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STAFF REPORT: REGULAR CALENDAR

Consistency Determination No.:	**CD-011-13**
Federal Agency:	**Department of the Navy**
Location:	Naval Base Point Loma, San Diego (Exhibit 1)
Project Description:	Demolition and replacement of the existing Navy fuel pier with associated dredging to widen an existing turning basin
Staff Recommendation:	Concurrence

SUMMARY OF STAFF RECOMMENDATION

The Department of the Navy (Navy) proposes to demolish and replace the existing fuel pier located at the Naval Base Point Loma (NBPL) on the western side of San Diego Bay (see Exhibits 1 and 2). The proposed project also includes dredging an existing turning basin to safely accommodate current and future deep draft berthing capabilities. The existing fuel pier is over 100 years old and does not meet new fueling technology capabilities and is not consistent with modern safety and seismic standards.

The most significant Coastal Act issues raised by this project are marine resources and water quality. In the marine environment, construction activities, including underwater impact and vibratory pile driving, vibratory pile extraction, dredging and sediment disposal in marine

waters have the potential to affect benthic habitats, fish and marine mammals. The Navy estimates that approximately 1.09 acres of eelgrass habitat or habitat that historically supported eelgrass would be permanently or temporarily shaded by the project. To address these concerns, the Navy will offset actual impacts using the Navy's established eelgrass mitigation bank. The most significant potential impacts to fish and marine mammals from project activities are from increases in turbidity and noise. To address concerns related to increased turbidity, the Navy will conduct water quality monitoring to ensure that increases in turbidity avoid causing widespread or persistent water quality problems. Noise impacts have the potential to cause physical injury of behavioral changes in fish and behavioral changes in marine mammals. To address these impacts and ensure that marine mammals are not physically harmed, the Navy has incorporated several avoidance and minimization measures into its project, including establishment of a buffer and shut-down zone, visual monitoring, and implementation of a soft-start procedure. In addition, the Navy has agreed to monitor fish during pile driving activities to gain a better understanding of the physiological and behavioral impacts of these activities on fish populations. With these measures, impacts to fish and marine mammals would be minor. The staff therefore recommends the Commission find the project consistent with the marine resource policies (Sections 30230 and 30231) of the Coastal Act.

Potential project-related water quality impacts include contamination by fuel spills, demolition debris, dust, and stormwater runoff, increased turbidity, and bacterial contamination from the relocated MMP. To minimize the potential for contamination, the Navy will implement a construction National Pollutant Discharge Elimination System (NPDES) permit and will require the contractor to implement a comprehensive debris management plan. The Navy will also update as necessary and implement the existing NBPL Integrated Contingency Plan (ICP) for Oil and Hazardous Substance Spill Prevention and Facility Response Plan and the Stormwater Discharge Management Plan (SDMP) that apply to the existing facility. To reduce the potential for impacts from increased turbidity from dredging and sediment disposal and reuse, the Navy will monitor the turbidity of waters surrounding the dredge footprint and beneficial reuse site to determine the need for additional turbidity control measures. Finally, to address water quality concerns related to the relocation of the MMP program, at the request of the Commission staff the Navy has agreed to monitor bacteria and pathogen levels at the MMP's new location to verify compliance with the water quality objectives in waters designated for contact recreation included in the San Diego Regional Water Quality Control Board (RWQCB) Basin Plan. If monitoring results exceed water contact standards, the Navy will coordinate with the Commission staff and evaluate alternative actions or sampling strategies. With these measures in place, the staff recommends the Commission find the project consistent with the water quality policies (Sections 30230, 30231, and 30232) of the Coastal Act.

In addition to the marine resource and water quality policies of the Coastal Act, the Navy's project is also consistent with the dredge and fill of coastal waters, sand supply, public access and recreation, cultural resources and commercial and recreational fishing policies of the Coastal Act (i.e. Sections 30233(a), 30232(b), 30231, 30210 and 30212(a), 30244, and 30234, respectively). The staff therefore recommends that the Commission concur with the Navy's consistency determination.

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EXHIBITS

I. FEDERAL AGENCY'S CONSISTENCY DETERMINATION

The U.S. Navy has determined the project consistent to the maximum extent practicable with the California Coastal Management Program (CCMP).

II. MOTION AND RESOLUTION

Motion:

> *I move that the Commission **concur** with consistency determination CD-011-13 by concluding that that the project would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP, as provided for in 15 CFR §930.4.*

Staff recommends a **YES** vote on the motion. Passage of this motion will result in a conditional agreement with the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution to Concur with Consistency Determination:

The Commission hereby concurs with consistency determination CD-011-13 by the U.S. Navy on the grounds that the project would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP, as provided for in 15 CFR §930.4.

III. FINDINGS AND DECLARATIONS

A. PROJECT DESCRIPTION AND BACKGROUND

The U.S. Navy (Navy) proposes to demolish and replace the existing fuel pier located at the Naval Base Point Loma (NBPL) on the western side of San Diego Bay (see Exhibits 1 and 2). The proposed project also includes dredging an existing turning basin to safely accommodate current and future deep draft berthing capabilities. The existing fuel pier is over 100 years old and serves as a fuel depot for loading and unloading tankers and refueling vessels, and transferring fuel to local replenishment vessels and other small craft. The pier is part of Fleet Logistic Center (FLC) Fuel Facility NBPL, a bulk fuel storage and transfer facility that includes administrative and support facilities, fuel storage tanks, pump houses and pipelines. This facility stores more than 42 million gallons of fuel and serves an average of 43 ships a month. The existing pier does not meet new fueling technology capabilities and is not consistent with modern standards (including seismic safety standards) outlined in California State Lands Commission's (CSLC) Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS).

The proposed project is designed to maintain continuous fueling capability through all phases of the project. The old pier will be demolished concurrently with construction of the new pier over a 4 year period, between 7:00AM and 4:00PM, Monday through Friday. To avoid impacts to California least tern foraging habitat during the nesting season, in-water demolition and construction activities that generate levels of noise that could be harmful to least terns will not take place during the least tern foraging season, April 1-September 15.

The proposed project would include the following four key elements:

- ***Temporary Relocation of the Navy MMP***
  Before the pier replacement activities begin, the Navy Marine Mammal Program (MMP) would be temporarily relocated to the Navy's Morale, Welfare and Recreation marina (MWR) located at the Naval Mine and Antisubmarine Warfare Command (NMAWC), a part of NBPL that is over three kilometers away from the fuel pier (see Exhibit 3). Limited construction at NMAWC would occur and Navy marine mammal enclosures would be towed from the existing facilities to the temporary NMAWC site. Guide piles, 18 inches square, would be installed with a diesel hammer pile driver and serve as anchors for the floating enclosures. The temporary Navy MMP enclosures would extend about 150 ft beyond the NMAWC boundary into state waters, and a 100 ft temporary security zone would be established bayward. Approximately 320 ft of open water would remain for navigation between the temporary security zone and West Harbor Island. After completion of the new fuel pier, the Navy marine mammal enclosures would be moved back to their original location adjacent to the fuel pier and the temporary facilities at NMAWC would be removed.

- ***Phased Demolition and Removal of the Existing Fuel Pier***
  Demolition and removal of the existing fuel pier would take place in two phases to maintain the fueling capabilities of the existing fuel pier while the new pier is being constructed (see Exhibit 4). Demolition equipment including a crane, hydraulic hammers, front-end loaders, fork lifts, concrete saws, steel-cutting torches and excavators would be staged on barges to provide sufficient working area. The floating barges would be supported by tugboats and small workboats. Demolition waste would be placed on barges and hauled off-site for processing, recycling and disposal. During demolition, 1,471 piles and fenders would be removed. Piles outside of the new approach segment would be cut off at the mudline, while piles within the approach segment would be pulled via dry-pull, vibratory hammer or jetting. The Navy's contractor would complete a comprehensive debris management plan that would include protocols to avoid releases of debris into San Diego Bay.

- ***Phased Construction of a Replacement Fuel Pier***
  A new double-deck fuel pier, including four additional dolphins to increase mooring capability, would be constructed to provide flexibility in fueling multiple vessel types (see Exhibit 4). The new pier would meet MOTEMS requirements for seismic performance. The proposed design would have a total area that is 5,315 square feet and would be 0.12 acre smaller than the area of the existing fuel pier. The angled approach segment of the new pier would be 50 ft. wide and extend 700 ft into the bay. The specific placement of the new pier was designed to minimize impacts to eelgrass. The top of the lower deck would be set at 13 ft above mean lower low water (MLLW), approximately 5 ft above extreme high tide. The new pier upper deck elevation would be 28 ft above MLLW (31.5 ft MLLW including the concrete barrier) and 20 ft above extreme high tide.

  The replacement double-deck pier structure, including mooring dolphins, would consist of steel pipe piles (36 to 48 inch diameter), supporting concrete pile caps and cast-in-place concrete deck slabs. Additionally, 24-in diameter pre-stressed concrete piles and 16-in diameter concrete-filled fiberglass piles would be used. Approximately 554 total piles would be installed. Steel piles would be driven initially with a vibratory pile driver and finished as necessary with an impact pile driver. The Navy estimates that each pile would take up to 2 hours to install. Concrete and fiberglass pile would be driven with an impact pile driver. Construction equipment, including two cranes, a pile-driving rig, forklifts, front-end loaders, steel welding and cutting equipment and other equipment and materials would be staged from four floating barges that are supported by tugboats and small workboats. The total fuel volume of the new fuel pier would be 49,000 gallons, an 88 percent increase in capacity from the existing fuel pier.

  Construction of the fuel pier would require some onshore construction, primarily to extend existing fuel lines and relocate an existing 12 inch storm outfall. Onshore work would require some trenching and excavation. The impact area is within a previously disturbed area that is both paved and unpaved, and is expected to cover less than an acre. Three palm trees would be removed and part of a landscaped area would be paved over.

- ***Dredging and Sediment Disposal***
  Proposed dredging and sediment disposal would deepen an existing turning basin to safely accommodate current and future deep draft berthing capabilities (see Exhibits 2 and 5). Ocean disposal of dredge sediments was considered and approved by the U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineering (USACE). It is projected that 80,000 CY of sand dredge from 17.9 acres within the adjacent turning basin would be removed from the project site. USEPA specified beneficial reuse for near-shore replenishment as the appropriate placement. The dredged sediments would be hauled by barge to a beneficial reuse site south of the Imperial Beach pier (see Exhibit 6). The Navy has proposed two dredging alternatives. Under Alternative 1, dredging could be done before, during, or after the pier replacement effort and could potentially occur while the Navy MMP is at its

existing location, so long as pier replacement has not begun. Under Alternative 2, the Navy would commence dredging activities after construction of the fuel pier is completed. In either case, the Navy anticipates that dredging would take approximately three months to complete. However, no dredging would occur during the California least tern foraging season, April 1 to September 15.

In addition, the Navy examined alternatives for the temporary relocation of the Everingham Brothers Bait Company Bait Barges, currently anchored on Navy property approximately 1800 feet south of the existing fuel pier (see Exhibit 2). Although not part of its proposed project, the Navy looked at alternatives to relocate the bait barges outside the zone of influence for pile driving noise to reduce the likelihood that project-related activities will adversely impact wild marine mammals that congregate around the bait barges. The Everingham Brothers Bait Company has applied for a new lease from the California State Lands Commission (CSLC) and will also be applying for a Coastal Development Permit to address potential impacts associated with the new location. Any pile driving, or other activities associated with the Navy's proposed project that have the potential to emit noise at levels that could harm marine species will not commence until the bait barge has been relocated.

B. RELATED COMMISSION ACTION

The proposed project is the third in a series of projects reviewed by the Commission to replace and upgrade piers at Naval Station San Diego (NSSD) in order to provide the berthing, logistics support, maintenance, and utility requirements of ships currently homeported in the San Diego region. This submittal is similar to previously concurred with consistency determinations for pier construction and dredging at Naval Station San Diego (CD-51-94, CD-64-92, and CD-51-87) and at Naval Air Station North Island (CD-89-99). In those decisions, the Commission found that the projects were allowable uses for dredging and filling of coastal waters for pier construction and berth deepening, that dredge spoils were suitable for ocean disposal because they met "Green Book" standards, and that the projects complied with water quality, commercial and recreational fishing, beach replenishment, public access and recreation, and environmentally sensitive habitat policies of the Coastal Act. The Commission's adopted findings from the aforementioned consistency determinations are incorporated by reference into this report.

C. FILLING AND DREDGING OF OPEN COASTAL WATERS

Section 30233(a) of the Coastal Act states:

> *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*

> *(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
>
> *(2) Maintaining existing, or restoring previously dredged depths on existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
>
> *(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
>
> *(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
>
> *(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
>
> *(6) Restoration purposes.*
>
> *(7) Nature study, aquaculture, or similar resource dependent activities.*

Section 30233(b) of the Coastal Act states:

> *Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.*

The proposed project involves installing approximately 554 piles to support a new fueling pier and dredging 80,000 cubic yards of material from the bottom of the bay to deepen an existing turning basin. Coastal Act Section 30233(a) imposes a 3-part test for projects involving fill or wetlands, estuaries and open coastal waters. The first test requires that the proposed activity must fit into one of seven categories of uses enumerated in Coastal Act Section 30233(a). The second test requires that there be no feasible less environmentally damaging alternative. The third and last test mandates that feasible mitigation measures be provided to minimize the project's adverse environmental effects.

Allowable Use Test

The proposed project involves the construction of a new Navy fueling pier and the expansion of an existing turning basin. The Commission has historically found Navy boating facilities (including ramps and piers) in open coastal waters and estuaries to be allowable uses as coastal dependent boating facilities. Accordingly, the Commission finds the components of the project involving proposed dredge and fill activities constitute allowable uses under Sections 30233(a)(1) of the Coastal Act.

Alternatives

The second test of Section 30233(a) is whether there are feasible less environmentally damaging alternatives to the proposed project. The Navy considered several alternatives with the same shoreside access location.[1] The first alternative is a full-fixed double-deck pier with no mooring dolphins. For this alternative, the dredging portion of the project would be identical to the proposed project. According to the Navy's EA, this alternative provides the "greatest versatility in accommodating the wide range of vessels requiring fueling berths at this facility." However, the larger structure required by this alternative would have a significantly larger footprint, 110,000 sq. ft. as compared to 65,865 sq. ft. for the proposed project. The larger structure would shade sections of eel grass beds that are avoided by the proposed project, would require additional fill in the form of support pilings and would take longer to build, resulting in additional impacts to marine resources. In addition, the larger structure would encroach farther into navigable waters. Thus, the Navy eliminated this alternative from further consideration.

The second alternative is a full-fixed single deck pier. For this alternative, the dredging portion of the project would be identical to the proposed project. This single deck described in this alternative would not have sufficient height to safely fuel some of the vessels the Navy is designing the new pier to serve. In addition, the proposed structure covers an area of 268,750 sq. ft., over four times the area of the proposed pier. Thus, because the design did not meet the goals of the project, and for reasons similar to Alternative 1, the Navy eliminated Alternative 2.

The third alternative is a single deck pier with mooring dolphins. For this alternative, the dredging portion of the project would be identical to the proposed project. Although the addition of mooring dolphins decreased the total area of the project described in the Alternative 2 to 223,900 sq. ft, it is still over 150,000 sq. ft. larger than the proposed project and would thus result in additional impacts to marine resources and further encroachment into navigable waters. For these reasons, the Navy eliminated this alternative.

The fourth alternative is to replace the fuel pier in-kind. For this alternative, the dredging portion of the project would be identical to the proposed project. This would involve constructing a single deck fuel pier of a similar configuration to the existing fuel pier. The new pier would cover approximately 77,500 sq. ft.. As discussed in the EA, the current pier is outdated and cannot provide service to several classes of vessels currently in the Navy's fleet due to their height. Replacing the pier in-kind would not address this shortcoming and would thus not meet the goals of the project. In addition, an in-kind replacement of the fuel pier would result in a larger footprint than the proposed project,

[1] The existing fuel pier is part of the Fleet Logistic Center (FLC) Fuel Facility NMBL, a bulk fuel storage and transfer facility that in addition to the pier includes administrative and support facilities, fuel storage tanks, pump houses and pipelines. The Navy determined that locating the fuel pier away from these support facilities was not feasible.

requiring additional fill (pilings), increasing the impact footprint to eel grass beds, and encroaching farther unto navigable waters. Thus, the Navy eliminated this alternative from further consideration.

Finally, the Navy considered the No Project alternative. In this alternative, the existing pier would remain as is, and the dredging portion of the project would be eliminated. The current pier is over 100 years old and in poor condition. It does not meet new fueling technology capabilities or the current MOTEM regulations including seismic safety standards. In addition, due to the single deck on the pier, the lack of deep water berthing capability and the lack of a sufficiently large turning basin, the fuel pier cannot provide service to all existing and future classes of vessels. For these reasons, the Navy rejected this alternative.

Due to the larger pier footprints associated with Alternatives 1-4, resulting in a need for additional fill and an increase in the size of the impact to eelgrass beds, none of these alternatives would be less environmentally damaging. The no project alternative does eliminate the need for any dredge or fill, but does not meet the objectives of the project and poses a significant environmental risk associated with the potential failure of the old and deteriorating equipment. Thus, the No Project Alternative cannot be considered feasible or less environmentally damaging as compared to the proposed project, and the Commission finds that the proposed project meets the second test of Coastal Act Section 30233(a).

Mitigation

The third test set forth in Section 30233(a) is whether feasible mitigation measures have been provided to minimize significant adverse environmental impacts. Other sections of this report discuss avoidance and minimization measures the Navy has incorporated into the project that will minimize the adverse environmental effects of the fill and dredging associated with the proposed project. For example, the Navy will conduct water quality monitoring at the project site and surrounding areas during construction activities. If monitoring shows turbidity from any project-related activity is extending significantly beyond the project area or persisting longer than anticipated, the Navy, in consultation with Commission staff and other appropriate agencies, will evaluate and implement different turbidity management techniques to minimize the area of impact. In addition, the Navy will refrain from any in-water construction or demolition activity during the least tern breeding season, between April 1 and September 15. These measures would be adequate to enable the Commission to find that the project includes maximum feasible mitigation and would minimize impacts from project-related dredging and filling. Thus, the Commission finds that the third test of Section 30233(a) has been met. The Commission also finds the project consistent with Section 30233(b), because, as discussed in Water Quality section below, the dredge material is suitable for beach or nearshore beneficial reuse, and the Navy will be implementing nearshore reuse at Imperial Beach.

D. MARINE RESOURCES

Section 30230 of the Coastal Act states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231 of the Coastal Act states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

The vast majority of the construction/demolition work associated with the proposed project would take place in the marine environment. The project site is located just inside the mouth of the San Diego Bay (see Exhibit 1) and encompasses the full range of nearshore habitats, including coastal upland, intertidal, shallow subtidal, and deep subtidal. San Diego Bay, including the North Bay, has been significantly modified due to anthropogenic activities both onshore and offshore. However, it also supports many ecologically significant habitats and species that could be affected by project activities. Construction activities include underwater impact and vibratory pile driving, vibratory pile extraction, dredging and sediment disposal in marine waters. These activities have the potential to affect several different marine resources, including marine vegetation, benthic species, fish, marine mammals and sea turtles.

Benthic Habitats

The Navy's proposed project has the potential to affect existing vegetated and non-vegetated soft bottom benthic habitats within the project footprint. These habitats support benthic invertebrates and other fauna that serve as the base of the marine food chain. Project activities could impact benthic habitats and organisms, directly through removal or burial, or indirectly through effects related to the disturbance of bottom sediments. During pier demolition, benthic organisms attached to the existing piles and in the immediate area would be lost as the existing piles are removed from the substrate. Nearby organisms could also be affected by noise and vibration from pile extraction equipment. Additional habitat would be affected in the same manner during pile driving. During dredging activities, benthic habitat and in the dredge footprint will be removed and transported to another location. Some benthic species will be lost and others will be

displaced with the dredge spoils. However, in comparison to the soft-bottom benthic habitat available in the immediate vicinity, the impact footprint is relatively small. The Commission has historically found this type of dredging does not cause adverse impacts on a biological community scale, because benthic species typically recolonize disturbed areas within a short period of time, reaching pre-project biomass levels within a few years.

In addition to these direct impacts, project activities are likely to cause temporary changes in water quality due to an increase in turbidity, which could indirectly affect benthic species. Increases in turbidity can lead to a decrease in the amount of light that diffuses through the water column, and a decrease in the concentration of dissolved oxygen, thus decreasing the level of primary productivity. However, as discussed further in section F, the bottom sediments in the project area consist primarily of larger-grained sandy substrate. As a result, disturbed bottom sediments are expected to settle quickly, returning turbidity to background levels within a few hours. Further, these impacts will be limited to the immediate area of disturbance. To further reduce potential impacts from increased turbidity, the Navy will conduct water quality monitoring at the project site and surrounding areas during construction activities. If monitoring shows turbidity from any project-related activity is extending significantly beyond the project area or persisting longer than anticipated, the Navy, in consultation with Commission staff and other appropriate agencies, will evaluate and implement different turbidity management techniques to minimize the area of impact. Thus, increases in turbidity associated with project activities should cause only minor and temporary impacts to benthic habitats.

Of particular concern are the proposed project's anticipated impacts to eelgrass beds. Eelgrass is generally found in shallow soft-bottom areas, generally growing at depths of 0 to –13 MLLW, and was historically abundant in Northern San Diego Bay (see Exhibit 7). Although the extent of eelgrass habitat has been curtailed due to development of the shoreline and nearshore environments, a significant population still persists and serves as an important nursery ground for several native fish species. The long grass blades provide refugia for fish and substrate for invertebrates, algae and other benthic species that are consumed by larval and juvenile fish. Eelgrass is designated as a Special Aquatic Site under the Clean Water Act, and a Habitat of Special Concern with respect to Essential Fish Habitat.

Eelgrass grows or historically grew in three primary locations within the project site (see Exhibit 7). The first is the area immediately north of the fuel pier. This stand of eelgrass extends from the fuel pier north over 1500 ft, and lies adjacent to the two northernmost marine mammal enclosure sites operated under the Navy's MMP. The second stand is located immediately to the west of the southernmost of the MMP's marine mammal enclosure sites, to the south of the fuel pier. The third site is located farther to the north and east at the proposed relocation site of the MMP.

The Navy anticipates that project activities will result in a small impact to eelgrass beds. During pier demolition and construction activities, approximately 0.05 acres of existing eelgrass (as surveyed in 2011) and 0.05 acres of habitat that historically supported

eelgrass would be permanently shaded by the new pier structure. An additional 0.67 acres of existing eelgrass and 0.32 acres of habitat that historically supported eelgrass would be partially shaded by the marine mammal enclosures at the proposed relocation site for the MMP. The bottoms of the enclosures are mesh and would thus allow some light to filter down to the eelgrass beds. The water quality impact to the eelgrass beds lying below the MMP is uncertain, although the eelgrass beds reside in an actively used marina, and are thus adapted to some level of water quality impairment. The impact to eelgrass at the proposed MMP relocation site would be temporary. Eelgrass populations should return to previous levels after the marine mammal enclosures are returned back to their current location. The dredge and sediment disposal sites do not support eelgrass habitat.

To minimize and address impacts to eelgrass beds, the Navy has proposed several avoidance and minimization measures. First, the Navy designed the proposed pier to minimize disturbance to eelgrass beds. The project will also result in a net decrease of 0.12 acres to the total area of San Diego Bay that is shaded. In addition, the Navy will leave sheet piling in place beneath the existing pier to minimize disturbance to eelgrass. Further, the Navy will conduct pre- and post-construction surveys of eelgrass habitat to quantify the actual project-related impact to existing and historical eelgrass populations. This impact will be offset using the Navy's established eelgrass mitigation bank. The MMP relocation site will be included in this survey, and impacts to eelgrass at this site will also be offset using the mitigation bank. However, upon successful reestablishment of eelgrass within impacted areas, the mitigation bank would be credited for the reestablished acreage. The Commission has historically found these types of measures adequate to protect, and where necessary, mitigate, impacts to eelgrass.

Fish

In addition to benthic habitats and species, project activities have the potential to affect fish species and Essential Fish Habitat (EFH). Several studies have documented the existence of approximately 90 species of fishes occurring in San Diego Bay. According to the Navy's consistency determination, increased levels of flushing in the North Bay result in increased food availability, increased supplies of larval recruits and better water quality. In addition, eelgrass beds serve as nursery grounds for many species. These factors contribute to the greater diversity of fish in the North Bay. At least 15 species found in the North Bay contribute to commercial and recreational fisheries.

The project area is located within areas designated as EFH for two Fishery Management Plans (FMPs), the Pacific Coast Groundfish and the Coastal Pelagic Species. The Pacific Coast Groundfish FMP manages at least 89 species, five of which are likely to occur within the project area. The Coastal Pelagic Species FMP manages five species, four of which are likely to occur in the project area. Also within the project area, eelgrass is designated as a Habitat Area of Particular Concern (HAPC), a subset of EFH that is considered particularly important to the long-term productivity of species managed under an FPC.

The most significant potential impacts to fish and EFH from project activities are from noise and increases in turbidity. Fish are particularly susceptible to loud underwater noise because the rapid expansion and decompression cycle from pressure waves that constitute underwater noise can damage the swim bladder they use for buoyancy, even causing death at high enough levels. To protect fish from noise-related injury or death, several agencies, including the National Marine Fisheries Service (NMFS), the US Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife and the transportation agencies for California, Oregon and Washington, joined together to develop the "Interim Criteria for Fish Injury and Disturbance by Underwater Sound from Pile Driving." These criteria are used to evaluate impacts to fish from underwater pile driving projects. These criteria establish the threshold for onset of injury to all types of fish from impact pile driving at 206 decibels (dB) and the onset of behavioral impacts at 150 dB. For vibratory pile driving, no threshold for onset of injury to fish has been established, and the threshold for onset of behavioral impacts is also 150 dB.

To evaluate potential impacts from project-related noise, the Navy developed an underwater sound model. This model calculated a Zone of Influence corresponding to the interim criteria discussed above for each type of noise-emitting project activity. These activities include impact pile driving, vibratory pile driving, and vibratory pile extraction. The model takes into account the type of activity – pile driving or pile extraction, type of equipment – impact or vibratory, and size and type of pile – steel, concrete and fiberglass of various diameters. Table 1 shows the calculated ZOI for fish based on model results. The table shows that impact pile driving of steel piles emits the highest level of noise, with a peak sound level at 210 dB measured at 10 meters. This type of activity also results in the most significant impact to fish. Impact pile driving is the only type of project activity that emits noise at levels that can cause injury to fish (206 dB), although this impact would be limited to a small area (approximately 0.0022 km^2) within about 26 meters of the pile driver. However, the ZOI for behavioral impacts to fish is quite large, covering 10.8 km^2. Exhibit 8 shows the corresponding sound contours for impact pile driving of steel piles at the pier on a map of the project site and surrounding areas. Pile driving would also be necessary during construction of the temporary relocation site for the MMP. The piles at this site would be concrete, not steel, and thus the peak level of noise and the corresponding ZOI is smaller (i.e., 184 dB peak). Exhibit 9 shows the ZOI map for this site.

As discussed in Section B, pile driving and pile extraction activities would take place over a three year period. A total of 604 piles would be installed (554 for the pier, 5 for the relocated MMP). The Navy assumes the contractor would drive approximately 2 steel piles per day, and five concrete or fiberglass piles per day. Each pile would take about two hours. Steel piles would be driven initially with a vibratory pile driver and then finished as necessary with an impact pile driver. Concrete and fiberglass piles would be jetted and then driven with an impact driver only. Pile driving would occur only during daylight hours, 7:00AM – 4:00PM, Monday through Friday. In the first year, pile driving and extraction would occur on a total of 87 days, 50 of which would involve steel pile installation. In year 2, pile driving and extraction would occur on a total of 127

days, 102 of which would involve steel pile installation. In year 3, pile driving and extraction would occur on a total of 88 days, 22 of which would involve steel pile installation.

Based on this information, the project has the potential for adverse impacts resulting in both injury and behavioral changes. The zone of influence for noise levels resulting in possible injury is small, within about 26 meters of the pile driver. The potential impact would also be intermittent. The highest noise levels would be present for at most a few hours a day for a range of 22-102 days in a given year. The Navy assumes that as soon as pile driving or pile extraction activities start, fish will leave the area to avoid injury and will stay away from the project vicinity as long as construction activities persist. To minimize the potential for fish to be present in the immediate vicinity of the pile driver during maximum operations, the Navy would use a ramp-up procedure. Prior to the start of pile driving each day, or after a break of more than thirty minute, the Navy will slowly increase the power of the pile driver, allowing fish in the area to disperse before maximum noise levels are reached. Unfortunately, there is little evidence on whether this ramp-up technique is effective for fish. To address this uncertainty, NMFS has requested that the Navy develop an experimental study to collect data on the physiological and behavioral effects of pile driving on fish. The Navy is currently developing this study to include in the Mitigation, Minimizations and Monitoring Report due to NMFS prior to the initiation of the project. Commission staff has requested that the Navy provide the results of the study to better inform impact analysis and mitigation measure development for future projects involving pile driving.

Given the intermittent nature of noise-emitting project activities, impacts to fish populations from pile driving and pile extracting are likely to be minimal. In addition, with fish monitoring in place during pile driving activities, Commission staff, and the scientific community, will have a better understanding of the effects of pile driving on fish and the efficacy of using a ramp-up procedure to limit impacts. This knowledge can be used to better assess impacts to fish from pile driving in future projects.

Fish may also experience project-related impacts from increases in turbidity and changes to fish habitat. As discussed in the previous section, all project activities have potential to increase turbidity in the water column. The most likely outcome is that fish will avoid the general area during levels of increased turbidity. These periods are not expected to last long and thus, this impact should be temporary and minor. As discussed further in Section F, the Navy will conduct water quality monitoring to ensure that increases in turbidity don't cause widespread or persistent water quality problems. Project activities are also likely to result in changes to fish habitat. The expected loss of eelgrass discussed in the previous section could also affect fish species that use the eelgrass as foraging grounds or nursery habitat. However, also as discussed above, the Navy will mitigate this impact to EFH through the Navy's eelgrass mitigation bank. Thus, impacts to fish due to increased turbidity and changes in habitat would be minor.

Birds

Project activities also have the potential to affect birds, especially seabirds that forage in the project area. Bird abundance in the project area ranges from 1-5 birds per hectare north of the fuel pier to 101-292 bird per hectare near the bait barges. San Diego Bay is part of the Pacific Flyway, providing over-wintering habitat for birds migrating between northern breeding grounds and southern wintering sites. Although the project site does not contain nesting habitat, many birds use the intertidal flats, shallow water or anthropogenic structures for foraging and resting.

Project activities are would result in increases in noise and human activity and decreases in water quality, which could cause short-term behavioral or psychological responses (i.e, alert response, startle response, and temporary increases in heart rate). It is likely that human or vessel activity, including preparation of construction equipment, could cause birds to leave the project area before significant noise-producing activities (i.e., pile-driving and pile extraction) commence. The effects of underwater noise on seabirds are not well understood. Underwater exposures are likely to be of short duration, except possibly for pursuit diver species that can spend several minutes underwater. In either case, if a seabird is disturbed by underwater noise, it is likely to surface to avoid the source of noise. The Navy's use of a ramp-up start procedure for pile driving and pile extraction will further decrease the potential for seabirds to be in the immediate vicinity during peak operations. Project activities may also affect seabirds by decreasing the availability of prey in the project area due to increases in noise and turbidity. However, because seabirds are wide-ranging and good foraging habitat is plentiful in San Diego Bay, these impacts would not be significant.

One species of special concern found in the project area is the California least tern (*Sterna antillarum browni*). This species was listed as federally endangered in 1970. Least terns travel to San Diego Bay for the breeding season, between April 1st and September 15. They build their nests on beaches and the shores of coastal bays and like to forage in the nearshore environment, primarily feeding on small fish. They frequently forage in open water areas, and do not show a particular preference for feeding in eelgrass habitat. There are several known nesting colonies and foraging areas in the San Diego Bay area. The closest nesting colony to the project site is located approximately 0.6 miles to the east of the dredging site. The entire project site is located within a foraging area that encompasses the mouth of San Diego Bay. Least tern nesting populations in the Bay have increased in recent years, in part due to coordinated management strategies between the USFWS and the Navy on Navy Lands. As part of an MOU signed between the Navy and the USFWS, the Navy implements an extensive program of research monitoring, protection, nest site enhancement and avoidance measures to minimize impacts to least tern populations from Navy activities. For this project, the Navy will implement conservation measures established in the MOU that prohibit noise and turbidity-producing in-water activities from April 1 through September 15, when least terns are present and foraging in San Diego Bay. According to the EA, "no persistent effects on foraging conditions are expected once in-water construction/demolition activities are halted." Onshore project-related activities taking place during the breeding season will not differ substantially from normal NBPL

operations, and thus would not adversely affect least tern foraging in nearby waters. The Navy also states that nesting colonies are sufficiently far away and will not be adversely affected by onshore project activities during the nesting season. With the Navy's commitment to avoid in-water project activities during the least tern nesting season, the Commission agrees with the Navy that impacts to least terns would be minimal.

Marine Mammals

In addition to benthic species, fish and birds, the Navy's project has the potential to adversely impact marine mammals. To adequately quantify the anticipated impact, the Navy conducted 12 marine mammal surveys in Northern San Diego Bay starting in 2007 and continuing through March 2012. These surveys show that only three year-round species and one migratory species occur in Northern San Diego Bay and the immediate offshore waters. These include two pinnipeds – the California sea lion (*Zalophus californianus*), the harbor seal (*Phoca vitulina*); and two cetaceans – the bottlenose dolphin (*Tursiops truncates*) and the gray whale (*Eschrichtius robustus*). Exhibit 10 shows occurrences of these species from the Navy's survey.

The Navy's surveys documented the number of each species observed and estimated the stock abundance. The California sea lion was the most abundant species observed. The Navy's survey documented a daily average of 63 individuals in the project vicinity, out of an estimated total stock abundance of 296,750. Generally, sea lions in the Bay move between haul-out sites in the Bay and rookeries on offshore islands, and are especially abundant on the bait barges within the project site. Harbor seals are generally found in the same type of haul-out site, although they generally do not haul-out at the same location at the same time as the California sea lion. Within the project area, the Navy's survey observed about 3 individuals per survey out of an estimated total abundance of 30,196. The Navy's observers also documented an average of 8.8 individual bottlenose dolphins per survey, out of an estimated total abundance of 323. These dolphins are distributed anywhere between Monterey and northern Baja Mexico depending on the abundance and distribution of prey. Finally, the Navy's survey included one gray whale sighting offshore of the mouth of San Diego Bay. Gray whales generally migrate farther than 1 km offshore, however they have been known to venture into San Diego Bay during the cold-water months. Other studies estimate the total abundance of gray whales at 19,126 individuals.

The primary impact to marine mammals from project activities would be from increased underwater noise associated with demolition of the existing fuel pier, construction of the new fuel pier and dredging the turning basin. Under the Marine Mammal Protection Act (MMPA), NMFS has defined levels of harassment for marine mammals. Level A harassment corresponds to harassment that can result in injury, whereas Level B harassment can result in disruption of behavioral patterns. For pinnipeds, exposure to impulsive sounds of 190 dB or above is considered Level A harassment. For cetaceans, Level A harassment corresponds to exposure to impulsive or pulsed sound of 180 dB or greater. For all marine mammals, Level B harassment occurs at impulse sound levels at or above 160 dB and continuous noise levels at or above 120 dB, but below the threshold

for Level A harassment. Generally, impact pile driving emits impulsive sound, whereas vibratory pile driving or extraction emits continuous sound. This distinction is important because impulsive or pulsed sound generally has an increased capacity to cause physical injury because of the cycle of maximal to minimal pressures characteristic of this type of noise.

The Navy conducted underwater acoustic monitoring to determine ambient background noise levels in the project area. Measurements were taken in April-May of 2012. These measurements indicate that median values were in the range of 120-130 dB, with higher maximum values recorded (greater than 150 dB) as ships passed. San Diego Bay experiences about 225 commercial ship transits per day, plus an unknown number of recreational vessel transits. Thus, according to the Navy's EA, underwater noise from passing ships is expected every few minutes. Based on this data, the Navy assumes that with increasing distance from the project site, sounds levels from project activities below 140 dB would be undetectable in comparison to ambient noise levels, and thus unlikely to result in a change in behavior from marine mammals.

The Navy used the same Zone of Influence (ZOI) estimates discussed earlier in the Fish subsection, and the population estimates discussed above to determine the number of Level A and Level B takes of California sea lions, harbor seals, bottlenose dolphins and gray whales. These results are included in Table 2. In total, the Navy estimates project activities would result in no Level A takes of any species and Level B takes of 2,405 California sea lions, 270 harbor seals, 45 gray whales and 2,016 bottlenose dolphins. These results are based on several assumptions. First, the Navy based their take estimate for sea lions on the fact that the proportion of sea lions that haul-out on the bait barges will continue to do so after the bait barges are relocated, effectively removing a large percentage of the resident sea lion population out of the ZOI for project activities. Secondly, these estimates assume that all pinnipeds receive the maximum underwater exposure at a given distance, but also surface for long enough to receive exposure from airborne noise as well. Finally, the results presented in Table 2 rely on the effectiveness of a series of avoidance and minimization measures that will be discussed in more detail below.

To minimize the potential for marine mammals to be harmed by project-related underwater noise, the Navy has incorporated several avoidance and minimization measures into its project. These are summarized below (the complete text can be found in Appendix B):

1. Shutdown and buffer zone for pile driving and extraction. The Navy would enforce a shutdown and buffer zone around all pile driving and extraction activities. The shutdown zone would extend 10 meters from the equipment and the buffer zone would encompass the entire area where noise levels are anticipated to reach or exceed Level B harassment levels. These zones will be monitored during all pile driving and extraction activities. Should a marine mammal enter the buffer zone, the exposure would be recorded and behaviors documented, but pile driving or extraction would continue. If the marine mammal

approaches or enters the shutdown zone, pile driving or extraction will be immediately stopped and not allowed to restart until the animal has been visually confirmed outside the shutdown zone or 15 minutes have passed without redetection of the animal.

2. Shutdown zone during other in-water activities. To prevent injury from physical interaction with construction equipment, the Navy will maintain a 10 meter shutdown zone around all in-water project activities.
3. Visual Monitoring. Marine mammal monitoring will be conducted by qualified observers within the Level A and Level B harassment zones. An observer will be placed from the best vantage point(s) practicable to monitor for marine mammals and implement shut-down/delay procedures when applicable. Monitoring will begin 15 minutes prior to the start of pile driving or extraction and will cease 15 minutes after these activities are completed. If weather or sea conditions prevent the visual detection of marine mammals, activities with the potential to cause a Level A or Level B impact will not be conducted.
4. Acoustic Measurements. Acoustic measurements will be used to empirically verify the proposed shutdown and buffer zones.
5. Timing Restrictions. Underwater noise-emitting activities would only occur between September 16 and March 31 during daylight hours.
6. Soft Start. The Navy will use soft-start techniques recommended by NMFS for impact and vibratory pile driving to provide a warning and allow marine mammals the time to exit the impact area.
7. Marine Mammal Monitoring Plan. The Navy will develop a marine mammal monitoring plan that includes the protocols for visual observations of marine mammals (as recommended by NMFS) and acoustic monitoring. This plan will be submitted to NMFS and the Executive Director for approval prior to the start of construction.
8. Monitoring Report. A draft report documenting marine mammal observations, acoustic monitoring results and other general data would be submitted to NMFS and the Executive Director within 45 days of the completion of monitoring activities. After receipt of comments, a final report would be submitted within 30 days.

The Commission has historically found the above types of avoidance, monitoring and mitigation measures adequate to protect California sea lions and harbor seals from underwater noise from pile driving activities. For California sea lions, exposure to project-related noise would likely occur as they are loafing in the project area or in transit to foraging areas or haul-out sites. Harbor seals are likely to experience noise-related impacts while swimming to and from foraging areas in the kelp beds north of the project area. Noise exposure could elicit a behavioral response such as increased swimming, increased surfacing or haul-out time or decreased foraging. It is also likely that sea lions would move to a new, unaffected location and avoid the impacted area for the duration of noise-emitting project activities. The project area does not support any sea lion rookeries, and thus temporary displacement of sea lions from the area is not expected to impact breeding activities. In addition, plentiful foraging habitat is available outside the

project's ZOI. Further, sea lions would be subject to noise-related impacts only a few hours of every day pile driving and extraction is scheduled to occur outside the California least tern nesting season. For the rest of the year, project-related activities would not be distinguishable outside normal NBPL operations and conditions would return to normal, including the return of the bait barges to the project area. Thus, project activities are not expected to result in permanent displacement of California sea lions or harbor seals from the project area. For these reasons, project noise-related impacts to California sea lions and harbor seals are expected to be minor.

Similarly, impacts to gray whales and bottlenose dolphins from project-related noise are also expected to be temporary and minor. The take estimate for gray whales is based on the presence of 1 individual near the mouth of the Bay for 15 days during the migration period in March. In all likelihood, if a gray whale were to experience noise at disturbing levels near the mouth of the Bay, it would move farther offshore to avoid the source of the noise. Because gray whales generally stay farther offshore, outside the ZOI for project related activities, this response would not expected to adversely impact the whale's ability to forage or migrate. In contrast to gray whales, bottlenose dolphins can occur anywhere in northern San Diego Bay at any time of year. Thus, exposure to project-related noise would likely elicit a response similar to pinnipeds – increased swimming speeds, increased surfacing time and decreased foraging. Again, similar to pinnipeds, the most likely outcome would be avoidance of the project area for the duration of noise-emitting activities. Given the short duration and seasonality of noise-emitting activities, this displacement is expected to be short-lived. Further, because foraging grounds within and near the Bay but outside the project's ZOI are plentiful, project noise-related impacts to bottlenose dolphins are expected to be minor.

Green Sea Turtle

Project activities also have the potential to impact the federally threatened green sea turtle. The turtles migrate from nesting sights in Mexico to San Diego Bay to forage on red algae, sea lettuce and eelgrass. Although green sea turtles generally prefer the warmer water of South San Diego Bay, is it possible that they could be present in the North Bay during the warm-water period in the summer. Potential impacts to green sea turtles would primarily be from exposure to underwater noise generated by pile driving and extraction activities. For impact pile driving, NMFS determined underwater sound criteria for green sea turtles as 190 dB for Level A effects, and 160 dB for Level B effects. For vibratory pile driving, NMFS criteria are 190 dB for Level A effects and 120 dB for Level B effects. The potential for green sea turtles presence in the North Bay would only overlap with pile driving and extraction activities for a very short time in September, before the turtles would be expected to move farther south, thus limiting the potential impact from project activities. In addition, it is likely that, similar to other marine species, if a green sea turtle detected noise at disturbing levels, it would avoid the area of disturbance. Given that the project area does not contain sea turtle habitat, this displacement is not anticipated to be a significant impact. To further minimize the potential for adverse noise-related impacts to green sea turtles, the Navy will include green sea turtles in the marine mammal monitoring program. If a green sea turtle is

detected in the Level B impact range, all sound-generating activities would immediately cease. With this measure in place, the Commission finds that impacts to green sea turtles from project activities would be negligible.

Conclusion

Based on information included in the project's EA and presented above, the Navy's project has the potential to adversely impact marine resources. Project activities including pile driving and extraction associated with pier demolition and construction, and sediment dredging and disposal could cause loss or displacement of habitat and increased levels of turbidity. In addition, pile driving and extraction could generate underwater noise at levels potentially harmful to fish, marine mammals and green sea turtles. As discussed above, the Navy incorporated several avoidance and minimization measures into its project to minimize the potential for adverse impacts to benthic species, fish, birds, marine mammals and sea turtles. Based on the impact analysis for each resource and with the avoidance and minimization measures for each resource included, impacts to marine resources would be temporary and minimal. Thus, the Commission finds the Navy's project consistent with Sections 30230 and 30231 of the Coastal Act.

E. WATER QUALITY

Section 30230 of the Coastal Act states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231 of the Coastal Act states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Section 30232 of the Coastal Act states:

> *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

Section 30412 (b) of the Coastal Act states:

> *(b) The State Water Resources Control Board and the California regional water quality control boards are the state agencies with primary responsibility for the coordination and control of water quality. The State Water Resources Control Board has primary responsibility for the administration of water rights pursuant to applicable law. The commission shall assure that proposed development and local coastal programs shall not frustrate this section. The commission shall not, except as provided in subdivision (c), modify, adopt conditions, or take any action in conflict with any determination by the State Water Resources Control Board or any California regional water quality control board in matters relating to water quality or the administration of water rights.*
>
> *Except as provided in this section, nothing herein shall be interpreted in any way either as prohibiting or limiting the commission, local government, or port governing body from exercising the regulatory controls over development pursuant to this division in a manner necessary to carry out this division.*

Project activities, including existing pier demolition and new pier construction, new pier operation, dredging and sediment disposal and the relocation of the MMP have the potential to adversely impact water quality in the project vicinity. Impacts from each of these project activities are discussed in detail below.

Pier Demolition and Construction

Marine waters surrounding the existing pier demolition and new pier construction sites have the potential to be contaminated by fuel spills, demolition debris, dust, and contaminated stormwater runoff during the construction period. To minimize the potential for discharges during construction, the Navy will apply for and implement a construction National Pollutant Discharge Elimination System (NPDES) permit. In addition, the Navy will require the contractor to implement a comprehensive debris management plan that includes a description of the anticipated debris types and procedures for removal and separation, and disposal. The contractor would employ catch devices and sheeting to capture debris, and install floating booms around the project site to capture any floating debris. Existing pipelines would be drained and cleaned prior to removal and obsolete piping would be removed. Existing creosote piling would be removed, thus eliminating a potential source of polycyclic aromatic hydrocarbons (PAHs).

Pier demolition and construction activities, including vessel movement, jetting and extraction of old piles, are also likely to disturb and resuspend a portion of the bottom sediments in the project area. According to the Navy's consistency determination, this can result in "formation of localized but temporary turbidity plumes with elevated concentrations of suspended particles and decreased light transmittance; localized but temporary decreases in dissolved oxygen concentrations in bottom waters; and localized and temporary increases in contaminant concentrations in the water column." However, increases in turbidity would be temporary and limited to the immediate area of bottom disturbance. To further reduce potential impacts from increased turbidity, the Navy will conduct water quality monitoring at the project site and surrounding areas during construction activities. If monitoring shows turbidity from any project-related activity is extending significantly beyond the project area or persisting longer than anticipated, the Navy, in consultation with Commission staff and other appropriate agencies, will evaluate and implement different turbidity management techniques to minimize the area of impact. In addition, the sheet pile bulkheads containing an existing sediment accumulation underneath the existing pier would remain in place beneath the north and approach segments.

To address the potential for a release of oil or other hazardous material, the Navy would follow the protocols outlined in the NBPL Integrated Contingency Plan (ICP) for Oil and Hazardous Substance Spill Prevention and Facility Response Plan. Should any evidence of a release be detected, the Navy would immediately deploy booms and other spill control equipment kept on hand, stop the source of the spill and complete appropriate cleanup measures. In addition, all hazardous waste will be handled in accordance with the Waste Management Plan for the San Diego metropolitan area which includes the use of proper containers and storage practices, inspection and disposal by a licensed hazardous waste contractor.

New Pier Operation

Stormwater runoff from the fuel pier is regulated under the NBPL NPDES permit. This permit prohibits the discharge of wastes including water contaminated with oils, fuels, lubricants, solvents and oily bilge water. To fulfill the requirements of the NPDES permit, NBPL developed a Stormwater Discharge Management Plan (SDMP) that includes base-wide and facility specific BMPs to minimize contact between stormwater and hazardous materials. After completion of the new pier, the SDMP would be reviewed and updated if necessary. Base-wide measures that would apply to the new pier include regular cleaning and sweeping and maintenance of the stormwater drainage system. BMPs specific to the old pier included constructing an 8-in concrete containment berm around fueling operations, covering drainage ports during fueling and using drip pans to contain leaking fluids, making spill kits readily available in the event that a spill occurs and deploying an oil containment boom around the entire fuel pier. These facility-specific BMPs would also apply to the new fuel pier, and any new measures would be added as needed. In addition, the Navy included the following stormwater collection and discharge systems in the design of the new pier:

> *Stormwater accumulating on the lower deck and rainfall from the 85th percentile storm event accumulating on the upper deck would be collected on the new pier and sent to the Fuel Oil Reclamation (FOR) receipt tank for treatment. Underflow scuppers on the upper deck would permit a portion of the runoff from large storm events to discharge to the bay. The underflow design would prevent surface sheen and floating fuel from being discharged to the bay. Concrete containment curbs, with controllable sumps, would be incorporated into the pier deck design surrounding all fueling arms, fueling risers and fuel pipes.*

The new facility would also be incorporated into the NBPL ICP to address the potential release of oil and hazardous substances.

Dredging Operations

The potential impacts from dredging on marine water quality include temporary increased turbidity, reductions in dissolved oxygen and light penetration, and potential resuspension, remobilization, and redistribution of any chemical contaminants present in the sediments. Sediment core data from the dredge footprint indicate that the sediments are 14 percent fine-grained material (i.e., silt and clay) and 86 percent coarser-grained material (i.e., sand) and contain low to no concentrations of contaminants. Coarser-grained sediments tend to settle more quickly than finer-grained sediments. According to the United States Army Corps of Engineers, the vast majority of sediments resuspended by dredging settle out of the water column near the dredge within one hour, and only a small fraction takes longer to resettle.[2] Thus, impacts associated with increased turbidity including reductions in dissolved oxygen and light penetration would likely last only a few hours and be limited to within a few hundred feet of the dredging operation. The small size and duration of these impacts make it unlikely that turbidity from dredging activities would result in significant or permanent changes in biological productivity. As mentioned above, to further reduce the potential for impacts from increased turbidity, the Navy will monitor the turbidity of waters surrounding the dredge footprint to determine the need for additional turbidity control measures.

Dredging activities may also adversely impact marine species by increasing toxicity levels in marine water. A soil characterization study (discussed in more detail in the following section) found that sediments in the dredge footprint contained low or no concentrations of contaminants (hence the soil's suitability for reuse). Thus, dredging of sediments from this location would not present a risk of toxicity or bioaccumulation in marine species or humans recreating in nearby waters. To further reduce the potential for impacts to California least terns, no dredging will take place during the least tern foraging season (April 1-September 15).

The impacts discussed above are typical of all dredge projects, and the Commission has historically determined no additional mitigation is necessary where the need for dredging is established, contaminant levels are low, and where turbidity monitoring, or other turbidity-minimizing methods are used as necessary.

[2] USACE 2008

Sediment Reuse
In 2010, the Navy collected sediment samples from the proposed dredge footprint to determine the potential for beneficial reuse of the dredge spoils. The sediment characterization report, included as Appendix D of the EA, was submitted to the US Environmental Agency (USEPA) and the USACE for review and comment on potential sediment disposal options. The agencies determined that because the sediments had minimal concentrations of contaminants, the dredged sediment met "Green Book" standards and was suitable for unconfined aquatic disposal. Based on this decision, the Navy selected a beneficial reuse site south of the Imperial Beach pier. This site is in the nearshore zone and has a similar sediment profile than the proposed dredge site.

Placement of dredged sediments at the Imperial Beach beneficial reuse site could result in an increase in turbidity. Dredging operations will either be carried out by a clamshell crane mounted on a barge with a 5,000-10,000 cubic yd. storage capacity, or a hopper dredge with a much greater storage capacity. The type of equipment used will affect the type of impact at the disposal site. The clamshell dredge would require more frequent trips to the Imperial Beach reuse site, but the sediment load would be smaller. Thus, the potential exists for more frequent, but smaller sediment plumes associated with sediment disposal as compared to the hopper dredge. In each case, as discussed above, the relatively large grain size of the dredge spoils will cause the sediment to settle relatively quickly (within a few hours). These episodic events are expected to occur periodically for the three month duration of the dredging operation. Signs alerting beachgoers, swimmers and surfers to the potential increase in turbidity will also will be posted at Imperial Beach.

The potential impacts associated with an increase in turbidity discussed in the previous section would apply to sediment disposal activities at the Imperial Beach reuse site. Similar to the dredge site, temporary increases in turbidity are not expected to significantly degrade the water quality at the Imperial Beach reuse site. Turbidity monitoring will take place to verify that increased turbidity is limited to the project area and does not persist beyond a few hours. The soil characterization study mentioned above found that sediments in the dredge footprint contained low or no concentrations of contaminants (hence the soil's suitability for reuse). Thus, placement of sediments at the reuse site is not expected to present a risk of toxicity or bioaccumulation in marine species or humans recreating in nearby waters.

Temporary Relocation of the Marine Mammal Program
Temporary relocation of the Navy's MMP could result in water quality impacts from construction/demolition activities and operation of the new facility. Construction-related activities associated with relocating the MMP would be similar to those for the replacement fuel pier. Thus, potential water quality-related impacts to the marine environment resulting from these activities would also be the same. These impacts include temporary increases in turbidity and contamination by demolition debris, dust, fuel spills and stormwater runoff during the construction period. Although the nature of the impacts is the same, the construction time frame for relocating the MMP is shorter,

and thus these impacts would persist for a shorter duration. The Navy anticipates that it will take 97 days to demolish the existing MMP and 90 days to rebuild it at the NMAWC, including 8 days of pile driving. Similar to fuel pier construction/demolition, the contractor would use catch devices and sheeting to capture debris.

Also of potential concern are water quality impacts associated with operating the MMP in its new location at the NMAWC (see Exhibit 3). The new location is located further into the Bay and is likely to experience different tidal flows and rates of tidal flushing. The new location at the NMAWC is also in close proximity to a public beach (Spanish Landing) that supports both recreational and competitive swimming. Due to these factors, concerns were raised by San Diego Coastkeeper that animal waste associated with the MMP could degrade water quality in the vicinity of the NMAWC and thus negatively impact nearby public recreation and access. In response, the Navy conducted a new water quality study to examine historical indicator bacteria data and tidal dynamics at both the current and NMAWC sites.

The Navy collected fecal coliform data weekly between January 2010 and November 2012 for both the current MMP site and the NMAWC site and compared these data to water quality objectives for indicator bacteria (fecal coliform and total coliform) in waters designated for contact recreation (REC-1) as established by the EPA and included in the San Diego Regional Water Quality Control Board (RWQCB) Basin Plan. The data for the current site show that bacteria levels were significantly below the fecal coliform threshold for all months, and exceeded the total coliform threshold for only one month during the two-year sampling period. At the NMAWC site, bacteria levels exceeded the fecal coliform threshold during four months and the total coliform threshold for nine months. The exceedances noted above were of the single sample maximum for fecal and total coliform. Both locations were consistently below the monthly mean threshold when the Navy collected enough data (i.e., at least 5 samples per month) to calculate the monthly mean. Further analysis indicates that instances when fecal coliform and total coliform levels were greater than the REC-1 thresholds are correlated with rainfall events and are thus likely associated with increased loading from stormwater runoff from other land uses near the site.

In addition to examining historical bacteria data, the Navy's study also looked at differences in tidal flushing between the two sites. Hydrodynamic modeling of a conservative tracer indicated that smaller tidal currents at the NMAWC site will result in slower dispersal of marine mammal waste as compared to the current site. This slower dispersal rate is estimated to result in local concentrations that are approximately 3.4 times higher at the NMAWC site than the current site. However, when this multiplier is applied to the average fecal coliform concentration measured at the existing site and added to the average background level measured at the NMAWC site, the resulting fecal coliform values are still below the REC-1 threshold established by the EPA. This analysis indicates that relocating the MMP to the NMAWC would increase bacteria levels at the site, but, on average, the site would still be expected to meet the REC-1 thresholds for bacteria. As indicated by historic bacteria data at the NMAWC site, it is likely that the site will continue to experience episodic exceedances of the single sample

maximum threshold associated with increased loading due to storm events. However, during storm events, runoff enters the site and is flushed relatively quickly towards the Bay, away from Spanish Landing beach, thus dissipating the threat of a cumulative water quality impact from the MMP program and storm-related pollution. Therefore, it is unlikely that Spanish Landing, or other nearby beach and recreation areas would be more likely to fail water quality standards due to operations associated with the MMP during the period when it is relocated to the NMAWC site.

To verify that relocating the MMP to the NMAWC site does not cause water quality impacts to the site and its surrounding areas, the Navy will continue its regular water quality monitoring program at the new site with some modifications as described below. The Navy will collect samples at least weekly at a minimum of three locations along the MMP security boom, and will test for fecal coliform, total fecal coliform and enterococcus (a standard pathogen indicator included in the San Diego RWQCB Basin Plan). Initially, the sampling locations will be located at the security barrier to ensure that AB411 water quality standards are met at that point. Sampling could move back to the docks after submittal and written approval of a conservative estimate of mixing of the waste between the dock and the security barrier that would allow consideration of different action levels for samples taken at the dock. A summary of water quality monitoring results will be submitted to the Executive Director for review on an annual basis with the first report due 14 months after the marine mammals are moved to the new location. If monitoring results from any of the three stations exceed water contact standards more than twice in a month, the Navy will contact the Commission staff within one week to evaluate the circumstances of the exceedances and, in consultation with RWQCB staff, consider alternative actions or sampling strategies.

In addition to the Commission's review, the RWQCB will also be reviewing the Navy's proposed relocation of the MMP. The Navy's existing NBPL NPDES permit covers certain discharges from the existing MMP, including "potable and seawater discharges from cleaning the mammal enclosures (the floating enclosures and the nets suspended in the water below); potable water from rinsing small boat interiors and engines; and seawater discharges from above ground shipboard pool simulators." These discharges and the associated permit conditions would also apply to the temporary MMP relocation site. The RWQCB will be reviewing the existing NPDES permit and determining what, if any, changes to the permit are necessary.

Based on this analysis, the Commission finds that with the continuation of the Navy's water quality monitoring responsibilities as described above, and the other measures incorporated into the project, including a commitment to monitor for turbidity during dredging activities, the project would be consistent with Sections 30230, 30231, and 30232 of the Coastal Act.

F. PUBLIC ACCESS AND RECREATION

Section 30210 states:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30212(a) states, in part:

> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected.*

The pier demolition and replacement pier construction site is located within the boundaries of NBPL (see Exhibit 2). This site is generally not open to public access or recreation for military security purposes. The Commission has historically determined that projects located within restricted military areas that do not generate access burdens do not entail the need for public access provisions.

However, several potential impacts to public access and recreation could occur outside the boundaries of the NBPL. Noise from pile driving activities at the project site has the potential to affect beach users at La Playa Beach. The zone of influence for underwater noise levels reaching 150 dB extends into the offshore area of the beach. The Navy will post signs at the beach warning beach users of potential noise impacts. Pile driving would occur between September 16 and March 31 and thus, would avoid the peak beach season.

Recreational boaters could also experience some minor impacts related to the proposed project. The dredging site is located outside the NBPL, adjacent to the San Diego Harbor Channel. During the three months that dredging is taking place, recreational boaters may need to detour around the dredging equipment. However, ample space is available to allow boaters to avoid the dredge footprint and this is not expected to be a significant hardship. The relocation of the Everingham Brothers Bait Company Bait Barge could result in impacts to some sailboat race courses in the Bay; however, these impacts will be fully examined when the Everingham Brothers Bait Company applies for a Coastal Development permit to relocate their barges.

As discussed above, the dredged sediments will be hauled to a beneficial reuse site south of the Imperial Beach pier (see Exhibit 6). The Navy would post signs at Imperial Beach alerting beachgoers, swimmers and surfers to the potential for increased turbidity associated with sediment disposal activities. However, sediment disposal will occur over 1000 feet from shore and is not likely to cause a significant impact to Imperial Beach users.

Also as discussed above, animal waste associated with the relocated MMP program has the potential to degrade waters in the vicinity of the NMWAC site including Spanish Landing, a popular public access and recreation destination. To address this concern, the Navy conducted a special water quality and modeling study to investigate potential impacts associated with elevated bacteria levels from the MMP program. This study indicated that fecal and total coliform levels at the NMWAC site, once the MMP program is relocated there, would likely remain below the RWQCB thresholds for fecal and total coliform, with the possible exception of episodic exceedances during storm events. The NMWAC site currently experiences storm-related exceedances and it is anticipated these exceedances will continue. However, during storm events, runoff from the NMWAC site is flushed quickly out of the site into the Bay, and thus, any contamination associated with these events is not likely to affect water quality at Spanish Landing. Further, the Navy has agreed to monitor water quality at the NMWAC site for the duration of the temporary MMP relocation. In the event that a pattern of exceedances of water quality thresholds is observed, the Navy will consult with Commission and RWQCB staff to determine appropriate remedial action.

Therefore, the Commission finds that that the proposed pier replacement project at NBPL will not adversely affect public access and recreation on San Diego Bay, and is consistent with the public access and recreation policies of the CCMP (Sections 30210 and 30212 of the Coastal Act).

G. CULTURAL RESOURCES

Section 30244 of the Coastal Act states:

> *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

The project site does not contain any known historical or archeological sites. However, the onshore quay wall lay-down area was built on land consisting of fill placed over beach and adjacent tidelands of the late 18th and early 19th century Port of San Diego. This area, referred to as "La Playa" was used in the Spanish-Mexican era hide trade and included hide houses and a custom house. Although the potential for archeologically significant artifacts exists, there has never been an official investigation of the area.

Based on the historical use of the area, project activities could encounter previously unknown cultural artifacts. To address this possibility for the onshore portion of the project, the Navy would hire a qualified archeologist to monitor all project-related ground disturbance activities in this area. Prior to construction, the archeologist would prepare a Monitoring and Discovery Plan that would include monitoring protocols, historical significance of the area, eligibility thresholds, and other required procedures for approval by the Navy in accordance with federal law. If any archeological resources are discovered that could be adversely affected by project activities, work will be stopped immediately and the Navy, in consultation with the California State Historic Preservation Officer and the Coastal Commission, would determine what actions are needed to ensure

that cultural resources are adequately protected. With these measures in place, the Commission finds the Navy's proposed project consistent with Section 30244 of the Coastal Act.

H. COMMERCIAL AND RECREATIONAL FISHING

Section 30234 of the Coastal Act states:

> *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.*

Section 30234.5 of the Coastal Act states:

> *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

Impacts to commercial and recreational fishing from project-related activities would be minimal. No recreational or commercial fishing occurs in the immediate vicinity of the project area. However, eelgrass beds adjacent to the pier and located at the proposed relocation site for the Navy's MMP do provide nursery habitat for several species that contribute to the commercial and recreational fish catch. Impacts to eelgrass beds and fish habitat are discussed in detail in Section E. As discussed above, while the Navy anticipates the loss of 0.72 acres of existing eelgrass and 0.37 acres of habitat that historically supported eelgrass due to shading by the new pier, the Navy will mitigate this impact to EFH through the Navy's eelgrass mitigation bank. In addition, project activities have potential to increase turbidity in the water column. In areas of increases turbidity, it is likely that fish will avoid the area of impact as long as the impact persists. Based on sediment characteristics of substrate in the project area, the Navy anticipates that suspended sediment will settle relatively quickly and increased turbidity should not last more than a few hours. To verify this assumption, the Navy will conduct water quality monitoring to ensure that increases in turbidity don't cause widespread or persistent water quality problems. Thus, the Commission finds that impacts to commercial and recreational fishing due to increased turbidity and changes in habitat would be minor, and the Commission therefore finds the project would be consistent with Sections 30234 and 30234.5 of the Coastal Act.

Table 1: Calculated Areas of ZOIs Corresponding to MMPA Thresholds

Description	*Figure*		*Area of ZOI (km²)*				
		Source Level, dB @ 10m	*Pinniped Level A – 190 dB[1]*	*Dolphin Level A – 180 dB[1]*	*Impact Level B – 160 dB[1]*	*Vibratory Level A – 180 dB[1,2]*	*Vibratory Level B – 120 dB[1]*
Impact driving steel piles	3.2-1	195	0.0034	0.1477	8.5069	N/A	N/A
Vibratory driving steel piles	3.2-2	180	N/A	N/A	N/A	0.0004	11.4895
Impact driving 24-in concrete piles	3.2-3	176	N/A	N/A	0.1914	N/A	N/A
Impact driving 16-in concrete-fiberglass piles	3.2-4	173	N/A	N/A	0.0834	N/A	N/A
Impact driving 18-in concrete piles	3.2-5	173	N/A	N/A	0.0620	N/A	N/A
Vibratory extraction – steel piles	3.2-6	172	N/A	N/A	N/A	0	11.4895
Vibratory extraction – non-steel piles[3]	3.2-7	160	N/A	N/A	N/A	0	11.4890

Notes: [1]All sound levels expressed in dB re 1 µPa rms; N/A = not applicable.

[2]The vibratory driving steel pile Level A ZOI for pinnipeds (190 dB) is less than 3 m from the source (<0.0001 km²).

[3]Including use of a pneumatic chipper.

Table 2: Summary of Potential Exposures Constituting Takes for All Species, All Years

Species	*Underwater*				*Airborne*	*Totals*
	Impact Injury Threshold (190 dB)	*Impact Injury Threshold (180 dB)*	*Impact Disturbance Threshold (160 dB) & Vibratory Disturbance Threshold (120 dB)*	*Vibratory Disturbance Threshold Only (120 dB)*	*Impact & Vibratory Disturbance Threshold (100 dB)**	
Year 1, 30 September 2013 through 29 September 2014						
California sea lion	0	N/A	500	423	0	923
Harbor seal	0	N/A	90	0	90	90*
Gray whale	0	0	15	0	N/A	15
Coastal bottlenose dolphin	0	0	350	289	N/A	639
Year 1 Total	**0**	**0**	**955**	**712**	**90**	**1,667***
Year 2, 30 September 2014 through 29 September 2015						
California sea lion	0	N/A	1,020	306	0	1,326
Harbor seal	0	N/A	90	0	90	90*
Gray whale	0	0	15	0	N/A	15
Coastal bottlenose dolphin	0	0	714	204	N/A	918
Year 2 Total	**0**	**0**	**1,839**	**510**	**90**	**2,349***
Year 3, 30 September 2015 through 29 September 2016						
California sea lion	0	N/A	120	543	0	663
Harbor seal	0	N/A	90	0	90	90*
Gray whale	0	0	15	0	N/A	15
Coastal bottlenose dolphin	0	0	84	375	N/A	459
Year 3 Total	**0**	**0**	**309**	**918**	**90**	**1,227***
Total, All Years						
California sea lion	0	N/A	1,640	765	0	2,405
Harbor seal	0	N/A	270	0	270	270*
Gray whale	0	0	45	0	N/A	45
Coastal bottlenose dolphin	0	0	1,148	868	N/A	2,016
Total All Years	**0**	**0**	**3,103**	**1,633**	**270**	**4,736***

Note: *In each year, the same 3 individual harbor seals would be subject to harassment by both underwater and airborne sound.

APPENDIX A: SUBSTANTIVE FILE DOCUMENTS

Consistency Determination CD-011-13, U.S. Navy, Fuel Pier (Pier 180) Replacement and Dredging Project (P-151) and Naval Base Point Loma, January 23, 2013.

Draft Environmental Assessment for Naval Base Point Loma (NBPL) Fuel Pier Replacement and Dredging (P-151/DESC1306), San Diego, California, October 2012.

Draft Water Quality and Sediment Quality Special Study for the Navy Base Point Loma, P-151 Fuel Pier Reconstruction, Point Loma, California, Tierra Data, Inc. February 2013.

Draft Modeling of Hydrodynamic Mixing of Marine Mammal Waste at Two Locations in San Diego Bay, SPAWAR SSC Pacific. January 2013.

Email Correspondence from U.S. Navy representative dated 1/16/13, 2/13/13, 2/15/13, 2/20/13, 3/13/13, 3/15/13, 3/17/13.

CD-011-13

Appendix B

Navy Draft Environmental Assessment Excerpt

Avoidance and Minimization Measures for Impacts to Marine Mammals

3.4.3.2 Avoidance and Minimization Measures

The following avoidance and minimization measures are divided into four sections: 1) Avoidance and Minimization Measures for Pile Driving Activities; 2) Avoidance and Minimization Measure Effectiveness; 3) Monitoring Plan; and 4) Reporting.

Avoidance and Minimization Measures for Pile Driving Activities

Proposed Measures

The modeling results for ZOIs were used to develop avoidance and minimization measures for pile driving activities at NBPL. The ZOIs effectively represent the avoidance and minimization zone that would be established to prevent Level A harassment to marine mammals.

1. Shutdown and Buffer Zone During Pile Driving and Removal

- During pile driving and removal, the shutdown zone shall include all areas where the underwater SPLs are anticipated to equal or exceed the Level A (injury) harassment criteria for marine mammals (180 dB rms isopleth for cetaceans; 190 dB rms isopleth for pinnipeds). During all pile driving and removal activities, regardless of predicted SPLs, a conservative 10 m (33 ft) shutdown zone shall be established and monitored to prevent injury to marine mammal species from their physical interaction with construction equipment during in-water activities.
- During pile driving and removal, the buffer zone shall include areas where the underwater and airborne SPLs are anticipated to equal or exceed the Level B (disturbance) harassment criteria for marine mammals (underwater: 160 dB rms isopleths for impact pile driving, 120 dB rms isopleth for vibratory pile driving; airborne: 90 dB rms isopleth for harbor seals, 100 dB isopleth for sea lions). The distance encompassing these zones will be adjusted to accommodate any difference between predicted and measured sound levels.
- The shutdown and buffer zones will be monitored throughout the time required to drive or extract a pile. If a marine mammal is observed entering the buffer zone, an

exposure would be recorded and behaviors documented. However, that pile segment would be completed without cessation, unless the animal approaches or enters the shutdown zone, at which point pile driving or extraction will be halted.

- All buffer and shutdown zones will initially be based on the distances from the source that were predicted for each threshold level. However, in-situ acoustic monitoring will be utilized to determine the actual distances to these threshold zones , and the size of the shutdown and buffer zones will be adjusted accordingly (increased or decrease) based on received SPLs.

2. Shutdown Zone During Other In-water Construction or Demolition Activities

- During all in-water construction or demolition activities having the potential to affect marine mammals, in order to prevent injury from physical interaction with construction equipment, a shutdown zone of 10 m (33 ft) will be monitored to ensure marine mammals are not present within this zone. These activities could include, but are not limited to: (1) the movement of a barge to the pile location, or (2) the removal of a pile from the water column/substrate via a crane (i.e. "dead pull").

3. Visual Monitoring

a. Impact Installation: Monitoring will be conducted within the Level A harassment shutdown zone and Level B harassment buffer zone during impact pile driving before, during, and after pile driving activities. Monitoring will take place from 15 min prior to initiation through 15 min post-completion of pile driving activities.

Vibratory Installation and Removal: Monitoring will be conducted for a 10 m (33 ft) shutdown zone. Given ambient underwater sound of approximately 124 dB re 1 µPa (rms), punctuated by louder sound from passing ships, as well as the difficulty of effectively monitoring the full extent of the predicted 120 dB re 1 µPa (rms) Level B behavioral disturbance ZOI for vibratory pile driving/extraction, the Navy intends initially to monitor a buffer zone equivalent to the full extent of the predicted Level B disturbance ZOI, but to adjust the extent of the monitored buffer zone based on acoustic monitoring (see below). The outer limits of the buffer zone would be defined by the point at which the measured SPL (maximum rms) produced by the equipment either declines to 120 dB re 1 µPa or falls below the median ambient SPL (rms) and hence becomes indistinguishable from background. Monitoring will take place from 15 min prior to initiation through 15 min post-completion of vibratory installation/removal activities.

Other In-Water Activities: Monitoring will take place from 15 min prior to initiation until the action is complete.

b. Monitoring will be conducted by qualified observers. All observers would be trained in marine mammal identification and behaviors, have experience conducting marine mammal monitoring or surveys, and would have no other construction-related tasks while monitoring. A trained observer will be placed from the best vantage point(s) practicable (e.g., from a small boat, the pile driving barge, on shore, or any other suitable location) to monitor for marine mammals and implement shut-down/delay procedures when applicable by calling for the shut-down to the hammer operator.

c. Prior to the start of pile driving activity, the shutdown and safety zones will be monitored for 15 min to ensure that it is clear of marine mammals. Pile driving will only commence once observers have declared the shutdown zone clear of marine mammals; Animals will be allowed to remain in the buffer zone and their behavior will be monitored and documented.

d. If a marine mammal approaches/enters the shutdown zone during the course of pile driving operations, pile driving will be halted and delayed until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 min have passed without re-detection of the animal.

e. In the unlikely event of conditions that prevent the visual detection of marine mammals, such as heavy fog, activities with the potential to result in Level A or Level B harassment will not be conducted.

4. Acoustic Measurements – Acoustic measurements will be used to empirically verify the proposed shutdown and buffer zones. For further detail regarding our acoustic monitoring plan see the "Monitoring Plan" subsection below.

5. Timing Restrictions – The Navy has set timing restrictions to avoid noise and turbidity generating in-water construction and demolition activities in designated foraging habitat of the ESA-listed California least tern, from 1 April through 15 September. Underwater noise-generating activities would only occur from 16 September through 31 March.

6. Soft Start – The use of a soft-start procedure is believed to provide additional protection to marine mammals by providing a warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. The Indicator Pile Program will utilize soft-start techniques (ramp-up/dry fire) recommended by NMFS for impact and vibratory pile driving. These measures are as follows:

   "The soft-start requires contractors to initiate noise from vibratory hammers for 15 seconds at reduced energy followed by a 30-second waiting period. This procedure should be repeated two additional times. If an impact hammer is used, contractors are required to provide an initial set of three strikes from the impact hammer at 40 percent energy, followed by a 30-second waiting period, then two subsequent 3-strike sets."

   The 30-second waiting period is proposed based on the Navy's recent experience and consultation with NMFS on a similar project at Naval Base Kitsap at Bangor.

7. Daylight Construction – Pile driving will only be conducted during daylight hours.

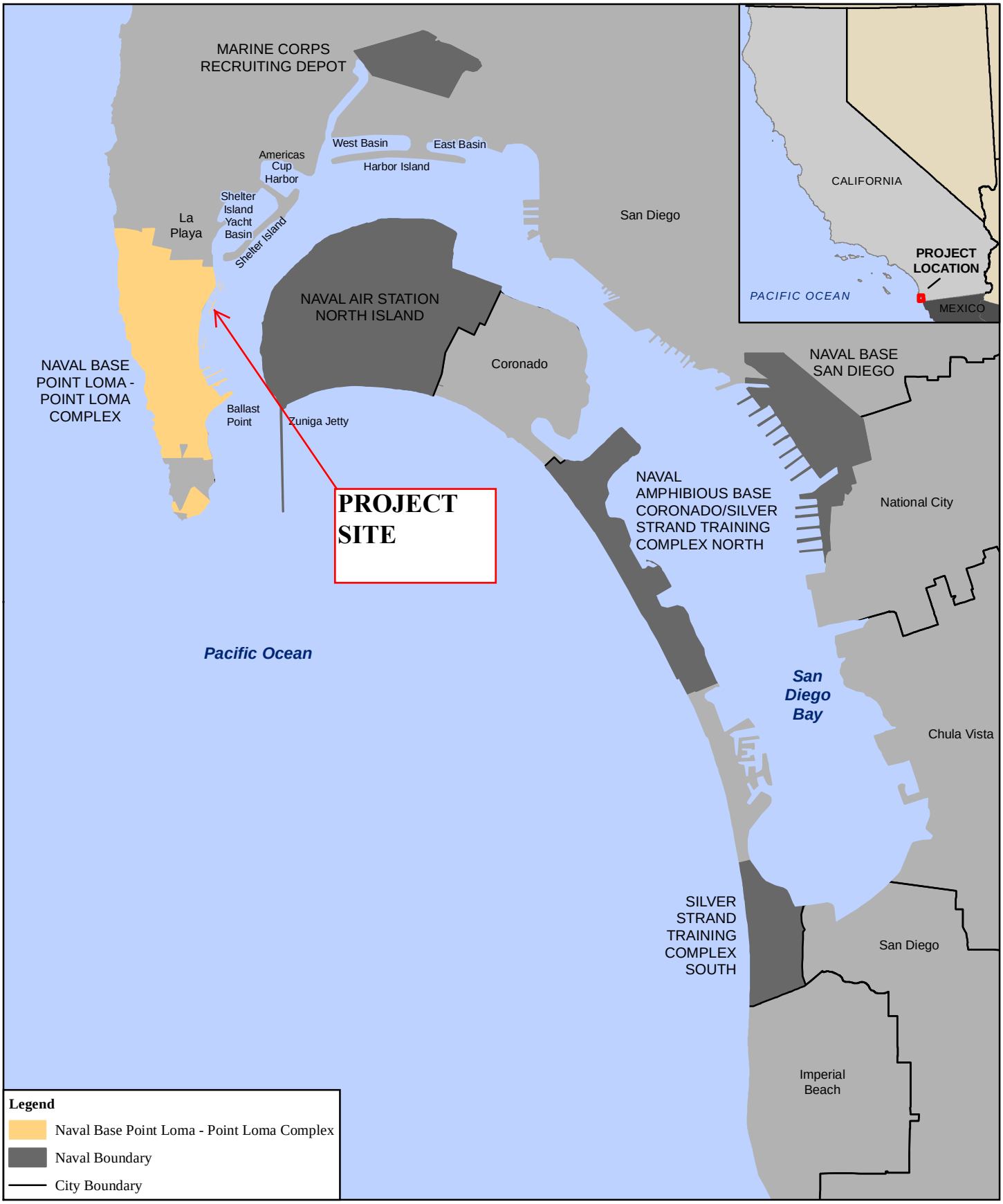
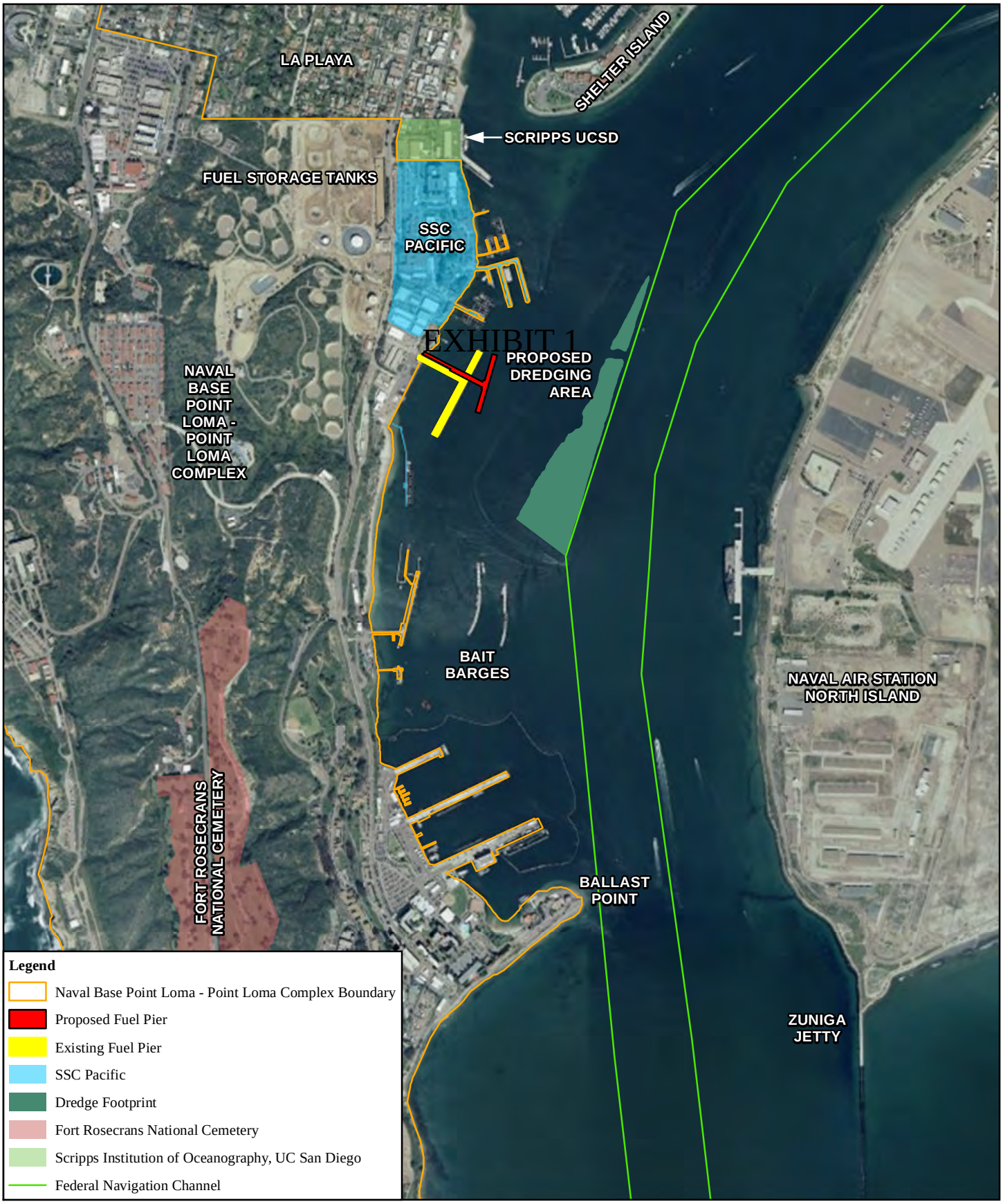


Figure 1-1
Regional Location - Pier 180 Replacement
Naval Base Point Loma - Point Loma Complex

Exhibit 1
CD-011-13

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



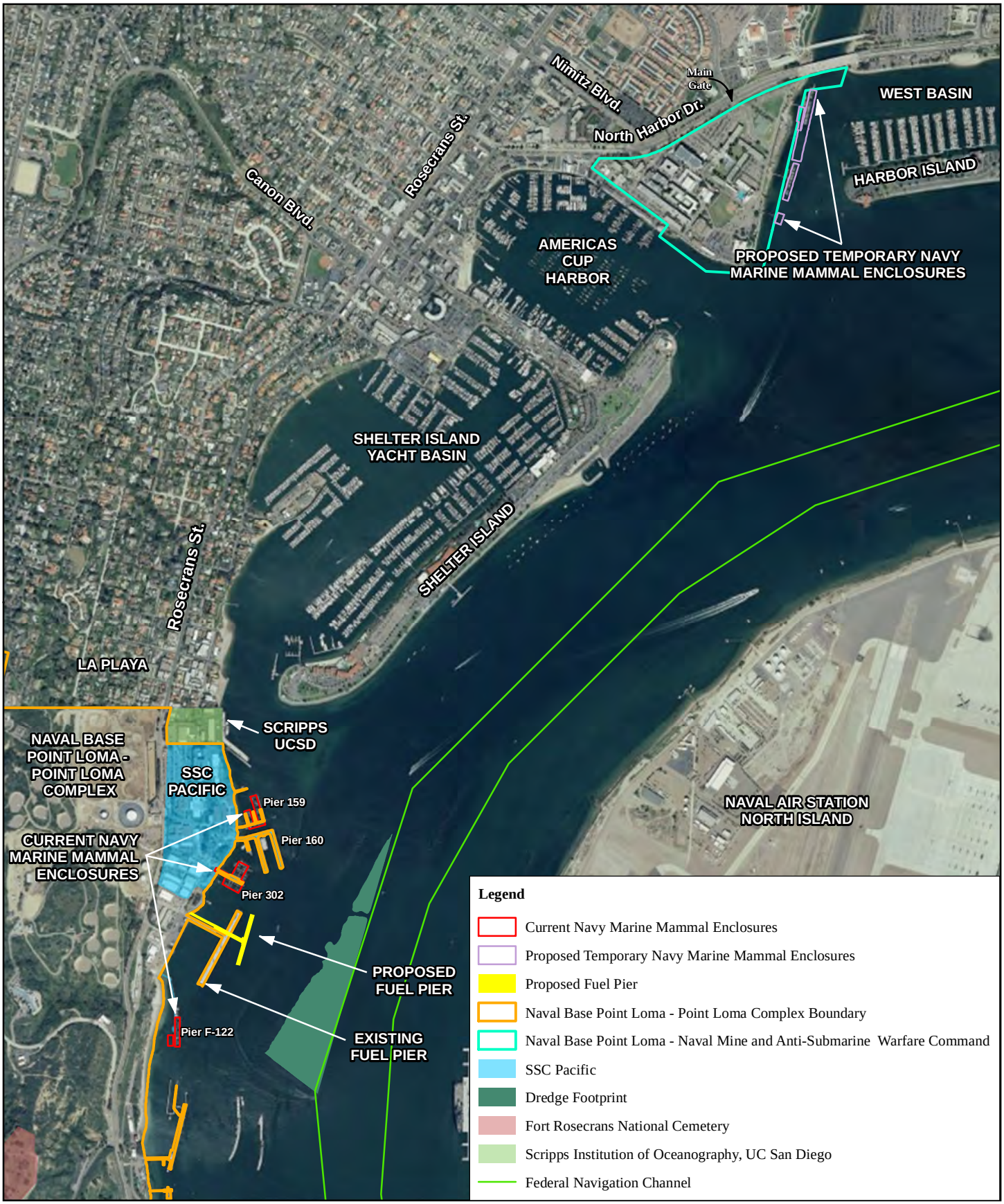
0 250 500
Meters
Feet
0 1,000 2,000

Sources: Navy 2007; NOAA 2012; NAVFAC Southwest 2011a

Figure 1-2
Project Site Map

Exhibit 2
CD-011-13

N



0 0.2 0.4 Kilometers

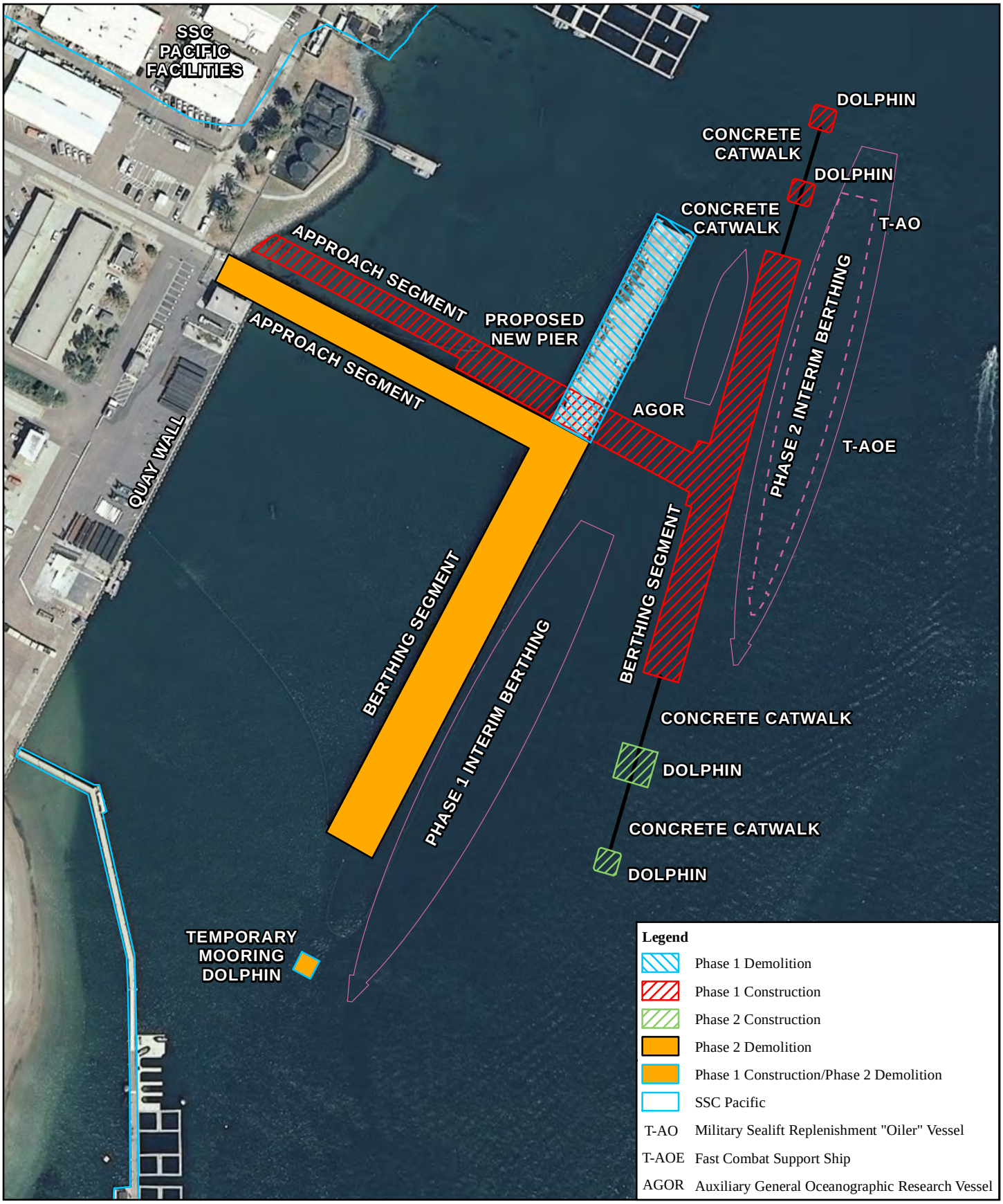
0 0.2 0.4 Miles

Source: NAVFAC Southwest 2011a

Figure 2-1
Navy Marine Mammal Program Current and Proposed Temporary Relocation Sites

Exhibit 3
CD-011-13

N



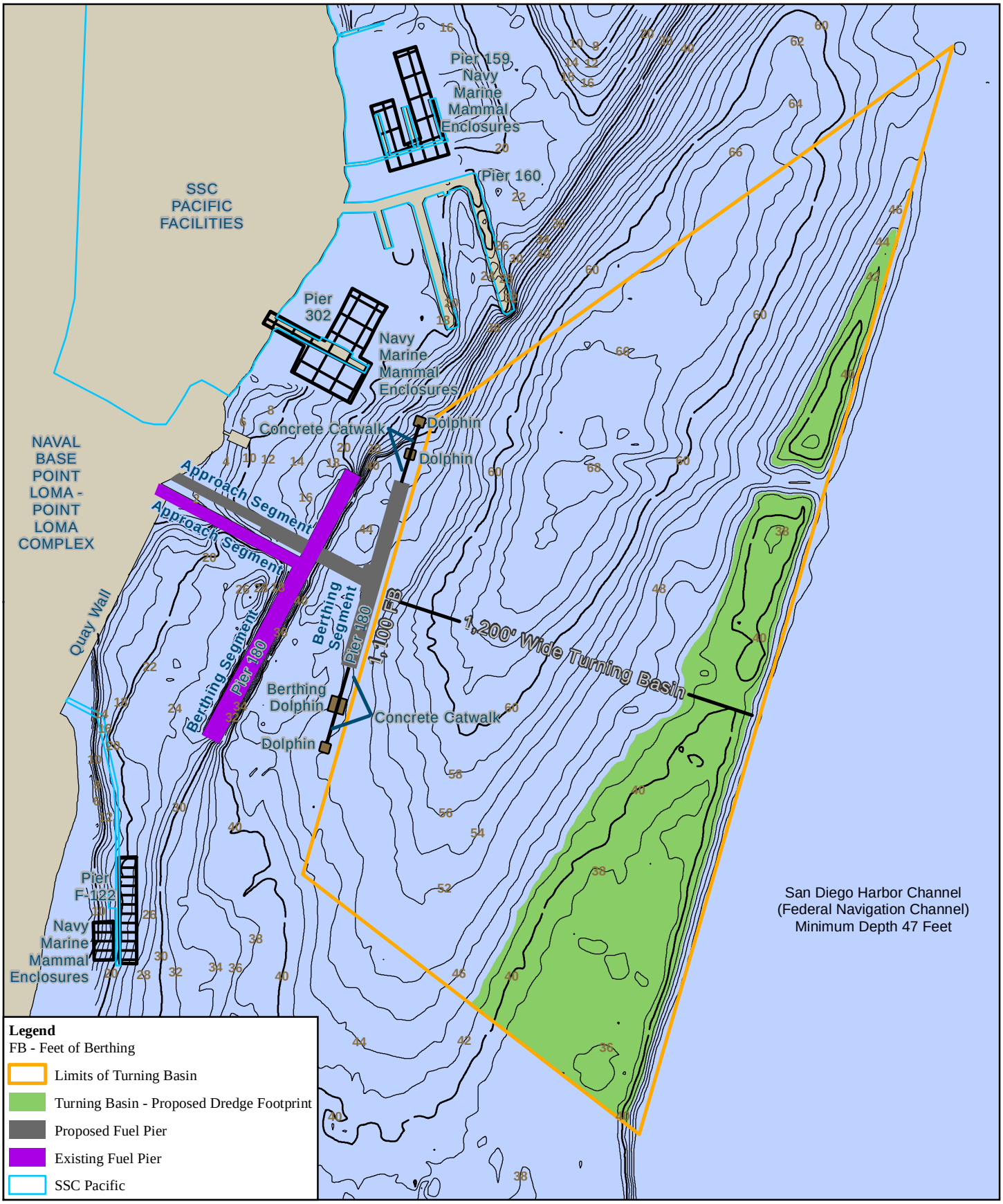
0 25 50
Meters
Feet
0 100 200

Source: MNB 2012b

Figure 2-4
Demolition and Construction Phasing Plan

Exhibit 4
CD-011-13

N



0 50 100
Meters
Feet
0 250 500

Sources: NAVFAC Southwest 2011a; NOAA 2012

Figure 2-6
Proposed New Fuel Pier and
Turning Basin Dredge Footprint

Exhibit 5
CD-011-13

N

0 100 200
Meters
Feet
0 200 400

Source: NAVFAC Southwest 2012

Figure 2-9
Imperial Beach Sediment
Beneficial Reuse Receiver Site

Exhibit 6
CD-011-13

N

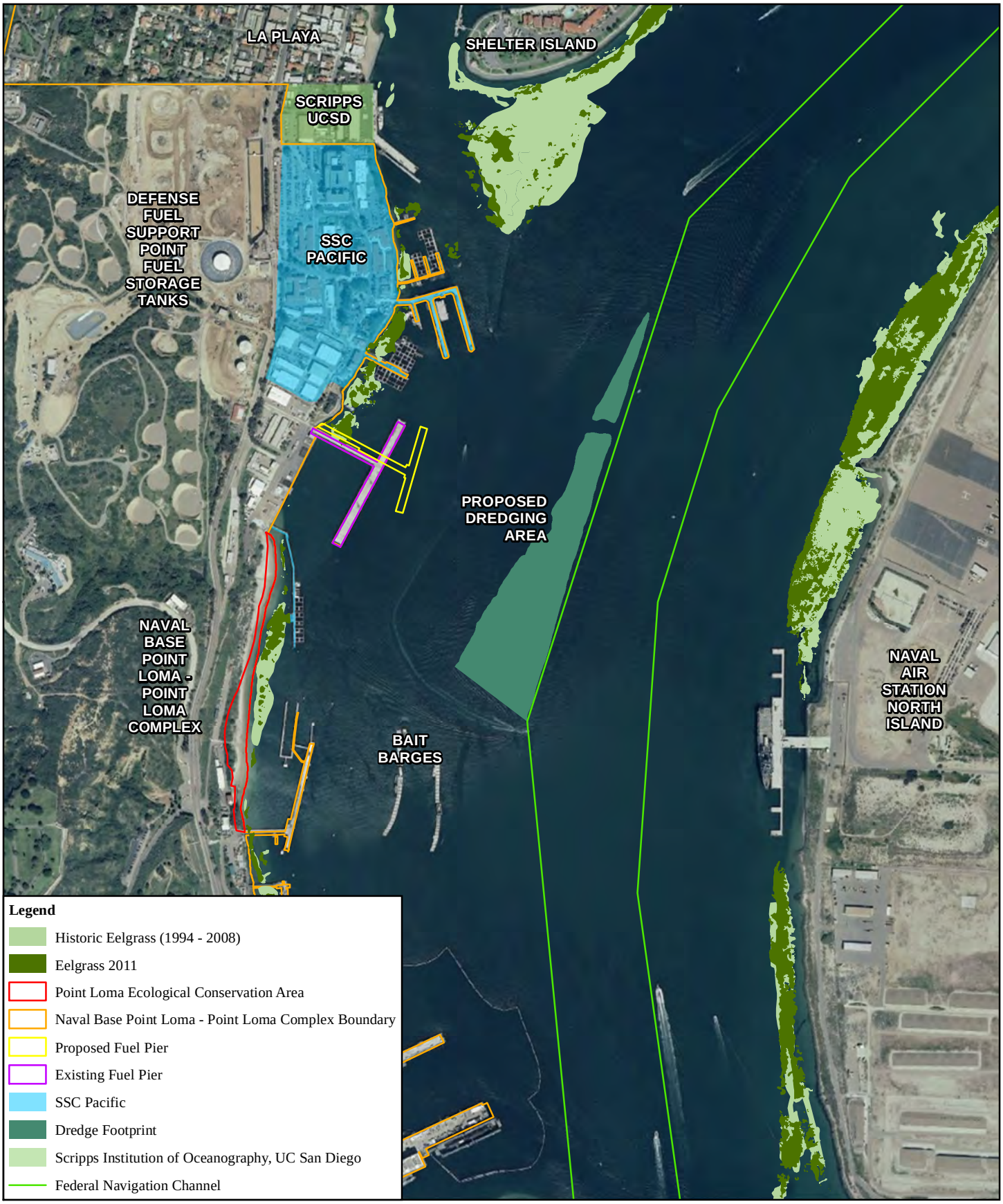


Figure 3.1-2
Point Loma Ecological Conservation Area and Eelgrass Beds in the Vicinity of the Proposed Fuel Pier

Exhibit 7
CD-011-13

Sources: Navy 2007; NOAA 2012; NAVFAC Southwest 2011a, 2012

0 0.25 0.5 Kilometers
0 0.25 0.5 Miles

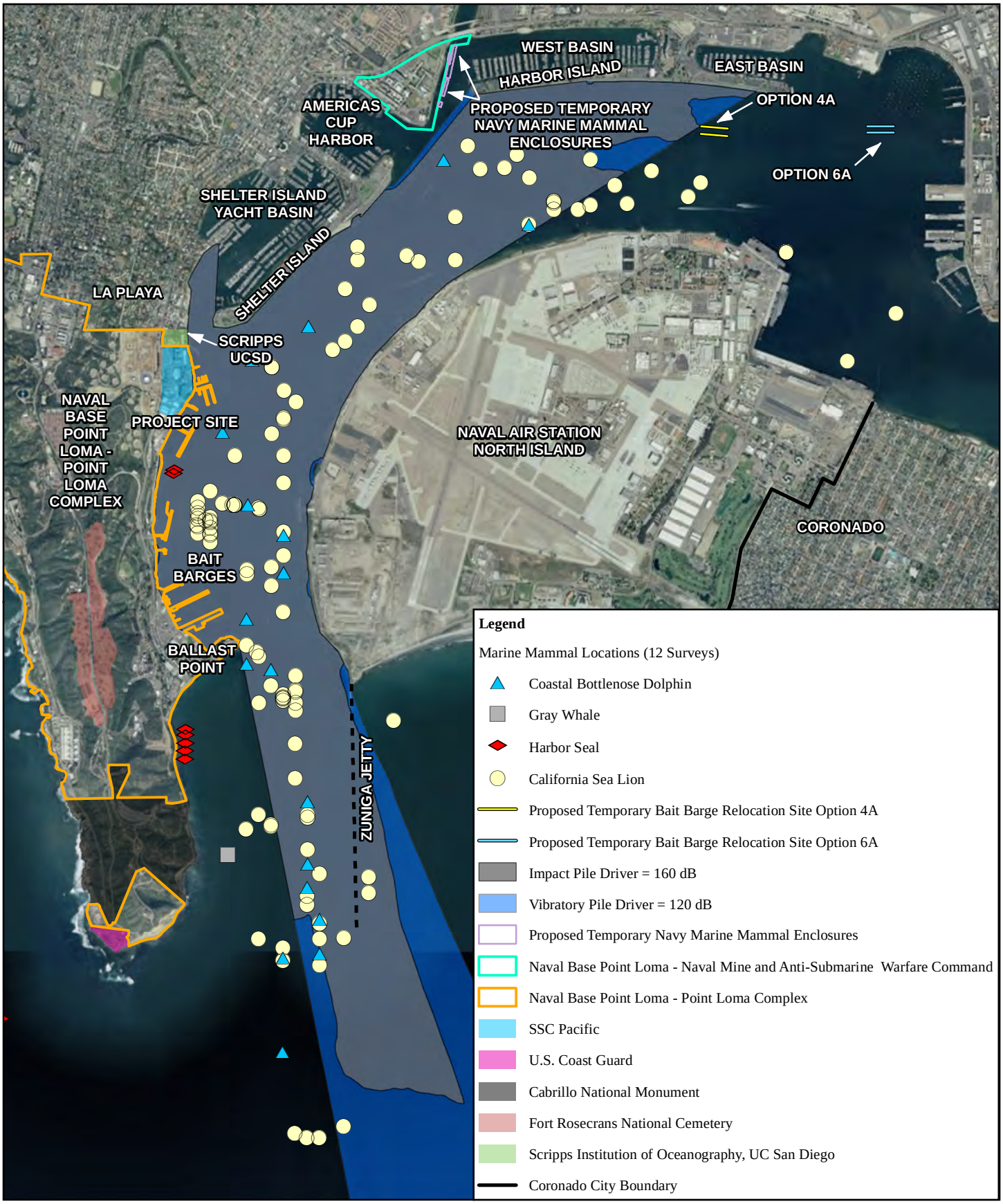
Figure 3.2-1
Underwater Sound from Impact Pile Driving,
36-48 " Steel Piles (Source = 195 dB rms)

Exhibit 8
CD-011-13

N

Figure 3.2-5
Underwater Sound from Impact Pile Driving at Marine Mammal Relocation Site, 18" Concrete Piles (Source = 173 dB rms)

Exhibit 9
CD-011-13



0 0.25 0.5
Kilometers
Miles
0 0.25 0.5

Figure 3.4-2
Marine Mammal Occurrences in the Project Area (Navy Surveys)

Exhibit 10
CD-011-13

N