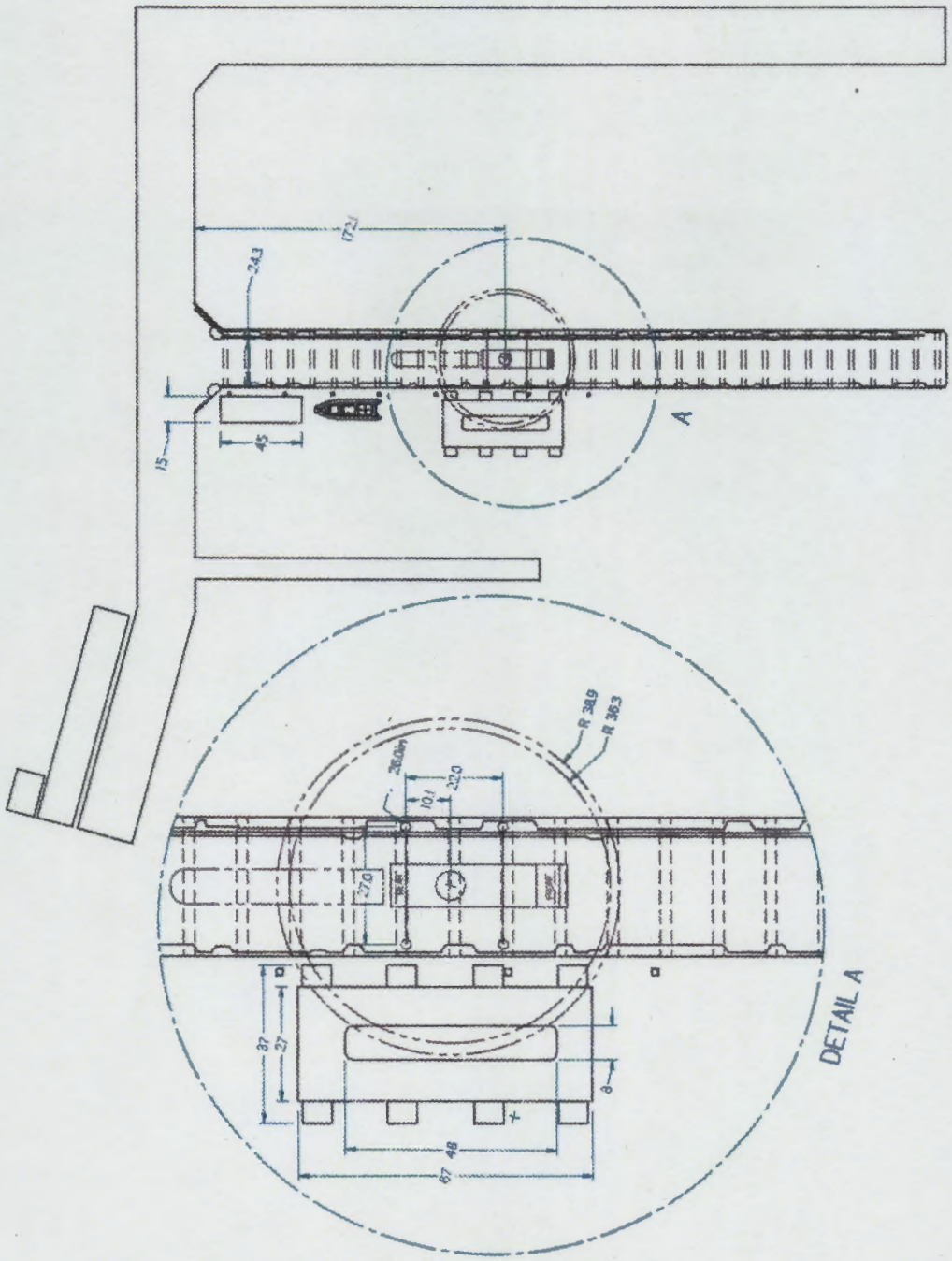

Figure 8 – Noise Contours Associated with the Proposed Action and Least Tern Foraging Area

September 27, 2013

T.J. Rogers
Department of the Navy
Attn: Suzanne Smith
Naval Base Point Loma
140 Sylvester Rd.
San Diego, CA 92016

Re: **ND-0214-13**, U.S. Navy, Shore Infrastructure Modifications to Support Testing and Evaluation of the Large Displacement Unmanned Undersea Vehicle (LDUUV) Program, east side of Point Loma, San Diego

Dear T.J. Rogers:

The Coastal Commission staff has reviewed the above-referenced negative determination for modifications to buildings, piers, and other infrastructure to support the Navy's Navy's Testing and Evaluation of the Large Displacement Unmanned Undersea Vehicle (LDUUV) Program. The modifications needed to accommodate the program would be to Pier 160, the Flume Bridge on Front Street, and Buildings 9 and 68. (The operational aspects of the program itself are already authorized through the Navy's Hawaii-SOCAL Training and Testing (HSTT) program, which the Commission has reviewed separately.) The site is just south of the Scripps Pier and north of the the Navy's Fuel Pier, on the east side of Point Loma.

The proposed modifications to Pier 160 include installing launch and recovery lifts and fuel cell recharging equipment to enable recharging of LDUUVs. Up to five 70,000 pound-capacity launch and recovery lifts would be installed, with each lift necessitating eight 16-inch concrete piles (for a total of up to 40 piles for the 5 lifts). The modifications would also include tracks for a mobile boat hoist and four small floating walkways, with 32 additional piles needed (for an overall total of up to 72 16-inch piles. The piles would be installed using jetting and/or a small impact hammer.

The project would also include relatively minor modifications to Building 9, Building 68, the Flume Bridge (including slope modifications to facilitate mobile boat hoist operations), and, temporarily (pending project completion), installing two floating boat docks, or a floating modular barge and a floating boat dock, as well as temporary crane use to raise and lower vehicles.

The project would not affect public access. Pile driving would avoid the spring-summer California least tern breeding season (April 1 through September 15). Measures would be included to avoid effects on marine mammals and sea turtles, including:

• Piles may be jetted to minimize pile driving and associated underwater and airborne noise.

• A cushion block would be used to reduce noise generated during pile driving activities.

• To reduce noise impacts, pile driving would only occur during normal work hours (between 7 A.M. and 5 P.M.) Monday through Friday.

• To encourage fish and wildlife dispersal away from the immediate area of pile driving, at the start of pile driving activity or when pile driving has ceased for more than an hour, a soft-start technique would be used involving a gradual ramp-up before pile driving reaches full energy.

• A biological monitor would be stationed on Pier 160 and would order a shutdown of pile driving any time a wild marine mammal or sea turtle is observed within or approaching the zone of potential harassment defined by a root mean square (RMS) underwater sound pressure level (SPL) of 160 decibels (dB) referenced to 1 micro Pascal (re 1 μPa). This is currently estimated as extending 74 m from the source, based on an estimated RMS SPL of 173 dB re 1 μPa at 10 m from the source, and application of the NMFS-approved practical spreading model for transmission loss.

• The barge and floating boat docks, if used at Pier 159, would be positioned so that no eelgrass is shaded.

While pile driving has the potential to affect expected infrequent occurrences of sea turtle and marine mammals, with the above monitoring and avoidance measures, effects to these species would be minimal. The Navy has coordinated with the National Marine Fisheries Service (NMFS), which confirms no estimated "take" or "harassment" of marine mammals (under the Marine Mammal Protection Act), and the Navy has committed to notify the Commission staff in the event of any reinitiation of consultation with NMFS.

Under the federal consistency regulations (Section 930.35), a negative determination can be submitted for an activity "which is the same as or similar to activities for which consistency determinations have been prepared in the past." The Commission and its staff have concurred with the above-noted Navy consistency and negative determinations for pier construction on the east side of Point Loma (Navy Scripps Pier and Wharf Replacement - ND-0202-13, Navy, Fuel Pier - CD-011-13), and at the Naval Base San Diego on the east side of San Diego Bay (Navy Pier 12 Replacement - ND-011-11, Navy Piers 10/11 Demolition and replacement with a single pier).

With the measures incorporated into the activities to minimize effect on sensitive habitat, marine resources, water quality, public access and recreation, and commercial and recreational fishing, the Commission staff **agrees** with the Navy that proposed activities would be similar to consistency and negative determinations with which we have previously concurred. We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please contact Mark Delaplaine of the Commission staff at (415) 904-5289 if you have any questions regarding this matter.

Sincerely,

(for) CHARLES LESTER
Executive Director

cc: San Diego District
Army Corps, San Diego Field Office