3.3

BIOLOGICAL RESOURCES

3.3

BIOLOGICAL RESOURCES

3.3.1 Introduction

This section describes the existing biological resources in the proposed project study area, outlines the applicable regulations, analyzes the potential impacts on biological resources, and describes appropriate mitigation measures.

Potentially significant impacts could occur to marine mammals from pile driving. After mitigation is incorporated, all impacts on biological resources would be less than significant.

3.3.2 Environmental Setting

The biological resources of Los Angeles Harbor have been studied for many years and reported in the form of project EIRs or EISs (e.g., LAHD 2009; USACE and LAHD 1992) and baseline studies prepared for the Port (MEC 1987; MEC et al. 2002; SAIC 2010). Older reports provide information that is useful in describing trends in environmental conditions that affect the biological communities in the proposed project study area (e.g., HEP 1980; Reish 1960). This section summarizes information from these reports and other sources cited in the text as they apply to the proposed Project. A reconnaissance was performed by Thomas Johnson Environmental Consultant in April and May 2011 to review existing conditions reported in earlier documents.

The data and descriptions of habitat conditions in this section rely on a variety of reports and data collected over a number of years. The primary source of biological data is from the Port-wide biological surveys conducted in 2008 (SAIC 2010), augmented with other data as cited in this document.

3.3.2.1 Regional Setting

The proposed project study area lies within the Port of Los Angeles/Los Angeles Harbor, on the western edge of San Pedro Bay. This area has been an active port for approximately 100 years and has undergone significant physical changes in the course of being converted to port use, including the construction of the San Pedro and

Middle Breakwaters, deepening navigational channels and basins, and constructing new land to support cargo terminals and other port uses. These changes have resulted in new, mostly deeper-water habitats and modified circulation patterns. In addition, Los Angeles Harbor is surrounded by industrial, commercial, and residential areas, which greatly influence the marine and terrestrial habitats of the harbor.

Los Angeles Harbor is part of the Dominguez Channel watershed, which receives stormwater input from approximately 80 square miles in, around, and north of the Port. Discharges from the watershed, including the industrial, commercial, and recreational uses within the Port, have influenced water quality and sediment quality conditions of the harbor. Despite this input of fresh water, Los Angeles Harbor is primarily marine, with salinities rarely varying more than 1 part per thousand (ppt) from an average of approximately 34 ppt, although somewhat lower salinities can be found immediately adjacent to storm drains and at the mouth of the Dominguez Channel. Prior to the 1980s, harbor waters and sediments were significantly impaired by lack of circulation and unregulated discharges of runoff and process waters. A series of environmental studies has shown that water and sediment quality have improved dramatically since the 1960s, largely because of federal and state water quality regulations governing wastewater and stormwater management (i.e., the Clean Water Act and Porter-Cologne Water Quality Control Act, respectively) and industrial uses of the harbor (HEP 1980; MEC Analytical Systems 2002). Dredging that removed contaminated sediments from the harbor as part of channel deepening and land construction projects has also contributed to improved sediment conditions.

In response to the improved physical conditions in the harbor, the marine environment has also improved (MEC et al. 2002; SAIC 2010), and provides habitat to a variety of aquatic species. The protected environment and concentration of food resources give the harbor considerable value as a nursery area for juvenile fish, and the harbor provides a greater diversity of habitats than the open coast. The harbor is primarily tidal open-water marine habitat with value to biological resources such as marine fish, birds, and the marine food chains that support these consumers, but there is also extensive hard-bottom habitat, in the form of rock dikes and pilings, and limited shallow-water and beach habitat.

The marine environment consists in general terms of the benthos (bottom) and the water column. The benthos comprises the sea floor, the sediment-water interface, hard surfaces such as rocks and pilings, and the associated organisms, which include the benthic infauna (in the sediment), the benthic epifauna (living on but not in the bottom sediments), and the animals and plants attached to hard surfaces. The benthic habitat includes intertidal beaches and mudflats, as well as eelgrass beds, but because no such habitats occur in the proposed project study area they will not be considered further.

The water column includes the open water overlying the benthos, up to the water's surface, including beds of giant kelp, and the organisms that live predominantly up in the water as opposed to being associated primarily with the sediments or attached to hard surfaces. These open water organisms include zooplankton, phytoplankton, fish, and marine mammals. The marine environment also includes the birds that rely on benthic and open-water habitats, known as marine birds. This description of marine

habitats is based upon the information contained in the San Pedro Waterfront Project EIS/EIR (LAHD 2009) and SAIC (2010).

3.3.2.2 Study Area

The proposed project study area for biological resources is illustrated in Figure 3.3-1 and includes two sites: the existing SCMI site and the proposed City Dock No. 1 site, both of which are located within Los Angeles Harbor. The first area includes the 1.3-acre SCMI upland site at Berth 260 on Terminal Island, including adjacent waters in Fish Harbor. The second area encompasses the waters and sediments of the East Channel, the upland areas of Berths 56 through 71 (except the area occupied by Warehouse No. 1), the parking lot at 22nd Street west of Sampson Way, and the waters and sediments of the Main Channel adjacent to Berths 68 to 71. In the case of marine mammals, the proposed project study area includes all of Los Angeles Harbor south of the Vincent Thomas Bridge.

The proposed project study area limits for upland (terrestrial) biological resources includes a 100-foot buffer around the proposed project site limits to determine adjacent biological resources that may be indirectly affected by development of the proposed Project. However, biological resources are addressed in the context of the surrounding area and environmental setting, which may extend beyond the proposed project study area, as applicable.

3.3.2.3 Terrestrial Habitats

Terrestrial in this document is defined as land that lies outside of tidal influence but that may have freshwater influences. The terrestrial environment in the harbor area can in general be classified as either developed land (i.e., covered with pavement or structures) or vacant land, but within the proposed project study area all of the land is developed and was built up from fill placed during the early development of the harbor to create backlands for maritime-related uses such as commercial fishing and international commerce. Accordingly, there are no natural terrestrial habitats, including wetlands, or sensitive plant communities in the proposed project study area. This description of terrestrial habitats is based upon reconnaissance-level site visits in 2011 and the information contained in the San Pedro Waterfront Project EIS/EIR (LAHD 2009).

The most common plant species within the proposed project study area are nonnative weeds, such as sea rocket (*Cakile maritima*), tree tobacco, (*Nicotiana glauca*), Bermuda grass (*Cynodon dactylon*), puncture vine (*Tribulus terrestris*), western ragweed (*Ambrosia psilostachya*), and sow thistle (*Sonchus oleraceus*), that have escaped cultivation or been introduced accidentally (SAIC 2004, 2007). These plants occur as isolated individuals or in small clusters along the edges of paved areas. A few small, confined landscaped areas, especially along the west wall of the Westway tank farm at Berths 70–72, support nonnative ornamental plants (palm and eucalyptus trees, grasses, ice plant, and shrubs). Native terrestrial plants were not observed in the proposed project study area during site visits in 2011, but their presence on vacant sites in the general area has been documented. Such plants species are adapted to

coastal environments, such as coyote bush (*Baccharis pilularis*), four-winged saltbush (*Atriplex canescens*), and mule fat (*Baccharis salicifolia*).

All wildlife species having the potential or known to occur within the proposed project study area are adapted to human-disturbed landscapes. These include various common insects; native lizards; a variety of native and nonnative small mammal species including Botta's pocket gopher (*Thomomys bottae*), Norway rat (*Rattus norvegicus*), black rat (*R. rattus*), and house mouse (*Mus musculus*); Virginia opossum (*Didelphis virginiana*); common raccoon (*Procyon lotor*); feral cats (*Felis catus*); and possibly coyotes and red foxes.

A number of common terrestrial bird species may be found in the proposed project study area and adjacent buffer areas. Dominant species observed in these areas during surveys for the San Pedro Waterfront Project EIS/EIR (LAHD 2009) included rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), common raven (*C. corax*), European starling (*Sturnus vulgaris*), yellow-rumped warbler (*Dendroica coronata*), Anna's hummingbird (*Calypte anna*), Brewer's blackbird (*Euphagus cyanocephalus*), cliff swallow (*Petrochelidon pyrrhonota)*, barn swallow (*Hirundo rustica)*, house finch (*Carpodacus mexicanus*), and house sparrow (*Passer domesticus*). Of these, rock pigeon, European starling, and house sparrow are nonnative species. These common species are adapted to urban and disturbed habitats. Many are migratory and would be present during fall, winter, and/or spring but are not expected to breed within the proposed project study area. A few of the species present year-round can be expected to nest in shrubs and structures in the proposed project study area; for example, swallows, sparrows, and rock pigeons often nest under eaves; and hummingbirds, starlings, warblers, and finches commonly nest in shrubs and palm trees.

3.3.2.4 Benthic Marine Habitats

Benthic habitats throughout the Los Angeles/Long Beach Harbors (LA/LB Harbors) were surveyed during 1986–1987 (MEC 1988), 2000 (MEC et al. 2002), and 2008 (SAIC 2010). Biological sampling during the 2008 baseline survey (Figure 3.3-1) included benthic infauna and hard-substrate sampling at Station LA-11, in the Main Channel just southeast of the proposed project study area, benthic infauna sampling at Station LA-12, in the Cabrillo Marina, and benthic infauna and epifauna sampling at Station LA-10, in the channel just south of the entrance to Fish Harbor. These stations are very similar in location to stations used during the previous harbor-wide baseline surveys.

3.3.2.4.1 Soft-Bottom Benthos

The soft sediments of the harbor bottom are predominantly sandy silt, although the proportions and distributions of the various grain sizes vary according to area. Areas with the greatest proportion of sand are located in the Main Channel where currents are stronger. Weaker current velocities within Fish Harbor and the slips of the Inner Harbor tend to allow fine particles to settle, resulting in deposition of finer substrates. Clay makes up less than 25% of the sediment composition throughout the harbor.

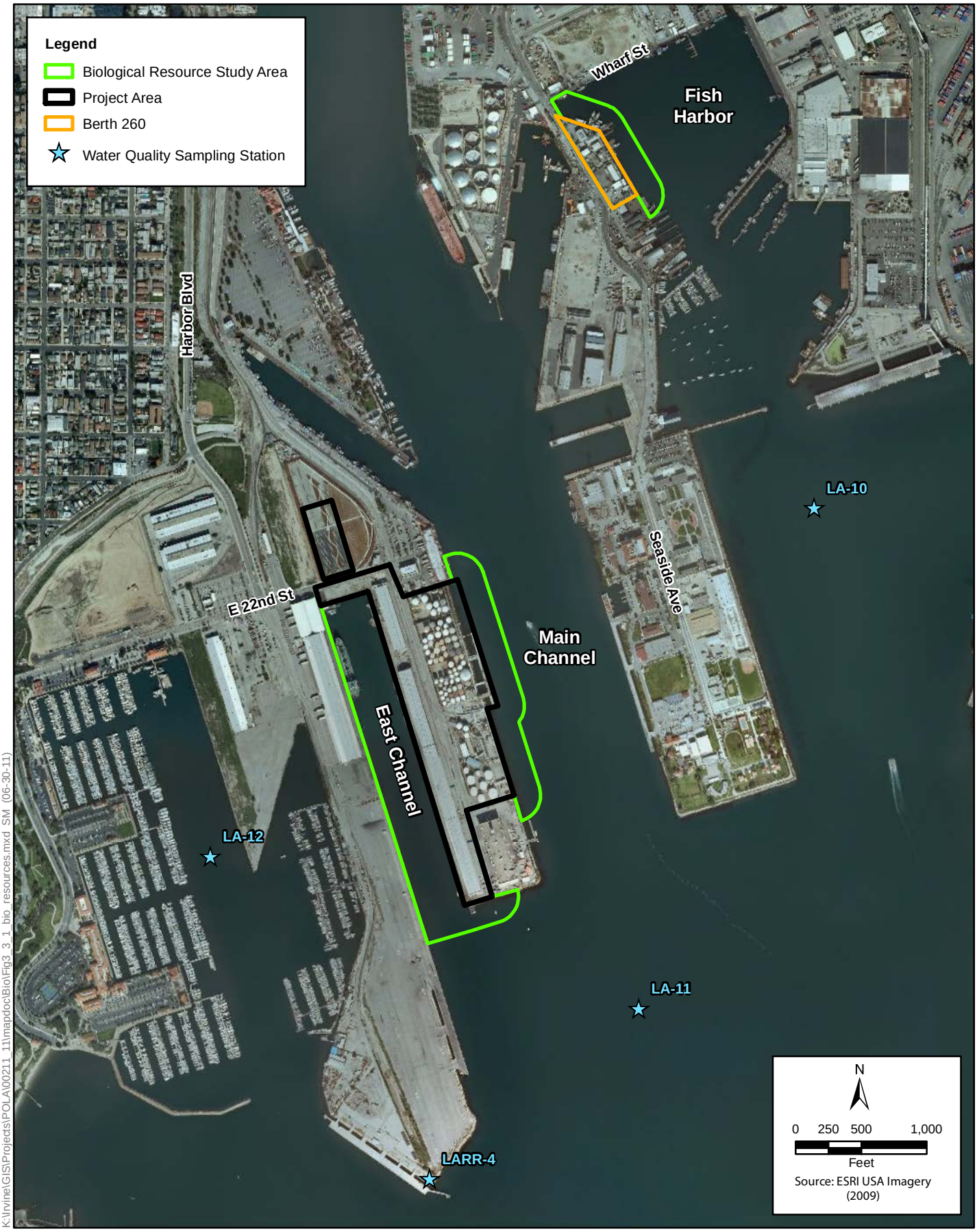

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Figure 3.3-1
Biological Resources
City Dock No. 1 Marine Research Center Project

Clay and silt substrates accumulate primarily in areas of reduced current velocity and deeper basins that are protected from wave action.

Organisms that live in (benthic infauna) and on (benthic epifauna) the soft-bottom habitats can be referred to as the soft-bottom benthic invertebrate community. As described in the San Pedro Waterfront Project EIS/EIR (LAHD 2009) these organisms not only live in and on the sediment but also modify the character of the sediments through their normal activities of feeding, growth, and reproduction. Soft-bottom benthic marine organisms are also an important component of harbor food webs because they consume plankton, bacteria, and detritus and are in turn consumed by fish, birds, mammals, and other benthic organisms.

Harbor-wide surveys (MEC 1988; MEC et al. 2002; SAIC 2010) have consistently shown that there is a distinction in the LA/LB Harbors between habitats in the inner harbor (dead-end slips and channels in the northern part of the harbor complex, including the East Channel and Fish Harbor) and outer harbor (the main channels and the open waters south of Terminal Island). The distinction is based on the proportions of pollution-tolerant species and species characteristic of bays as opposed to open coast areas in the soft-bottom infauna. In general, inner harbor areas are characterized by fewer species, a higher proportion of pollution-tolerant species, and a higher proportion of bay species than outer harbor areas. In both areas the infauna is dominated by polychaete worms (nearly half of all animals), with crustaceans, mollusks, echinoderms, and minor phyla present in decreasing order of abundance. The 2008 survey (SAIC 2010) identified some 400 species of infauna; the ten most abundant species included a nonnative clam (*Theora lubrica*), a small crab (*Scleroplax granulata*), two species of small shrimp-like crustacean animals known as leptostracans and amphipods, and six species of polychaetes.

The most abundant epifauna in the harbor as a whole are shrimp (*Crangon* species), ridgeback prawns (*Sicyonia* species), a spider crab (*Pyromaia tuberculata*), and a swimming crab (*Portunus xanthusii*). Other shrimp and crab species, as well as spiny lobsters, sea cucumbers, predatory cone snails, and brittle stars, are also common on harbor sediments. The shrimp are particularly important as food for bottom-dwelling, benthic fish such as young halibut and other flatfish (sanddabs, soles, and turbots), lizardfish, surfperches, and gobies.

This diversity is an indication of the improvement in habitat quality that has occurred in the past 30 years: the earliest comprehensive surveys, Reish's sampling in the 1950s and the University of Southern California's sampling in the 1970s, showed poor habitat quality in the inner harbor, as indicated by large numbers of a few species of pollution-tolerant organisms and even areas totally devoid of life. Even in the outer harbor, *Capitella capitata* and other species known to be associated with polluted environments were common. In the 1986–1987 survey (MEC 1988) no areas were actually devoid of life, although areas such as Fish Harbor and dead-end slips still had very few species. Everywhere else the surveys found more diversity and more sensitive species, and the survey authors concluded that habitat quality had improved dramatically in just 10 or 15 years. The 2000 and 2008 surveys found increased species diversity and less dominance by pollution-tolerant benthic infauna species (MEC et al. 2002; SAIC 2010).

Near the proposed project study area itself, the average number of infaunal species collected during the 2008 survey (SAIC 2010) ranged from 20 at LA-12 to 34 at LA-11, and the number of individual animals from 143 at LA-12 to 108 at LA-11. These patterns may reflect the trend mentioned above of fewer species but more individuals in inner harbor dead-end slips and basins than in open-water outer harbor areas. Epifauna sampling at station LA-10 collected 9 species of animals, by far the most abundant being three shrimp species (*Crangon nigromaculata*, *Sicyonia ingentis*, and a species of the genus *Heptacarpus*).

3.3.2.4.2 Hard-Substrate Habitats

Hard-substrate habitats in the LA/LB Harbors include pilings and the rock shoreline protection known as riprap, and occupy both the intertidal—the portion of the shoreline periodically exposed to air by the tide—and the subtidal zone, which is never exposed to the air. These habitats provide substantial surface area for the attachment of algae and epifaunal invertebrates, which form a diverse and productive community of organisms.

The 2008 biological survey (SAIC 2010) identified 334 species of animals on the riprap, including representatives from every major invertebrate group. Barnacles and limpets dominated the upper intertidal; the nonnative Mediterranean mussel (*Mytilus galloprovincialis*) was a dominant species in the lower intertidal and shallow subtidal. Tanaid and amphipod crustaceans also were dominant species in the shallow subtidal. Other commonly observed fauna in the lower intertidal and shallow subtidal zones included bryozoans, sponges, tunicates, crabs, tube-dwelling polychaetes, sea anemones, sea urchins, and starfish. As in the case of the soft-bottom benthos, hard surfaces in the inner-harbor areas supported lower species diversity, fewer organisms, and a somewhat different suite of species than outer-harbor areas.

The hard-bottom habitat is also characterized by abundant plants, in the form of marine algae. These range from microscopic forms coating the rocks and pilings to the macroalgae commonly called seaweeds. The 2008 survey identified 21 species of seaweeds on the riprap. The lower intertidal and subtidal zones of inner-harbor sites supported species such as *Sargassum*, *Ulva*, and *Colpemenia* that require less water circulation; but the more exposed outer-harbor areas supported the kelp species *Egregia* and *Macrocystis* (giant kelp) in addition to understory species such as *Sargassum*, the coralline red alga *Corallina* spp., the red alga *Rhodymenia*, and the brown algae *Dictyota*.

The 2008 survey (SAIC 2010) characterized the hard-substrate community on the riprap of the City Dock No. 1 portion of the proposed project study area by sampling at station LARR-4, located at the end of the East Channel, at Berth 48. No riprap sampling was conducted in Fish Harbor; but the sampling at LARR-3, a piling in the West Basin of the Inner Harbor, likely approximates conditions in Fish Harbor. Macroalgae on hard substrates were sampled at station T20 (coinciding with LARR-4) and T19 (in Slip 1 of the Inner Harbor, also likely representing conditions in Fish Harbor).

At LARR-4, the highest number of species and of individual animals occurred in the subtidal, and the lowest number in the upper intertidal, which is typical of rocky coastline habitats (e.g., Ricketts et al. 1985). Crustaceans (barnacles, crabs, and amphipods) were the most abundant organisms at every level, followed, in the subtidal, by polychaetes and echinoderms (sea stars and urchins). The most abundant species were the barnacles *Chthamalus fissus* and *Tetraclita rubescens* and the limpet *Colisella scabra* in the upper intertidal; three species of the amphipod *Caprella* in the lower intertidal; and caprellid amphipods, the cumacean *Cumella californica* (a small crustacean), and several polychaete species in the subtidal. Ten species of macroalgae were observed, including the kelp species *Macrocystis* (giant kelp) and *Egregia*) and encrusting corraline algae such as *Corallina*.

At LARR-3, the highest number of species and individuals occurred in the lower intertidal, and the upper intertidal and subtidal had roughly similar numbers of species and individuals. Crustaceans were the most abundant group in the upper and lower intertidal, but the dominance was much less pronounced than at LARR-4; polychaetes and mollusks were also abundant in the upper intertidal, and were joined by echinoderms in the lower intertidal. In the subtidal, echinoderms were the most abundant animal group. The most abundant animal in the upper intertidal on pilings was the barnacle *Balanus glandulus*. In the lower intertidal the amphipods *Caprella simia* and *Zeuxo nomani*, the brittle star *Amphipholis squamata*, and the tunicate (sea squirt) *Ascidea* were the most abundant animals (although visually the zone is dominated by the mussel *Mytilus galloprovincialis*, the smaller animals are actually more numerous). The subtidal piling community was dominated by brittle stars, mussels, amphipods, and polychaete worms. The six species of macroalgae observed at the inner-harbor algal transect included a green alga known as "ectocarpoid fuzz" and the green alga *Ulva*, both common in the intertidal of quiet basins. A visit to the SCMI site in April 2011 noted the same species on riprap and pilings.

3.3.2.5 Water Column Habitats

Water column habitats in the proposed project study area include open-water areas throughout the harbor, nearshore areas adjacent to the hard-substrate and beach habitats, and kelp forests. Beach habitat is not considered in this EIR because the proposed project study area does not include any beaches. Kelp is considered in section 3.3.2.10, "Special Aquatic Habitats." Open-water habitat includes deepwater areas of the Inner and Outer Harbor without adjacent physical structures, and typically overlies the soft bottom. In the proposed project study area, this habitat type includes portions of the Main Channel, East Channel, and Fish Harbor. The open-water habitat is somewhat protected from wave action by the outer breakwaters but is subject to frequent boat and shipping traffic. Riprap and pilings are prevalent all along the edges of the channels and slips, and their presence influences the composition of the fish community in the adjacent water column. The water-column habitat is populated largely by plankton and fish, although a number of invertebrates live on the fronds of giant kelp.

3.3.2.5.1 Plankton

Plankton is comprised of non-motile or weak-swimming organisms that drift with the currents, and includes a separate component, the *ichthyoplankton*, that is composed entirely of the eggs and larvae of fish. Photosynthetic plankton species (primarily single-celled algae) are termed *phytoplankton*, while planktonic animals are termed *zooplankton*. Plankton is important to many marine ecosystems as the base of the food webs.

Phytoplankton and zooplankton in the LA/LB Harbors have been described in a number of studies (e.g., Environmental Quality Analysts–MBC 1978; HEP 1976, 1979; Barnett and Jahn 1987). In the Outer Harbor, seasonal phytoplankton patterns have been marked by diatom-dominated spring blooms and more intense dinoflagellate-dominated fall blooms, which can be toxic to many marine animals. The phytoplankton are consumed by zooplankton, as well as by many of the benthic animals described above, as currents carry the organisms within reach of bottom-dwelling filter feeders such as barnacles, clams, mussels, tunicates, sponges, and many worm species. The zooplankton is composed largely of tiny crustaceans known as copepods, as well as by planktonic species of mollusks, coelenterates (jellyfish), and several minor phyla or animals. A major seasonal component of the zooplankton, however, is the eggs and larvae of benthic organisms, including worms, starfish, bivalve mollusks (clams and mussels), crabs, lobsters, and fish.

3.3.2.5.2 Fishes

The fish community in Los Angeles Harbor has been studied for nearly 40 years. It includes two major components: the ichthyoplankton, which are the eggs and larvae, and the adult and juvenile fish themselves.

Ichthyoplankton

Fish eggs and larvae have been extensively studied both in the harbor (e.g., MEC et al. 2002) and along the California coast. Studies of fish larvae and fish spawning have identified trends in abundance, density, and occurrence that help to characterize the harbor in terms of spawning and nursery grounds (MBC 1984; MEC 1988; MEC et al. 2002). The large number and variety of fish eggs and larvae found in the harbor reflects the variety of nursery and adult habitats present.

These studies found that peaks in the abundance of larval fishes occur in spring and summer, with a secondary peak in the fall. In 2008 (SAIC 2010), ichthyoplankton sampling identified a total of 71 species or taxa of larval fish. Harbor-wide, the most abundant larvae were gobies, blennies, sculpins, croakers, and anchovies. Sampling at LA-2 in the Outer Harbor near the proposed project study area found the most abundant fish larvae to be blennies, gobies, and sculpins, which made up nearly 90% of the total of more than 400 larvae per 100 cubic meters of water. These are abundant bottom-dwelling fish, although they do not show up in fish sampling in proportion to their abundance because of their ability to hide in the sediments and in rocky crevices. Other common larvae included grunion (*Leuresthes tenuis*) and croakers (queenfish and white croaker). An Inner Harbor site that is considered

representative of conditions in Fish Harbor is LA-14, at the mouth of the Consolidated Slip. Sampling at that station collected an average of over 2,000 larvae per cubic meter of water, substantially more than at LA-2, but the species composition was very similar to LA-2, with gobies accounting for over 90% of the larvae.

Adult and Juvenile Fish

Surveys of adult and juvenile fish species within Los Angeles Harbor conducted in 2008 identified a total of 59 individual species from the open-water areas of the LA/LB Harbors (SAIC 2010), and the 2000 survey identified 71 species (MEC et al. 2002), the difference being attributable largely to the more intensive sampling in the 2000 survey. The 2008 sampling collected over 100,000 fish, most of them water-column fish captured in the lampara net. Although the fish population of the harbor is diverse and abundant, a large proportion of the open-water fish community is dominated by three species: white croaker (*Genyonemus lineatus*), northern anchovy (*Engraulis mordax*), and queenfish (*Seriphus politus*); these species have also dominated the catch in previous recent surveys (e.g., MEC et al. 2002; SAIC 1996; MEC 1988). Seven other species have consistently ranked high in abundance in previous studies and are considered important residents of the harbor: California grunion (*Leuresthes tenuis*), topsmelt (*Atherinops affinis*), Pacific sardine (*Sardinops sagax*), white seaperch (*Phanerodon furcatus*), California tonguefish (*Symphurus atricaudus*), speckled sanddab (*Citharichthys stigmaeus*), and shiner perch (*Cymatogaster aggregata*).

In the water column itself, northern anchovy was the most abundant species collected, comprising 87% of the catch; topsmelt, grunion, queenfish, Pacific sardine, and shiner surfperch also had high abundances. Bat rays (*Myliobatis californica*) and California barracuda (*Sphyraena argentea*), although not abundant, together accounted for 23% of the total biomass in water column samples owing to the large size of the individual fish (SAIC 2010).

Bottom-associated (demersal) fish were dominated by three species, northern anchovy, white croaker, and queenfish, which together constituted 76% of the total catch. These three schooling species, along with the California halibut (*Paralichthys californicus*) and bat ray, accounted for 80% of the total biomass (SAIC 2010). The commercially and recreationally important species barred sand bass (*Paralabrax nebulifer*) was present in moderate abundance (SAIC 2010).

The fish community in open-water portions of the proposed project study area is likely to be very similar to the composition of the harbor-wide fish community described above, given the mobility of open-water fish. Areas near pilings and riprap and in the kelp forests were not specifically sampled for fish during the 2008 survey, but fish that would be more abundant in those areas than in the open-water areas can be deduced from the sampling conducted along the San Pedro Breakwater in 1986–1987 (MEC 1988). That study was focused on the kelp forest that grows on the breakwater, but the fish associated with that forest would be very similar to the fish that associate with riprap and pilings. The most abundant fish were, in order, blacksmith (*Chromis punctipinnis*), pile surfperch (*Rhacochilus vacca*), and black

surfperch (*Embiotoca jacksoni*). Other commonly observed fish included kelp surfperch (*Brachyistius frenatus*), senorita (*Oxyjulis californica*), kelp bass (*Paralabrax clathratus*), white seaperch (*Phanerodon furcatus*), and olive rockfish (*Sebastes serranoides*).

3.3.2.6 Birds

3.3.2.6.1 Marine Birds

Los Angeles Harbor provides valuable foraging, nesting, and roosting habitats for a diverse group of birds. Water birds in this report are defined as species that rely on marine aquatic environs for their lifecycle requirements. These species can range from those that occur in both freshwater and marine water (e.g., herons) to those that are restricted to estuarine/marine waters (e.g., surf scoter). The most recent comprehensive study of the water birds inhabiting the harbor (SAIC 2010) documented 68 species of birds considered dependent on aquatic habitats (another 28 terrestrial, or non–water-dependent, species such as crows, sparrows, and hawks were also observed). On average, each of the 20 surveys undertaken counted over 6,000 birds present in marine areas of the harbors at any one time. Federally and state special-status species (see Section 3.3.2.8 for more detail on special-status species) that are seasonally common in the harbor include: California brown pelican (*Pelecanus occidentalis californicus*), California least tern (*Sternula antillarum brownii*), American peregrine falcon (*Falco peregrinus*), and Western snowy plover (*Charadrius alexandrinus nivosus*).

The most well-represented bird groups found within the harbors, and in the proposed project study area, were:

- Waterfowl—e.g., western grebe (*Aechmophorus occidentalis*), Brandt's (*Phalacrocorax penicillatus*), double-crested cormorant (*P. auritus*), surf scoter (*Melanitta perspicillata*);
- Gulls—e.g., Heermann's gull (*Larus heermanni*), ring-billed gull, (*L. delawarensis*), California gull (*L. californicus*), western gull (*L. occidentalis*); and
- Aerial Fish Foragers—e.g., California least tern, Forster's tern (*Sterna forsteri*), elegant tern (*S. elegans*), royal tern (S. *maximus*), Caspian tern (*S. caspia*), black skimmer (*Rynchops niger*), California brown pelican.

While the other water-associated bird groups (Large Shorebirds, Small Shorebirds, and Wading/Marsh Birds) occur in low abundances, those species regularly occurring include black-bellied plover (*Pluvialis squatarola)*, black oystercatcher (*Haematopus bachmani*), great blue heron (*Ardea herodias*), and black-crowned night heron (*Nycticorax nycticorax*). Wading/Marsh Birds feed along the riprap for fish and invertebrates (as well as in uplands for insects, rodents, and reptiles). Shorebirds that occur in the Los Angeles Harbor occur almost exclusively on riprap, the beach habitats at Cabrillo Beach and the Seaplane Anchorage, and the mudflats at Berth 78—Ports O'Call and Salinas de San Pedro Salt Marsh. An exception is killdeer

(*Charadrius vociferous*), an upland-adapted shorebird that can be regularly found on vacant lands in the harbors (such as the lot at 22nd Street and Sampson Way).

During the 2008 baseline study, the majority of bird use within the harbors was in the form of resting (66%), followed by foraging (19%), flying (12%), nesting (3%), and courting (0.1%).

3.3.2.6.2 Terrestrial Birds

The 2008 survey (SAIC 2010) assigned terrestrial bird species found in and near the proposed project study area to two guilds: Raptors (e.g., osprey [*Pandion haliaetus*], peregrine falcon, red-tailed hawk [*Buteo jamaicensis*]) and Upland Birds (e.g., rock dove [*Columba livia*], American crow [*Corvus brachyrhynchos*], house finch [*Carpodacus mexicanus*]). The peregrine falcon is on the state endangered species list but has been delisted by the federal government. It nests in small numbers on bridges and other structures in the LA-LB Harbors. Red-tailed hawks and ospreys are present in small numbers, the former foraging in upland areas on mammals and birds, the latter in water areas on fish.

Rock dove (the so-called "city pigeon") is very common, being one of the ten most abundant species in the harbor. Rock doves frequently nest under wharves and on upland structures throughout the LA-LB Harbors. Upland Birds that would be expected to occur in the proposed project study area include rock dove, American crow, house finch, mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), several species of swallows (nesting under building eaves and wharves), European starling (*Sturnus vulgaris*), and several species of sparrows. These common species are adapted to urban and disturbed habitats.

3.3.2.7 Marine Mammals

Marine mammals have not been well-studied within Los Angeles Harbor, however, both pinnipeds and cetaceans have been recorded including California sea lion (*Zalophus californianus*), harbor seal (*Phoca vitulina*), Pacific bottle-nose dolphin (*Tursiops truncatus*), common dolphin (*Delphinus delphis*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), Risso's dolphin (*Grampus griseus*), Pacific pilot whale (*Globicephala macrorhynchus*), and gray whale (*Eschrichtius robustus*) (LAHD and Jones & Stokes 2003; SAIC 2010). The most common marine mammal to the harbor is California sea lion, which can be seen throughout the year foraging or resting on buoys, docks, and the breakwaters of the Outer Harbor. Sea lions are commonly found on the Main Channel adjacent to the commercial fish markets and around sport fishing boats at Berth 78—Ports O'Call. Harbor seals are less common than sea lions but individuals can be found sporadically throughout the year either foraging within the harbor or resting on riprap and buoys. Occasional observations of both common and bottle-nosed dolphins occur within the harbor (SAIC 2010), but sightings of whales are rare, since whales typically traverse coastal waters outside the harbors.

3.3.2.8 Special-Status Species

All plant and wildlife species and natural communities in California that have special regulatory or management status were evaluated for potential to occur within the proposed project study area. Those that include the proposed project study area within their currently known general range and for which suitable conditions exist or may exist, or that otherwise may be affected by the proposed Project, are listed in a Special-Status Species Information Table in Appendix D. That table includes both plant and wildlife species and was developed from a database and literature review using the following steps.

1. The California Natural Diversity Database (CNDDB) (CDFG 2008) and the California Native Plant Society's (CNPS) Electronic Inventory (CNPS 2008) were checked to determine if the known range of special-status species occurred within the USGS 7.5-minute San Pedro, California quadrangle (which includes the proposed project study area) and surrounding eight quadrangles.
2. Species were added to these inventories, as appropriate, based on personal knowledge, experience with prior projects in the area, ICF internal databases, and published and unpublished references.
3. A review was performed of key publications on regulatory status and/or distribution for species relevant to the region, along with miscellaneous recent publications (e.g., Federal Register), agency announcements, popular and technical news sources (e.g., Endangered Species and Draft Jurisdictional Delineation Report), and frequent communications with other professionals.

3.3.2.8.1 Plants

A total of 18 special-status plants were identified in the literature review as having potential to occur within the general vicinity of the proposed project study area (Appendix D). The species are: aphanisma (*Aphanisma blitoides*), south coast saltscale (*Atriplex pacifica*), Parish's brittlescale (*Atriplex parishii*), Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), Lewis's evening primrose (*Camissonia lewisii*), southern tarplant (*Centromadia parryi* ssp. *australis*), Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*), salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*), Catalina crossosoma (*Crossosoma californicum*), beach spectaclepod (*Dithyrea maritima*), island green dudleya (*Dudleya virens* ssp. *insularis*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), Santa Catalina Island desert thorn (*Lycium brevipes* var. *hassei*), prostrate navarretia (*Navarretia prostrata*), coast woolly-heads (*Nemacaulis denudata* var. *denudata*), Lyon's pentachaeta (*Pentachaeta lyonii*), Brand's phacelia (*Phacelia stellaris*), and estuary seablite (*Suaeda esteroa*).

None of these 18 species has the potential to occur within the proposed project study area. This determination is based on a combination of factors, including the species' requirements for some combination of soils, hydrology, habitats, elevation range, and/or disturbance tolerance, along with consideration of the proposed project study area condition and observed resources.

3.3.2.8.2 Wildlife

A total of 39 special-status, state, and federally listed threatened or endangered wildlife species were identified in the literature review as having potential to occur within the general vicinity of the proposed project study area (Appendix D). Factors considered in determining a species' potential for occurrence included presence of potentially suitable habitat; geographic location of the proposed project study area relative to a species' range; direct observation of the species within the proposed project study area; combination of soils, hydrology, habitats, elevation range, and/or disturbance tolerance; consideration of the proposed project study area condition and observed resources; and existing site disturbances.

Based on these above considerations the following species were determined to have no potential to occur within the proposed project study area: Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*), monarch butterfly (*Danaus plexippus*), tidewater goby (*Eucuclogobius newberryi*), leatherback sea turtle (*Dermochelys coriacea*), loggerhead sea turtle (*Caretta caretta*), Olive Ridley sea turtle (*Lepidochelys olivacea*), San Diego coast horned lizard (*Phrynosoma coronatum blainvillei*), bald eagle (*Haliaeetus leucocephalus*), light-footed clapper rail (*Rallus longirostris levipes*), tufted puffin (*Fratercula cirrhata*), coastal California gnatcatcher (*Polioptila californica californica*), tricolored blackbird (*Agelaius tricolor*), big free-tailed bat (*Nyctinomops macrotis*), Pacific pocket mouse (*Perognathus longimembris pacificus*), and San Diego desert woodrat (*Neotoma lepida intermedia*).

Of the 39 potential special-status species, 23 (Table 3.3-1) are known to be present, at least seasonally, within the harbor area. The 2008 survey observed all of the bird species in Table 3.3-1 except a number of the raptors and upland birds (the surveys were conducted from the water) Cooper's hawk, sharp-shinned hawk, white-tailed kite, northern harrier, Western snowy plover, long-billed curlew, Vaux's swift, burrowing owl, loggerhead shrike, and western yellow warbler (SAIC 2010). Within the proposed project study area the potential for many of these species to occur is much lower than for the harbor as a whole, given the lack of natural habitat and limited extent of the proposed project study area. For example, no suitable nesting habitat exists for burrowing owl, Belding's savannah sparrow, or Western snowy plover. Nevertheless, it is possible that any of those species could briefly visit either site within the proposed project study area. Accordingly, this EIR considers all of the 23 special-status species that could potentially visit or inhabit the harbor.

Table 3.3-1. Special-Status Wildlife Species with Potential to Occur within the Proposed Project Study Area

Common Name	*Scientific Name*	*Status*		*Habitat Use*
		Federal	*State*	
Green sea turtle	*Chelonia mydas*	FT	--	Infrequent visitor; has been observed in Alamitos Bay and in the San Gabriel River.
Common loon	*Gavia immer*	--	SSC	Uncommon winter and migrant visitor to harbor waters; no breeding potential in

Common Name	Scientific Name	Status		Habitat Use
		Federal	State	
				study area.
California brown pelican	*Pelecanus occidentalis californicus*	--	SSC	Common all year; roosts on the breakwaters and forages over harbor waters; nests on the Channel Islands and in Baja California, Mexico. Occasionally observed within the harbor.
Double-crested cormorant	*Phalacrocorax auritus*	--	SSC	Common all year; rests on open waters and breakwaters.[1]
Cooper's hawk	*Accipiter cooperii*	--	SSC	Fairly common-to-infrequent in uplands, primarily wooded and brushy areas; unlikely to nest at harbor. Is likely to occur sporadically as a migrant within the proposed project study area.
Sharp-shinned hawk	*Accipiter striatus*	--	SSC	Infrequent winter and migrant visitor in wooded and brushy uplands.
White-tailed kite	*Elanus leucurus*	--	CFP	Rare visitor in open uplands; no breeding potential in study area.
American peregrine falcon	*Falco peregrinus anatum*	--	SE, CFP	Rare; nests on Vincent Thomas Bridge within 1 mile of the harbor and forages in the harbor area.
Merlin	*Falco columbarius*	--	SSC	Rare winter and migrant visitor, all habitats; prefers wetlands and extensive grasslands next to trees.
Northern harrier	*Circus cyaneus*	--	SSC	Infrequent winter and migrant visitor to upland and nearshore waters. Foraging habitat present; no breeding potential in the proposed project study area.
Osprey	*Pandion haliaetus*	--	SSC	Infrequent winter and migrant visitor to all waters and high overhead. Confirmed as migrant and wintering resident nonbreeder.[1]
Western snowy plover	*Charadrius alexandrinus nivosus*	FT	SSC	Infrequent visitor to harbor; confirmed as nonbreeder; observed on Pier 400.[1]
Long-billed curlew	*Numenius americanaus*	--	SSC	Infrequent visitor to harbor; confirmed as nonbreeder; migrant/winter visitor.[1]
California gull	*Larus californicus*	--	SSC	Common winter/migrant visitor in harbor area; confirmed as nonbreeder.
Elegant tern	*Thalasseus elegans*	--	SSC	Common; nested on Pier 400 in 1998–2005; present all year; confirmed as breeder in some years; forages over water near nests.[1]
Black skimmer	*Rynchops niger*	--	SSC	Common; nested unsuccessfully on Pier 400 in 1998–2000 and 2004; forages over water near nests; confirmed as breeder. Fledgling census suggested reproductive success was

Common Name	Scientific Name	Status		Habitat Use
		Federal	State	
				low during these years due to chick mortality.[2] Present all year.[1]
California least tern	*Sternula antillarum brownii*	E	SE, CFP	Fairly common; breeds on Pier 400, present from about April to early September; forages preferentially over shallow waters; confirmed as breeder.[1]
Vaux's swift	*Chaetura vauxi*	--	SSC	Fairly common, widespread migrant (aerial only).
Burrowing owl	*Athene cunicularia*	--	SSC	Rare non-breeder in open areas; observed at Pier 400 during 2007–2010.[2]
Loggerhead shrike	*Lanius ludovicianus*	--	SSC	Rare non-breeder in open areas.
Western yellow warbler	*Dendroica petechia brewesteri*	--	SSC	Fairly common, widespread migrant in uplands; no breeding at harbor.
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	--	SE	Rare; inhabits pickleweed in salt marsh and adjacent uplands; transient visitor to harbor.[1]
California western mastiff bat	*Eumops perotis californicus*	--	SSC	Rare or infrequent; possibly roosts in large buildings or tall trees at harbor; foraging would likely be low over uplands.

Notes:
FE = federally endangered
FT = federally threatened
SE = state endangered
SSC = state species of special concern
CFP = California fully protected species
-- = no special status

Common: typically present in substantial numbers
Fairly Common: reliably present, but in small numbers
Infrequent: not usually present, but of regular occurrence
Rare: from a single record to a small number of individuals each year

Sources:
[1] LAHD and USACE 2007.
[2] Keane 2000.

California Least Tern

The California least tern, a migratory species that is present and breeds in California from April through August, was federally listed as endangered in 1970 and state listed as endangered in 1971, and is still on both endangered species lists. Loss of nesting and foraging habitat due to human activities caused a decline in the number of breeding pairs (USFWS 1992). The biology of this species in the harbor area has been thoroughly described in the Channel Deepening EIS/EIR (USACE and LAHD 2000). Extensive monitoring of the least tern nesting site and of breeding, nesting, and foraging activity has been conducted by LAHD since the mid-1990s. The

species has been nesting on Terminal Island since at least 1973 (Keane 2005a), and at the current site on Pier 400 since 1999. The number of nests has varied over the years, but in general increased to a peak of 1,322 nests in 2005 (Keane 2005b). Nesting decreased through 2011, when less than 10 nests were observed.

The recent low nest numbers are believed to be related primarily to a decline in least tern prey availability, and secondarily to an increase in visits by predators (Keane 2012). Studies of least tern foraging have been conducted in the harbor since 1982. These surveys have found that least terns forage throughout the Outer Harbor, but that once the chicks have hatched they concentrate on shallow-water (generally less than 20 feet deep) areas near their nesting site (Keane 1997, 1999a, 1999b, Keane and Aspen Environmental Group 2004). Foraging is most common near Cabrillo Beach, the West Basin of Long Beach Harbor, the Pier 300 shallow-water habitat, the Seaplane Lagoon, and the gap between the Navy Mole and the Pier 400 Transportation Corridor. Foraging locations are heavily dependent on the localized fish abundance within the size range suitable for least terns, and shallow-water areas (less than 20 feet deep) are an important foraging resource for the least tern.

California Brown Pelican

The California brown pelican was federally listed as endangered in 1970 and was state listed as endangered in 1971. USFWS published a 90-day finding for the California brown pelican delisting petition, initiated a status review to determine if delisting was warranted (see 71 FR 29908 dated 24 May 2006), and has now been delisted (USFWS 2012a). Low reproductive success attributed to pesticide contamination that caused thinning of eggshells was the primary reason for their listing in 1970–1971. After the use of dichloro-diphenyl-trichloroethane (DDT) was prohibited in 1970, the population began to recover (USACE and LAHD 1992). Surveys in 1973 found the California brown pelican comprised only 3.8% of the total bird observations in the LA/LB Harbors (HEP 1980). Abundance of this species increased to 9.5% in 2000 (MEC and Associates 2002). The only breeding locations in the U.S. are at West Anacapa Island and Santa Barbara Island, although a few have begun nesting at the south end of the Salton Sea (NMFS 1991; Patten et al. 2003). Breeding also occurs at offshore islands and along the mainland of Mexico.

This species has been described in the Biological Opinion (1-6-92-F-25) for the Los Angeles Harbor Development Project (USFWS 1992), Biological Assessment for the Channel Improvement and Landfill Development Feasibility Study (USACE 1990), and Navigation Improvement EIS/EIR (USACE and LAHD 1992).

California brown pelicans use the harbor year-round, but their abundance is greatest in the summer when post-breeding birds arrive from Mexico. The highest numbers are present between early July and early November, when several thousand can be present (MBC 1984). Pelicans use all parts of the harbor, but they prefer to roost and rest on the harbor breakwater dikes, particularly the Middle Breakwater (MBC 1984; MEC 1988; MEC and Associates 2002). They forage over open waters for fish such as the northern anchovy. Brown pelicans were observed adjacent to Pier 400 throughout the year during the 2000 baseline surveys.

Western Snowy Plover

The Pacific Coast population of the western snowy plover (*Charadrius alexandrines nivosus*) was federally listed as threatened in 1993 (USFWS 2012b). This small shorebird nests on coastal beaches from southern Washington to southern Baja California and winters along the coast of California and Baja California (NatureServe 2005). The birds forage on invertebrates (crustaceans and worms) along the shore in or near shallow water (Bent 1929). Western snowy plovers were observed on Pier 400 during least tern nesting surveys in 2003 through 2007. The plovers were not nesting but appeared to be utilizing this area during migration for foraging (Keane 2003, 2005a). Critical habitat was designated for this species in September 2005 (USFWS 2012b) and included four locations within coastal Los Angeles County, none of which is in the LA/LB Harbors area.

Burrowing Owl

Burrowing owl (*Athene cunicularia*) is considered a state species of special concern. Burrowing owls were observed on Pier 400 during every least tern survey since 2008 (Keane 2003, 2005a, 2005b, 2007a, 2007b; Keane pers. comm. 2010). The individuals observed were likely present to prey on California least tern adults and chicks (Keane 2007b). Although no evidence of burrowing owl nesting on Pier 400 has been observed during the California least tern monitoring, it is possible that nesting could occur. The nesting season for this species is February through August (California Burrowing Owl Consortium 2011). Based on this, the burrowing owls observed during these studies could be nesting or post-nesting individuals.

Other Special-Status Bird Species

The California gull, common loon, double-crested cormorant, long-billed curlew, and elegant tern are all marine special-status species that are known to use the harbor for at least part of the year. The elegant tern began nesting on Pier 400 in 1998 and 1999, and 10,170 nests were observed in 2004 (Keane 2005a). SAIC (2010) reported nesting on Pier 300 in 2008. Double-crested cormorants were reported by SAIC (2010) to be nesting in electrical transmission towers on Terminal Island in 2008, and are common throughout the harbors. The California gull, common loon, and long-billed curlew do not nest in the harbor.

The black skimmer is a migratory species that has been extending its breeding range northward in recent years and is protected by the federal Migratory Bird Treaty Act (MBTA) (Whelchel et al. 1996). Black skimmers feed by flying just above the surface of the water and snatching up fish swimming just below the surface. This restricts the species to feeding in very calm waters, such as those in enclosed bays. The species nests along the Atlantic and Gulf coasts to southern Mexico and along the coast of southern California, as well as at the Salton Sea (Collins 2006), and was first reported nesting in the Port in 1998. Black skimmer is a California species of special concern (at nesting sites only). It was present in the harbor all year in 2000, but numbers were greatest during the summer nesting season (MEC et al. 2002). In 2008 black skimmers were observed during the winter, but because no nesting occurred in the Port no birds were observed in any other season (SAIC 2010). Black

skimmers nested on Pier 400 in 1998 to 2000 (range of 10 to 115 nests) with poor success (Collins 2006) and in 2004 (about 25 nests) (Keane 2005b).

The black oystercatcher is protected by the MBTA. The species has been present in the harbor since at least 1973, and was the most common Large Shorebird observed during the 2008 investigations (SAIC 2010). Black oystercatchers typically nest along rocky shores and islands along the Pacific coast of North America. A nesting colony of black oystercatchers was observed within the riprap along the entire length of the Outer Breakwater of the harbor during baseline studies conducted during 2000 and 2008 (MEC et al. 2002, SAIC 2010). The nesting colony within the Port is considered unusual (MEC et al. 2002), but is clearly a feature of the harbor bird community.

The American peregrine falcon (*Falco peregrinus anatum*) was removed from the federal endangered species list in 1999, but is still state-listed as endangered. Peregrine falcons are known to nest in the harbor area (Gerald Desmond, Vincent Thomas, and Schuyler F. Heim Bridges; Keane 1999a, 2003) and thus periodically forage in the harbor area, preying upon small birds. In heavily urbanized areas such as the Port, this species commonly nests on anthropogenic structures, and is known to exhibit nest site fidelity from year to year. In recent years falcons nesting on the Gerald Desmond Bridge have successfully fledged several young.

Other special-status raptor species such as red-tailed hawk, American kestrel, Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipter striatus*), white-tailed kite (*Elanus leucurus*), merlin (*Falco columbarius*), and northern harrier (*Circus cyaneus*) have been observed in the harbor and have been recorded as infrequent visitors. Osprey (*Pandion haliaetus*) has been confirmed as a wintering resident nonbreeding species in the harbor (MEC et al. 2002, SAIC 2010). Very limited foraging habitat (e.g., open grassland or ruderal areas) exists for these raptor species within the proposed project study area, and there is no potential breeding habitat for white-tailed kite or northern harrier.

In the open ruderal area near 22nd Street/Old Tank Farm , a single loggerhead shrike was recorded during reconnaissance surveys conducted during 2005 (Campbell pers. comm.). It is likely that this individual was nesting in the brush lining the adjacent bluffs. Loggerhead shrikes were not observed during the 2002 and 2008 baseline surveys, but that is not unexpected given the upland nature of the species.

Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) inhabits pickleweed salt marshes exclusively (USACE and LAHD 1992) and has been sporadically identified within the harbor. Although pickleweed (*Salicornia virginica*) exists at the Salinas de San Pedro Salt Marsh, no nesting Belding's savannah sparrows have ever been identified at this location (Chilton pers. comm.).

Within the harbor area, western yellow warbler (*Dendroica petechia brewsteri)* is expected to be limited to a few migrants during spring and summer. This species is protected under the MBTA. The harbor area lacks suitable breeding habitat for this species.

Bats

A number of special-status bat species may be found in the proposed project study area, including long-legged myotis (*Myotis volans*), long-eared myotis (*Myotis evotis*), Yuma myotis (*Myotis yumanensis*), and California western mastiff bat (*Eumops perotis californicus*). While none of these species specifically is known to be associated with marine habitats, some may forage over urban developed areas, aquatic habitats including the harbor, and open land. Roosting requirements vary by species. Within the harbor area, roosting habitat may include crevices or compartments in buildings or warehouses, under or within compartments in bridge structures, or in any natural or anthropogenic compartment, bridge, or alcove. Maternity colonies typically are formed in April and May; young are weaned and flying by July and August (Barkley 1993).

Sea Turtles and Marine Mammals

Sea Turtles

Several sea turtle species are found in the northeastern Pacific Ocean, including green (*Chelonia mydas*), loggerhead, leatherback, and Olive Ridley sea turtles. Loggerhead sea turtles, federally listed as threatened, are found in all temperate and tropical waters throughout the world and are the most abundant species of sea turtle found in U.S. coastal waters (NMFS 2007a). Additionally, several species have regional distributions in southern California. Therefore, it is possible that sea turtles may occasionally enter the Outer Harbor areas, although during more than 20 years of biological surveys, only the green sea turtle has been observed within the LA/LB Harbors (MEC 1988, MEC et al. 2002; Keane pers. comm.). A brief summary of sea turtles that have or could potentially be observed in the proposed project study area is presented below.

Green sea turtles, federally listed as threatened, are found in temperate and tropical waters throughout the world. They primarily remain near the coastline and around islands and live in bays and protected shores, especially in areas with seagrass beds. In the northeastern Pacific, green turtles have been sighted from the coast and within the gulf of Baja California to southern Alaska, but most commonly occur from San Diego south (NMFS 2007a). They are rarely observed in the open ocean. Green sea turtles have been observed infrequently in Alamitos Bay and in the San Gabriel River, possibly attracted to the warm thermal effluent from two upstream generating stations (LAHD 2009). The most recent green sea turtle sighting was a single individual observed in Alamitos Bay during September 2006. There were additional sightings within San Gabriel River in 1999 and 2002, and three green sea turtles were observed in the river during 2004 (LAHD 2009).

Loggerhead sea turtles, federally listed as threatened, are circumglobal, occurring throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. Loggerheads nest on ocean beaches, generally preferring high energy beaches (i.e., beaches with substantial wave action) that are relatively narrow, steeply sloped, and coarse-grained (Lohmann and Lohmann 1996).

Leatherback sea turtles, federally listed as endangered, are the most widely distributed of all sea turtles and are found worldwide with the largest north and south range of all the sea turtle species. The Pacific Ocean leatherback population is generally smaller in size than that in the Atlantic Ocean (NMFS 2007a).

Olive Ridley sea turtles, federally listed as threatened, are found in tropical regions of the Pacific, Indian, and Atlantic Oceans. They typically forage offshore in surface waters or dive to depths of 500 feet to feed on bottom-dwelling crustaceans.

Marine Mammals

All marine mammals are protected under the Marine Mammal Protection Act (MMPA) of 1972, and some are also protected by the federal ESA of 1973. As discussed in Section 3.3.2.7, pinnipeds (sea lions and seals) and cetaceans (whales and dolphins) have been recorded within Los Angeles Harbor, including California sea lion, harbor seal, Pacific bottle-nose dolphin, common dolphin, Pacific white-sided dolphin, Risso's dolphin, Pacific pilot whale, and gray whale (LAHD and Jones & Stokes 2003). The most common marine mammal occurring in the harbor is the California sea lion. Harbor seals are less common than sea lions but individuals can be found sporadically throughout the year. Dolphins are seen occasionally, and sightings of whales are rare (USACE and LAHD 1979). No marine mammal species breed in Los Angeles Harbor. None of the pinnipeds found within the harbor are endangered, and there are no designated significant ecological areas for the two species within the harbor. Additionally, there are no designated Marine Protected Areas (MPAs) within the confines of the harbor. The nearest designated marine life refuge is Point Fermin Marine Life Refuge, which extends towards the harbor to the north edge of Outer Cabrillo Beach.

Outside the breakwater, a variety of marine mammals use nearshore waters. These include the gray whale, which migrates from the Bering Sea to Mexico and back each year, blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), sperm whale (*Physeter catodon*), minke whale (*Balaenoptera sp.*), and killer whale (*Orcinus orca*). The blue, fin, humpback, sperm, gray, and killer whales are all listed as endangered under the ESA, although the Eastern Pacific grey whale population was delisted in 1994. Species of baleen whales generally are found as single individuals or in pods of a few individuals. Toothed whales, and particularly dolphins, can be found in larger groups of up to a thousand or more (Leatherwood and Reeves 1983). Several species of dolphin and porpoise are commonly found in coastal areas near Los Angeles, including the Pacific white-sided dolphin, Risso's dolphin, Dall's porpoise (*Phocoenoides dalli*), bottlenose dolphin, northern right whale dolphin (*Lissodelphis borealis*), and common dolphin, with the common dolphin being the most abundant (Forney et al. 1995).

Vessel Collisions with Marine Mammals and Sea Turtles

Ship strikes involving marine mammals and sea turtles, although uncommon, have been documented for the following listed species in the eastern North Pacific: blue whale, fin whale, humpback whale, sperm whale, southern sea otter (*Enhydra lutris*),

loggerhead sea turtle, green sea turtle, Olive Ridley sea turtle, and leatherback sea turtle (NOAA Fisheries; USFWS 1998a, 1998b, 1998c, 1998d; Stinson 1984; Carretta et al. 2001). Ship strikes have also been documented involving gray, minke, and killer whales. Determining the cause of death for marine mammals and sea turtles that wash ashore dead or are found adrift is not always possible, nor is it always possible to determine whether propeller slashes were inflicted before or after death. In the case of a sea otter for example, wounds originally thought to represent propeller slashes were determined to have been inflicted by great white sharks (Ames and Morejohn 1980). In general, dead specimens of marine mammals and sea turtles showing injuries consistent with vessel strikes are not common.

The majority of reported vessel collisions with marine mammals involve whales. The NMFS has records of vessel strikes with whales in U.S. coastal waters for 1982 through 2007 (NMFS 2007b). Of the recorded strikes in the NMFS database, most of the identified species were gray whales (42%) and blue whales (15%) with a few fin whales and humpback whales. The number of strikes per year ranged from none to seven and averaged 2.6, but the actual number is likely to be greater because not all strikes are reported. The type of vessel(s) involved often was not known but does include freighters/container vessels going to the LA/LB Harbors.

In southern California, potential strikes to blue whales are of the most concern due to the fact that the migration patterns of blue whales north and south along the California coast at times run perpendicular to the established shipping channels in and out of California ports and that blue whale population numbers are low relative to historic numbers. Blue whales normally pass through the Santa Barbara Channel en route from breeding grounds in Mexico to feeding grounds further north. Blue whales were historically a target of commercial whaling activities worldwide, but are now protected from whaling. In the North Pacific, the pre-whaling population size is estimated at approximately 4,900 individuals, and the current population estimate is approximately 3,300 (NMFS 2008). Along the California coast, blue whale abundance has increased over the past two decades (Calambokidis et al., 1990; Barlow 1994; Calambokidis 1995). However, the increase is too large to be accounted for by population growth alone and is more likely attributed to a shift in distribution. Incidental ship strikes and fisheries interactions are listed by NMFS as the primary threats to the California population. According to NMFS records, the average number of blue whale mortalities in California attributed to ship strikes was 0.2 per year from 1991 to 1995 and from 1998 to 2002. September 2007, however, saw an unusual number (3) of blue whale mortalities. These mortalities were confirmed to be caused by ship strikes in the Santa Barbara Channel but declared to be part of an “Unusual Mortality Event” (NMFS 2007b). The cause(s) of the unusual mortality event is undeclared at this time but may have associated with biotoxins from harmful algal blooms along the southern California coast.

Vessel speed does seem to influence whale/ship collision incidences. The Jensen and Silber Whale Strike Database (Jensen and Silber 2004) reports that there are 134 cases of known vessel strikes in U.S. coastal waters. Of these 134 cases, 14.9% (20) involved container/cargo ships/freighters, and 6.0% (8) involved tankers. The remaining incidents involved Navy vessels (17.1% or 23 cases), whale-watching vessels (14.2% or 19 cases), cruise ships/liners (12.7% or 17 cases), ferries (11.9% or 16 cases), Coast Guard vessels (6.7% or 9 cases), recreational vessels (5.2% or 6

cases), and fishing vessels (3.0% or 4 cases) with one collision (0.75%) reported from each of the following: dredge boat, research vessel, pilot boat, and whaling catcher boat. Of the 134 cases, vessel speed was known for 58 cases. Of these 58 cases, most vessels were traveling in the ranges of 13–15 knots, followed by speed ranges of 16–18 knots and 22–24 knots.

According to a report from NMFS, which was based on information in the Jensen and Silber (2004) whale strike database and Laist et al. (2001), the majority of vessel collisions with whales occurred at speeds between 13 and 15 knots. Specifically, NMFS recommends the following:

> Overall, most ship strikes of large whale species occurred when ships were traveling at speeds of 10 knots or greater. Only 12.3% of the ship strikes in the Jensen and Silber database occurred when vessels were traveling at speeds of 10 knots or less. While vessel speed may not be the only factor in ship/whale collisions, data indicate that collisions are more likely to occur when ships are traveling at speeds of 14 knots or greater. This strongly suggests that ships going slower than 14 knots are less likely to collide with large whales. Therefore, NOAA Fisheries recommends that speed restrictions in the range of 10-13 knots be used, where appropriate, feasible, and effective, in areas where reduced speed is likely to reduce the risk of ship strikes and facilitate whale avoidance. (NOAA 2008.)

Other Special-Status Marine Life

The NOAA Fisheries Service has listed four marine Species of Concern (NMFS 2011) in southern California waters: the rockfish species cowcod (*Sebastes levis*) and bocaccio (*Sebastes paucispinis*), and the mollusks green abalone (*Haliotis fulgens*) and pink abalone (*Haliotis corrugata*). Cowcod and bocaccio are generally found at depths greater than 69 feet (McCain et al. 2005), a depth greater than any found in the harbor. Accordingly, these species are not expected to be present within the proposed project study area and were not collected in recent baseline marine biology surveys (MEC et al. 2002; SAIC 2010). Both abalone species could occur in the Outer Harbor, the green abalone on the ocean side of the breakwaters and the pink on the inner face. The pink abalone feed off kelp and drift algae (NMFS 2011), and thus could occur along the Berths 70–71 portion of the proposed project site where kelp currently grows. However, neither species has been collected in the recent baseline surveys, suggesting that there is little chance that populations of either species exist in the proposed project study area.

3.3.2.9 Essential Fish Habitat

Throughout their life cycle, marine fish use many types of habitats—including sea grass, salt marsh, coral reefs, kelp forests, and rocky intertidal areas—for foraging and reproduction. Various activities on land and in water can alter these habitats. NMFS, regional fishery management councils, and federal and state agencies address these threats by identifying EFH for each federally managed fish species.

In accordance with the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), of the fish species managed under the

MSA, four pelagic and 15 groundfish (demersal) species are found in the Los Angeles Harbor and are assumed to occur in the proposed project study area (Table 3.3-2). The proposed project study area includes designated EFH for two fishery management plans (FMP), the Coastal Pelagics and Pacific Groundfish FMPs (NMFS 1997). Four of the five species in the Coastal Pelagics FMP are well represented in the proposed project study area. In particular, the northern anchovy is the most abundant species in Los Angeles Harbor, representing over 80% of the fish caught (SAIC 2010), and larvae of the species are also a common component of the ichthyoplankton (SAIC 2010). It is generally held that this species spawns outside the harbor and that the young are carried into the harbor by currents. There is a commercial bait fishery for northern anchovy in the Outer Harbor. The Pacific sardine is currently one of the most common species in the harbor, ranking in the top ten in abundance in the 2008 survey (SAIC 2010). This species is not known to spawn in the harbor. Sardines are also a component of the commercial bait fish harvest in the harbor. Both sardines and northern anchovies are important forage for piscivorous fish. The two other coastal pelagic species, the Pacific and jack mackerel, are common but not abundant as adults in the harbor.

Of the species in the Pacific Groundfish FMP, only four—olive rockfish, vermilion rockfish, California skate, and scorpionfish—can be considered common in the harbor. Olive rockfish have been found largely as juveniles associated with the kelp growing along the inner edge of the Federal Breakwater (MEC 1988). No olive rockfish were caught in bottom or midwater trawls in the 2008 surveys (SAIC 2010), probably because the nets used do not sample olive rockfish habitat effectively. A total of 20 vermilion rockfish were caught in bottom trawls during the 2008 survey, most of them at night, which indicates that the species is not uncommon in the harbor. A total of 23 California skate were captured in the 2008 survey, but in previous surveys they have been uncommon. Scorpionfish is not a major component of the fish community in the harbor (only 11 were caught in the 2008 survey) but is likely to be under-represented in the normal catch due to its nocturnal habits. Diver surveys of local rocky outcrops at night have observed large numbers of scorpionfish in areas where they were not caught in nets or observed during the day (MEC 1991).

Table 3.3-2. MSA-Managed Species Occurring in the Port of Los Angeles and Port of Long Beach Harbors

Common Name	*Species*	*Potential Essential Fish Habitat in Study Area*	*Abundance*
Pelagic Species (Coastal Pelagics)			
Northern anchovy	*Engraulis mordax*	Open water throughout.	Abundant throughout harbor in 2000, 2008.[1, 5]
Pacific sardine	*Sardinops sagax*	Open water throughout.	Abundant throughout harbor in 2000, 2008.[1, 5]
Pacific (chub) mackerel	*Scomber japonicus*	Open water, primarily in Outer Harbor; juveniles off of sandy beaches and around kelp beds.	Common throughout harbor in 2000, only one locale in 2008.[1, 5]
Jack mackerel	*Trachurus symmetricus*	Near breakwater and Inner to Middle Harbor. Young fish over shallow	Common in Inner to Middle Harbor, uncommon in Outer

Common Name	*Species*	*Potential Essential Fish Habitat in Study Area*	*Abundance*
		rocky banks. Young juveniles sometimes school under kelp. Older fish typically further offshore.	Harbor in 2000, common in 2008.[1, 5]
Demersal (Bottom) Species (Pacific Groundfish)			
English sole	*Parophrys vetulus*	On bottom throughout. Benthic dwelling on sand or silt substrate.	Uncommon in 2000;[1] 24 collected in Outer Harbor in 2008.[5]
Pacific sanddab	*Citharichthys sordidus*	Primarily Outer Harbor. Benthic on sand or coarser substrate.	Rare in 2000;[1] common in Outer Harbor in 2008.[5]
Leopard shark	*Triakis semifasciata*	Primarily in Outer Harbor. Over sandy areas near eelgrass, kelp, or jetty areas.	Rare; 3collected in 2000,[1] none in 2008.[5]
Big skate	*Raja binoculata*	Primarily in Outer Harbor. Over variety of substrates generally at > 3-meter depth.	Uncommon; primarily in shallow water; none caught in 2008.[5]
Black rockfish	*Sebastes melanops*	Primarily Cabrillo shallow-water habitat. Along breakwater and deep piers and pilings. Associated with kelp, pilings, eelgrass, high-relief rock.	Rare; 4 collected in deep Inner and Middle Harbor waters in 2000,[1] none in 2008.[5]
California scorpionfish	*Scorpaena gutatta*	Rock dikes and breakwaters.	Common on rock dikes and breakwaters, also on soft bottom at night.[1–5]
Grass rockfish	*Sebastes rastrelliger*	Along breakwater and in eelgrass off of beach areas. Associated with kelp, eelgrass, jetty rocks.	Rare; 3 collected in 2000,[1] none in 2008,[5]
Vermilion rockfish	*Sebastes miniatus*	Primarily along breakwater. Typically near bottom and associated with kelp, along drop offs, and over hard bottom.	Common more recently: four collected in 2000,[1] 20 in 2008.[5]
Cabezon	*Scoraenichthys marmoratus*	Primarily shallow waters, along breakwater and eelgrass areas. Benthic and use a variety of substrates including kelp beds, jetties, rocky bottoms, and occasionally eelgrass beds and sandy bottoms.	Rare; shallow water.[1] None collected in 2008.[5]
Ling cod	*Ophiodon elongatus*	Primarily along breakwater and especially near Angels Gate. Typically on or near bottom over soft substrate near current-swept reefs.	Rare; shallow water.[1] None collected in 2008.[5]
Bocaccio	*Sebastes paucispinis*	Typically found in deeper water near hard substrate, kelp, and algae.	Uncommon; juveniles in kelp around breakwater.[2]
Kelp rockfish	*Sebastes atrovirens*	Found in association with kelp along the breakwaters.	Rare; in kelp along breakwater.[2]
Olive rockfish	*Sebastes serranoides*	Found in association with kelp along the breakwaters.	Common to uncommon; juveniles in kelp around

Common Name	*Species*	*Potential Essential Fish Habitat in Study Area*	*Abundance*
			breakwater.[2]
Calico rockfish	*Sebastes dalli*	Typically found in deeper water near hard substrate, kelp, and algae.	Rare; one collected in Long Beach Harbor,[4] shallow water.[1]
California skate	*Raja inornata*	Usually associated with hard substrate. Found along breakwater and deep piers and pilings. Associated with kelp, pilings, eelgrass, and high-relief rock.	Common; Primarily in Outer Harbor.[1, 5]

Notes:
Potential habitat use from McCain et al. 2005. Species occurrence in Los Angeles and/or Long Beach Harbors recorded from MEC Analytical Systems and SAIC studies.

Abundant: among 10 most abundant species collected.
Common: not one of the 10 most abundant, but at least 100 individuals collected.
Uncommon: between 10 and 100 individuals collected.
Rare: less than 10 individuals collected.
Pelagic and benthic sampling employed in the 2000 surveys (MEC 2002) did not sample rocky breakwater and kelp habitat that could potentially be occupied by some of the species.

Sources:
[1] MEC et al. 2002
[2] MEC 1999
[3] MEC 1988
[4] SAIC and MEC 1997
[5] SAIC 2010

3.3.2.10 Special Aquatic Habitats

3.3.2.10.1 Eelgrass Beds

Eelgrass beds are present in two areas of the harbor: near Cabrillo Beach and in the shallow waters east of Pier 300 (SAIC 2010). Only the Cabrillo Beach beds are in the general vicinity of the proposed project study area, lying approximately 0.7 mile southwest of the proposed project study area. Eelgrass is an important component of estuarine ecosystems and is considered a special aquatic site under the CWA (40 CFR 230). It provides food and habitat for many birds, fish, and invertebrates, and serves as habitat structure for other primary producers such as diatoms and algae. Eelgrass distribution is limited to nearshore areas with sand and silt bottom as a substrate, limited wave exposure, relatively low current velocities, and adequate light (Thom et al. 1998; Greve and Krause-Kensen 2005).

At Cabrillo Beach, eelgrass coverage has varied seasonally and from year to year between 25 acres (in 1996) to 54 acres (in 1999, SAIC 2010); during the September 2008 survey SAIC (2010) measured 38 acres of eelgrass. Eelgrass beds typically contract in size during the winter as they go into dormancy, but some area of the eelgrass beds is expected to be present throughout all seasons. For that reason, the Southern California Eelgrass Mitigation Policy does not certify eelgrass surveys

conducted between October and March (NMFS 1991). No eelgrass beds are present in the East Channel, the Main Channel, or in Fish Harbor in the vicinity of the proposed project components, probably because the water depths are too great and the sediments insufficiently sandy.

3.3.2.10.2 Kelp Beds

Giant kelp (*Macrocystis pyrifera*) is a characteristic plant of the open coast, occurring in large beds that form a distinct habitat referred to as kelp forest. Kelp was first introduced to the harbors in the early 1980s as transplants to the San Pedro (Federal) Breakwater. The transplant was sufficiently successful that a study several years later (MEC 1988) documented a thriving kelp community on the breakwater. Kelp spread rapidly throughout the LA/LB Harbors, as documented by subsequent baseline and focused studies (e.g., MEC et al. 2002; MBC 2007; SAIC 2010).

In Los Angeles Harbor, kelp occurs along riprap throughout the Outer Harbor, forming linear forests that covered between 50 and 78 acres (depending on the season) in the 2008 study (SAIC 2010) and between 14 and 25 acres in the 2000 study (MEC et al. 2002). In the proposed project study area, there is an extensive, moderately dense bed of giant kelp just south of the entrance to Fish Harbor, and giant kelp grows along the riprap from Berth 66 to Berth 71, a distance of approximately 2,700 feet. The bed can be assumed to be approximately 100 feet wide, given the water depth (40 to 50 feet) and the slope of the riprap. Accordingly, there is likely to be approximately six acres of kelp within the Main Channel adjacent to the proposed project study area. In addition, small patches of kelp occur off the southern tip of City Dock No.1, adjacent to Berth 60. No kelp was observed either in Fish Harbor itself (it is likely that water clarity and circulation are inadequate to support giant kelp), or in the East Channel slip adjacent to the proposed project site.

Giant kelp supports a rich community of fish, invertebrates, and other large algae, such as *Egregia*. A focused study of the kelp forest on the San Pedro Breakwater in 1986–1987 (MEC 1988) found it to be highly productive, with production rates up to twice as high as those documented for other coastal kelp forests. The authors attributed the high productivity to the high frond density permitted by the sheltered waters of the harbor and the steep configuration of the forest, which reduced self-shading. Much of that production is consumed by the fish and invertebrates that live on and near the kelp, with the rest drifting out into the harbor to feed benthic invertebrates. The study found 28 species of fish in the kelp forest. As described in Section 3.3.2.5.2, the most abundant were, in order, blacksmith, pile surfperch, and black surfperch.

3.3.2.10.3 Depleted Natural Communities

A *natural community* is an assemblage of populations of different species, interacting with one another. The CNDDB tracks the occurrence of what CDFG terms natural communities that are "considered rare and worthy of consideration by CNDDB" (CDFG 2008). Three types of depleted natural communities exist within the harbor: mudflat, coastal freshwater marsh, and southern coastal salt marsh. These three community types are considered depleted natural communities with respect to

number and extent, as well as value for habitat. In addition, mudflats are regulated under the CWA as special aquatic sites (40 CFR 230). Coastal freshwater marsh and southern coastal salt marsh are considered wetlands, and are therefore, also regulated as special aquatic sites. None of these habitat types exists in or near the proposed project study area.

3.3.2.11 Wildlife Movement Corridors

Corridors provide specific opportunities for individual animals to disperse or migrate among other areas. These other areas may be very extensive but otherwise partially or wholly separated regions. Appropriate cover, minimum physical dimensions, and tolerably low levels of disturbance and mortality risk (e.g., limited night lighting and noise, low vehicular traffic levels) are common requirements for corridors. Resources and conditions in corridors may be quite different than in the connected areas, but if used by the wildlife species of interest, the corridor would still function as desired. Corridors adequate for one species may be quite inadequate for others. In evaluating corridors, it is important to consider the biology of those species to be addressed (Beier and Loe 1992).

The proposed project study area occurs at the edge of dense urban development and open water and no natural terrestrial corridors (topographic or habitat pathways) transect the proposed project study area. The harbor does not provide opportunities for terrestrial wildlife movement because of existing development. However, some marine fish species move into and out of the harbor for spawning or for nursery areas. Marine mammals, such as the gray whale, migrate along the coast, and migratory birds are visitors to the Port. As a part of the harbor area, the proposed project study area also allows movement of migratory birds.

3.3.2.12 Invasive/Non-Native Species

An *invasive species* is defined as a species (1) that is nonnative (or nonindigenous) to the ecosystem under consideration and (2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Invasive species can be plants, animals, and other organisms (e.g., microbes). Human actions are the primary means of invasive species introductions. At this time, no official list of invasive species exists for the state of California, although CDFG and the Invasive Species Council of California (ISCC) have undertaken cataloguing efforts. Currently, the most useful guide is the list compiled by the California Invasive Species Advisory Committee (CISAC, www.iscc.ca.gov/cisac.html), a consortium of California governmental agencies. That list is an ongoing project, and is thus necessarily incomplete, but it represents the best catalogue of potentially invasive non-indigenous species in the state. The terms “invasive” and “non-native” or “non-indigenous” are sometimes used more or less interchangeably in the CISAC list and the lists compiled by other entities such as CDFG because the status of many species on those lists, including for some whether they are even non-native, is uncertain. Thus, a species’ appearance on the CISAC list does not necessarily mean that it would be considered “invasive.” It is important to recognize that many non-indigenous species, including most of the species mentioned below, appear not to be

causing substantial environmental or economic harm, and thus would not, strictly speaking, be considered "invasive." Conversely, the absence of a non-native species does not mean that it is not invasive; many of the marine invertebrate species in the LA-LB Harbor complex that were identified by SAIC (2010) as non-native are not on the CISAC list, which is more complete for terrestrial and freshwater species than for marine species.

3.3.2.12.1 Terrestrial

Based on field surveys of the harbor area (LAHD 2009), a total of nine non-native plant species, all of them listed by CISAC, could occur in portions of the proposed project study area: crystal ice plant, wild fennel, tocalote, black mustard, Australian saltbush, castor-bean, giant reed, pampas grass, and Spanish broom. These species are relatively common in the remaining vacant lands in the harbor, and any could occur in the vacant lot at 22nd Street and Sampson Way.

3.3.2.12.2 Marine

Biological baseline monitoring (e.g., MEC et al. 2002; SAIC 2010) has shown that nonindigenous species have become well-established in the harbor's marine communities. In surveys conducted in 2000, a total of approximately 46 nonindigenous species were present in the harbor (MEC et al. 2002). Those studies concluded that approximately 30% of the benthic infaunal species, including several of the dominant invertebrate species (e.g., the polychaete worm *Pseudopolydora paucibranchiata* and the bivalve mollusc *Theora lubrica*), were nonindigenous. The Japanese oyster (*Crassostrea gigas*) and several species of mussels, including the dominant mussel on harbor riprap (*Mytilus galloprovincialis*), are non-native species that have been established so long that few would be recognized as alien to southern California. A 2008 survey (SAIC 2010) found one nonindigenous fish species (yellowfin goby, *Acanthogobius flavimanus*), up to 54 nonindigenous benthic invertebrate species (including one of the dominants, the polychaete *Pseudopolydora paucibranchiata*), and two kelp species (*Sargassum muticum* and *Undaria pinnatifida*). The presence of these species undoubtedly has an impact on the interactions of the species in the harbor environment, but it is not possible to state definitively what that effect actually is. The CISAC list identifies the two kelp species, the mussel *M. galloprovincialis*, and two other mollusks, but does not include the yellowfin goby or any of the other non-indigenous invertebrates.

Another species of great concern is *Caulerpa* (*Caulerpa taxifolia*); it is an invasive, nonnative green macro-alga that grows rapidly from small fragments, outcompetes native species, and carpets the bottom of affected areas. *Caulerpa* infestations are thought to originate from aquarium specimens released into the natural environment (NMFS 2003). *Caulerpa* infestations can alter benthic habitat and cause serious adverse effects on nearshore marine ecosystems. This species has been observed in two locations in California (Agua Hedionda Lagoon in northern San Diego County, and Huntington Harbor, Orange County [NMFS and CDFG 2007]). Since the 1980s, *Caulerpa* infestations in the Mediterranean Sea have expanded to cover large areas and may now be too widespread to eradicate. In California, *Caulerpa* distribution has been localized, and has been successfully eradicated from Agua Hedionda

Lagoon in northern San Diego County and from Huntington Beach Harbor in Orange County (Paznokas pers. comm.). Therefore, NMFS and CDFG have established *Caulerpa* control protocols for the detection and eradication of this alga from California waters (NMFS and CDFG 2007). Bays, inlets, and harbors between Morro Bay and the U.S./Mexico border are potential habitat and need to be surveyed for *Caulerpa* presence prior to potentially disturbing activities such as dredging in order to ensure that no *Caulerpa* is present. *Caulerpa* has not been observed in Los Angeles Harbor (SAIC 2010) despite more than 30 surveys conducted since 2001 (SCCAT 2008).

3.3.2.13 Significant Ecological Areas

Significant ecological areas (SEAs) were established in 1976 by Los Angeles County to designate areas with sensitive environmental conditions and/or resources. The County developed the concept in conjunction with adoption of the original general plan; therefore, SEAs are defined and delineated in conjunction with the Land Use and Open Space Elements for the Los Angeles County General Plan. The Los Angeles County Department of Regional Planning updated the SEA portion of the general plan in 2009 (County of Los Angeles 2009).

An area of Terminal Island is designated as SEA-33 in the County of Los Angeles 2009 SEA update because of California least tern nesting (see Section 3.3.2.8.2), but that designation is out of date because the current nesting site, a 15-acre area on Pier 400 maintained by LAHD, is about a mile south of the SEA-designated area, and terns no longer use the area designated as SEA-33. The Pier 400 site, which is approximately 1 mile from both proposed project study area sites, is protected by fencing and is designated a "no-trespassing" area during the nesting season.

3.3.3 Applicable Regulations

This section provides summary background information regarding the applicable regulations for protecting biological resources.

3.3.3.1 Federal Clean Water Act

The federal CWA's purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges of dredged or fill material into waters of the United States are regulated under Section 404 of the CWA. Waters of the United States include: (1) all navigable waters (including all waters subject to the ebb and flow of the tide and/or that are, were, or may be susceptible to interstate or foreign commerce); (2) all interstate waters and wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, or natural ponds, which could affect interstate or foreign commerce; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters above. For projects requiring a standard individual permit to authorize discharges of dredged or fill material into waters of the United States, a Section 404(b)(1) alternatives analysis must be conducted (40 CFR 230). This analysis

includes consideration of impacts on six special aquatic sites (i.e., sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes). Of these six types, only vegetated shallows occur in the proposed project study area.

3.3.3.2 Rivers and Harbors Appropriations Act of 1899

The Rivers and Harbors Appropriation Act of 1899 (RHA) (33 USC 403), commonly known as the Rivers and Harbors Act, prohibits construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. Under Section 10 of the RHA, USACE is authorized to permit structures or work in navigable waters. The construction of wharfs, piers, jetties, and other structures in or over the waters of the Port requires Section 10 permits. When reviewing applications for Section 10 permits, the USACE reviews proposals for consistency with maintaining established navigation channels.

3.3.3.3 Federal Endangered Species Act

The ESA protects plants and wildlife that are listed by USFWS and NMFS as endangered or threatened. Section 9 of the ESA prohibits the taking of endangered wildlife, where *taking* is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging-up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law. Under Section 7 of ESA, federal agencies are required to consult with USFWS or NMFS, as applicable, if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, USFWS or NMFS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity provided the action would not jeopardize the continued existence of the species. In cases where the federal agency determines its action may affect, but would be unlikely to adversely affect, a federally listed species, the agency informally consults with USFWS and/or NMFS. This informal consultation typically involves incorporating measures intended to ensure effects would not be adverse, and concurrence from USFWS and/or NMFS concludes the informal process. Without concurrence, the federal agency formally consults to ensure full compliance with the ESA.

3.3.3.4 Federal Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation Act as revised by Public Law (PL) 104-267, the Sustainable Fisheries Act, requires fisheries management councils to describe EFH for fisheries managed under the this law and requires federal agencies to consult with NMFS on actions that may adversely affect EFH. *Essential fish habitat* is defined as those waters and substrate necessary to fish for spawning,

breeding, feeding, or growth to maturity. Managed fisheries and fish species are described in Section 3.3.2.9, above.

3.3.3.5 Federal Marine Mammal Protection Act of 1972

The MMPA prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S. Congress passed the MMPA based on the following findings and policies: (1) some marine mammal species or stocks may be in danger of extinction or depletion as a result of human activities; (2) these species of stocks must not be permitted to fall below their optimum sustainable population level (depleted); (3) measures should be taken to replenish these species or stocks; (4) there is inadequate knowledge of the ecology and population dynamics; and (5) marine mammals have proven to be resources of great international significance.

The MMPA was amended substantially in 1994 to provide for: (1) certain exceptions to the take prohibitions, such as for Alaska Native subsistence and permits and authorizations for scientific research; (2) a program to authorize and control the taking of marine mammals incidental to commercial fishing operations; (3) preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; and (4) studies of pinniped-fishery interactions. NMFS and USFWS administer this act. Species found in the harbor are under the jurisdiction of NMFS.

3.3.3.6 Executive Order 13112

On February 3, 1999, Executive Order 13112 was signed establishing the National Invasive Species Council. The Executive Order requires that a council of departments dealing with invasive species be created. Currently there are 12 departments and agencies on the council. The constitution and the laws of the U.S., including the National Environmental Policy Act (NEPA), as amended (42 USC 4321 et seq.); Non-Indigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 USC 4701 et seq.); Lacey Act, as amended (18 USC 42); Federal Plant Pest Act (7 USC 150aa et seq.); Federal Noxious Weed Act of 1974, as amended (7 USC 2801 et seq.); ESA, as amended (16 USC 1531 et seq.); and other pertinent statutes, are to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

Each federal agency whose actions may affect the status of invasive species will, to the extent practicable and permitted by law:

1. identify such actions;
2. subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to (a) prevent the introduction of invasive species; (b) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (c) monitor invasive species populations accurately and reliably; (d) provide for restoration of

native species and habitat conditions in ecosystems that have been invaded; (e) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (f) promote public education on invasive species and the means to address them; and

3. not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

3.3.3.7 Migratory Bird Treaty Act and State Fish and Game Code (Sections 3503.5 and 3800)

Most bird species found within the vicinity of the proposed project study area are protected under the MBTA of 1918 (16 USC 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Sections 3503, 3503.5, and 3800 of the California Fish and Game Code similarly prohibit the take, possession, or destruction of native birds, their nests, or eggs. MBTA effectively requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (February 1 through August 31, annually). Disturbance that causes nest abandonment or loss of reproductive effort (e.g., killing or abandonment of eggs or young) is considered "take" and is potentially punishable by fines and/or imprisonment.

3.3.3.8 California Coastal Act

The California Coastal Act of 1976 recognizes the Port of Los Angeles, as well as other California ports, as primary economic and coastal resources and as essential elements of the national maritime industry. Decisions to undertake specific development projects, where feasible, are to be based on consideration of alternative locations and designs in order to minimize any adverse environmental impacts.

Under the California Coastal Act, water areas may be diked, filled, or dredged when consistent with a certified port master plan only for specific purposes, including the following:

- construction, deepening, widening, lengthening, or maintenance of ship channel approaches, ship channels, turning basins, berthing areas, and facilities that are required for the safety and the accommodation of commerce and vessels to be served by port facilities; and
- new or expanded facilities or waterfront land for port-related facilities.

The water area proposed to be filled is to be the minimum necessary to achieve the purpose of the fill, while minimizing harmful effects on coastal resources, such as water quality, fish or wildlife resources, recreational resources, or sand transport systems, and minimizing reductions of the volume, surface area, or circulation of water.

The act also encourages the protection and expansion of facilities for the commercial fishing industry, water-oriented recreation, and recreational boating interests. Marine resources are to be maintained, enhanced, and where feasible, restored. The biological productivity and the quality of coastal waters appropriate to maintain optimum populations of marine organisms and for the protection of human health are to be maintained. Protection against the spillage of hazardous substances and effective containment and cleanup facilities and procedures are to be provided.

Under the California Coastal Act, LAHD has had to develop a PMP for CCC certification that addresses environmental, recreational, economic, and cargo-related concerns of the Port and surrounding regions. The proposed action would necessitate amendments of the Los Angeles PMP and a Coastal Development Permit from the CCC, which would include a federal consistency determination.

3.3.3.9 Coastal Zone Management Act

Section 307 of the Coastal Zone Management Act requires that all federal agencies with activities directly affecting the coastal zone, or with development projects within that zone, comply with the state coastal acts (in this case, the California Coastal Act of 1976) to ensure that those activities or projects are consistent to the maximum extent practicable. The CCC review for the Coastal Development Permit (mentioned above) would include a federal consistency determination.

3.3.3.10 California Fish and Game Code (Section 1602)

Under Fish and Game Code Section 1602, CDFG has authority to regulate work that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all non-federal projects.

A *stream* is defined in current CDFG regulations as, “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation.”

Water features such as vernal pools and other seasonal swales, where the defined bed and bank are absent and the feature is not contiguous or closely adjacent to other jurisdictional features, are generally not asserted to fall within state jurisdiction. The state generally does not assert jurisdiction over anthropogenic water bodies unless

they are located where such natural features were previously located or (importantly) where they are contiguous with existing or prior natural jurisdictional areas.

3.3.3.11 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Section 2050 et seq.) provides for the protection of rare, threatened, and endangered plants and animals, as recognized by CDFG, and prohibits the taking of such species without authorization by CDFG under Section 2081 of the Fish and Game Code. State lead agencies must consult with CDFG during the CEQA process if state-listed threatened or endangered species are present and could be affected by the proposed Project. For projects that could affect species that are both state and federally listed, compliance with the federal ESA will satisfy CESA if CDFG determines that the federal incidental take authorization is consistent with CESA under Fish and Game Code Section 2080.1.

3.3.3.12 Ballast Water Management for Control of Non-Indigenous Species

The Non-Indigenous Species Act of 1990 (PL 101-646) identified ballast water as a significant environmental issue. In 1996, the act was reauthorized (PL 104-332) and the Secretary of Transportation was directed to develop national guidelines to prevent the spread and introduction of nonindigenous aquatic species through the ballast water of commercial vessels. Subsequently, the International Maritime Organization developed Guidelines for the Control and Management of Ship's Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens (International Maritime Organization (IMO) Resolution A.868 (20), which was adopted November 1997). In 2004, the U.S. Coast Guard published requirements for mandatory ballast water management practices for all vessels equipped with ballast water tanks bound for ports or places within the U.S. or entering U.S. waters (69 Federal Register 44952–44961).

California PRC Section 71200 et seq. requires ballast water management practices for all vessels, domestic and foreign, carrying ballast water into waters of the state after operating outside the Exclusive Economic Zone (EEZ). Specifically, the regulation prohibits ships from discharging ballast water within harbor waters unless they have performed an exchange outside the EEZ in deep, open ocean waters. Alternatively, ships may retain water while in port, discharge to an approved reception facility, or implement other similar protective measures. Each ship must also develop a ballast water management plan to minimize the amount of ballast water discharged in the harbor. The act also requires an analysis of other vectors for release of nonnative species from vessels.

Rules for vessels originating within the Pacific Coast region took effect in March 2006. Ships must now exchange ballast water on coast-wise voyages. Regulations currently under consideration for future years (2009–2022) will require phase-in of ballast water treatment performance standards, first for newly constructed ships and then for existing ships. An important distinction between the federal ballast water

guidelines and those specified in the California code is that the California code mandates certain best management practices for managing ballast water to reduce introductions of nonindigenous species.

3.3.3.13 State Authority under the Federal Clean Water Act, Sections 401 and 402

Through the authority of SWRCB as handled by the various RWQCBs, the state administers requirements and permitting under Sections 401 and 402 of the federal CWA through agreement with the EPA. If an activity may result in the discharge of dredge or fill material into a waterbody, the 401 process is triggered and state water quality certification (or waiver of certification) that the proposed activity will not violate state water quality standards is required.

In addition to Section 401 requirements, some projects will be subject to compliance with Section 402 of the CWA in accordance with the NPDES. The process for compliance with this provision is normally perfunctory with notification and fee payment under the State General Permit for Construction Period discharges. However, construction activity must conform to best management practices in accordance with a written Stormwater Pollution Prevention Plan (SWPPP), which may be subject to City of Los Angeles review prior to issuance of grading permits.

Dischargers whose construction projects disturb one or more acres of soil, or whose project disturbs less than one acre but is part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit 99-08-DWQ). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The construction general permit requires the development and implementation of a SWPPP. Section A of the construction general permit describes the elements that must be contained in a SWPPP.

3.3.3.14 California Fully Protected Species

The state of California first began to designate species as fully protected prior to the creation of the CESA and the ESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, mammals, amphibians and reptiles, and birds. Most fully protected species have since been listed as threatened or endangered under CESA and/or ESA. The regulations that implement the Fully Protected Species Statute (Fish and Game Code Section 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFG prohibits any state agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

3.3.3.15 Porter-Cologne Water Quality Act

The State of California's Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.) is the principal law governing water quality regulation within California. The act established the California SWRCB and nine RWQCBs, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The Porter-Cologne Act also implements many provisions of the federal CWA, such as the NPDES permitting program. CWA Section 401 gives the California SWRCB the authority to review any proposed federally permitted or federally licensed activity that may impact water quality and to certify, condition, or deny the activity if it does not comply with state water quality standards. If the California SWRCB imposes a condition on its certification, those conditions must be included in the federal permit or license. The Porter-Cologne Act also requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state.

3.3.4 Impact Analysis

3.3.4.1 Methodology

3.3.4.1.1 Analytical Framework

Impacts on species, communities, and habitats expected to occur as a result of proposed project implementation were identified by examining the proposed project description in view of the existing biological setting as described in Section 3.3.2.

Impacts on biota were assessed in two ways. The first estimated the amount of habitat that would be gained, lost, or disturbed by the proposed Project. The second approach considered whether the proposed Project would have adverse effects on specific resources such as EFH or individual special-status species. Mitigation for impacts on marine biological resources has been developed by LAHD in coordination with NMFS, USFWS, and CDFG through agreed-upon mitigation policies (City of Los Angeles et al. 1984, 1997). For habitat losses these policies define the value of different habitats within the harbor relative to a system of mitigation credits accrued by creating or enhancing habitat in the harbor and at offsite locations. The current mitigation policy is "No net loss of in-kind habitat value, where 'in-kind' refers to coastal, marine, tidally-influenced habitat with value to fish and birds" (USACE and LAHD 1992). For significant impacts on specific biological resources, mitigation is developed on the basis of resource agency policies.

3.3.4.2 Thresholds of Significance

Thresholds of significance for biota and habitats are based on the *L.A. CEQA Thresholds Guide* (City of Los Angeles 2006). The guide does not specifically address marine habitats within the harbor; therefore, LAHD has developed harbor-specific significance criteria for adverse effects on biological habitats. These criteria

are consistent with the L.A. CEQA thresholds and Appendix G of CEQA Guidelines. A significant impact on biota or habitats in the proposed project study area would occur if the proposed Project results in the following:

BIO-1: The loss of individuals, or the reduction of existing habitat, of a state- or federally listed endangered, threatened, rare, protected, or candidate species, or a species of special concern, or the loss of federally listed critical habitat.

BIO-2: A substantial reduction or alteration of a state-, federally, or locally designated natural habitat, special aquatic site, or plant community, including wetlands.

BIO-3: Interference with wildlife movement/migration corridors that may diminish the chances for long-term survival of a species.

BIO-4: A substantial disruption of local biological communities (e.g., from construction impacts or the introduction of noise, light, or invasive species).

BIO-5: A permanent loss of marine habitat.

The Initial Study determined that for three other thresholds of significance located in Appendix G of the State CEQA Guidelines the proposed Project would have no impact. Accordingly, those criteria are not discussed in this document. Those thresholds are:

- Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

3.3.4.3 Impacts and Mitigation

3.3.4.3.1 Construction Impacts

Impact BIO-1a: Construction of the proposed Project would cause the loss of individuals, or the reduction of existing habitat, of a state- or federally listed endangered, threatened, rare, protected, or candidate species, or a species of special concern, or the loss of federally listed critical habitat.

The proposed Project would include the rehabilitation of the existing wharf structure at Berths 58–60, the installation of 18,500 square feet of floating docks for small research craft in the East Channel, and minor rehabilitation of wharf facilities at Berths 70–71. New steel and concrete piles would be installed as part of the rehabilitation of the Berths 58–60 wharfs, and a small number of concrete piles would be installed for the floating dock facility and, possibly, for the intake/discharge structures. The steel piles would be driven through the existing wharf deck and rock slope into the harbor bottom by both landside (truck-mounted) and waterborne (barge-mounted) equipment. Some existing concrete piles under the wharf structure and along the wharf face are likely to be cut at the mudline during the rehabilitation.

Two options for the steel piles, which are necessary for the seismic retrofit, are being considered. The first would install 127 72-inch diameter concrete piles 20 feet apart underneath the waterside edge of the existing building (which is over the water), and the second would install 252 60-inch diameter piles in groups of four along the landward edge of the seawall. The first option has the greatest potential for adversely affecting the aquatic environment, and therefore is assumed for this evaluation. While these piles would likely be installed with land-based pile driving equipment, some in-water support vessels (i.e., barges) would likely be needed.

A seawater intake would be constructed at the south end of Berth 60, along the Main Channel (see Chapter 2, "Project Description," for details of the intake system). The discharge point location would be at Berth 60 along the East Channel (north of the intake). A second intake, for the wave tank, may be constructed at Berth 70–71. Construction of the intake and discharge structures could involve some pile driving and the placement of small amounts of concrete and piping. No other in-water work (e.g., dredging, rock placement) is proposed.

On land, construction activities would include: demolition of existing improvements (mostly at the Fish Harbor site), including office buildings and pavement; rehabilitation and reconstruction of existing buildings; and construction of new buildings, pavement, and utilities (including a circulating seawater system and upgrades to the sanitary sewer system).

Terrestrial Wildlife

Demolition of existing landside facilities and construction of new facilities would displace terrestrial biological resources and could destroy some resources. Individual

plants would be destroyed and terrestrial animals would be either destroyed or forced to relocate. In no case would construction cause losses of substantial numbers of individuals or substantial reductions in natural habitat, because few individuals, except birds, utilize the proposed project study area and there are few natural plant species and no natural habitat present.

Marine Mammals

Construction would produce localized turbidity at the site of pile driving and removal and intake structure installation. The piles would be driven through existing rock dikes and would not, therefore, remove any soft-bottom habitat. The piles themselves would be rapidly colonized by hard-surface biota. Accordingly, construction would not result in long-term adverse effects on marine habitats, including benthic habitats and special aquatic sites.

The principal construction-phase disturbance to marine biological resources in the proposed project study area would be pile driving at the City Dock No. 1 location. The primary method of driving piles would be hydraulic impact hammer driving. The sound pressure waves[1] produced by pile driving could disturb or injure marine mammals (specifically sea lions and harbor seals) swimming in the Outer Harbor and East Channel. Such acoustic exposures could result in a temporary or permanent loss of hearing (termed a temporary or permanent threshold shift) depending upon the location of the marine mammal in relation to the source of the sound.

Installing 72-inch-diameter steel piles with an impact hammer pile driver can generate 210 dB_{peak} or 195 dB_{rms} (re: 1 µPa, measured 33 feet from the pile) at the full force of the pile driver (Caltrans 2001; WSDOT 2011). Accordingly, pile-driving noise could, if uncontrolled, exceed the Level A harassment (potential to injure) level of 180 dB_{rms} (re 1 µPa) and the Level B harassment (disturbance threshold) level of 160 dB_{rms} for marine mammals (Federal Register 2005). Observations of marine mammals during the driving of similarly large piles for the San Francisco–Oakland Bay Bridge East Span seismic safety project (Caltrans 2002) found that sound levels dropped below the thresholds within approximately 300 meters of the pile driving site. The noise levels and distances would be less for concrete piles that may be needed for the intake/discharge and wharf rehabilitation because those piles would be much smaller than 72 inches, and thus driven with less force. Underwater noise levels associated with all other construction activities would be below Level A harassment level of 180 dB_{rms} (re 1 µPa) for marine mammals.

Marine wildlife is anticipated to move quickly away from areas where noise generated by pile driving may reach levels that cause disturbance or injury. Observations of marine mammals during the Bay Bridge project confirmed that sea lions actively avoided the area of pile driving (although harbor seals did not seem to

[1] Underwater sound is produced by pressure waves in the water. Pressure wave measurements are converted to sound pressure levels, which are expressed as a statistical function (root mean square, or rms) in decibels (dB) above the reference sound pressure of one micropascal (1 µPa). A pascal is standard unit of pressure defined as 1 newton per square meter, analogous to pounds per square inch. Because of the close correlation between pressure levels and distance from the source, it is customary to use a standard distance, typically 33 feet in marine environments (Morfey 2001).

be affected). Thus, sea lions and harbor seals would be able to move away from areas where sound pressure waves could adversely affect them. Further, prior to initiating pile driving with an impact hammer, a "soft start" technique with the pile driver would be employed, as requirements of the LAHD's construction permit and the contractor's contract with LAHD, in order to minimize potential harm to marine wildlife and provide them with an opportunity to move from areas where pile driving activities are occurring. The "soft start" technique requires that the initial strikes of a piling are performed at a significantly reduced impact force to start the pile penetration (beginning at 40–60% of full force) and slowly build to full force over several strikes, the strikes being closely spaced in time. The reduced force at the start of impact pile driving provides an incentive and opportunity for animals in the vicinity of pile driving activities to move away before full-force driving begins, thus limiting adverse effects and potential injury. However, adverse effects would still likely occur if sea lions and harbor seals remain in the area after full-force strikes begin. Other marine mammals (e.g., whales and dolphins) and sea turtles are unlikely to be present as few have been observed in the Outer Harbor areas (MEC et al. 2002, SAIC 2010). Any such animals present during construction would likely avoid the disturbance areas and thus would not be injured. No other protected or sensitive marine mammal species normally occur in the proposed project area.

Furthermore, while underwater sound pressure waves radiate in all directions from a pile driving location, the land masses on three sides of the East Channel would block the transmission of these pressure waves except southward out of the entrance to the channel. As a result, the area affected by the increased underwater sound pressure levels would be largely restricted to the East Channel, which would substantially limit the potential to affect marine mammal populations in the area. The primary exception would be the installation of any piles for the seawater intake, which would occur just off the tip of City Dock No. 1. Underwater sound pressures generated at this location would affect species over much of the outer harbor area, but because, as described above, noise levels would be much lower than with steel piles and the number of piles would be limited to a few, it is unlikely that marine mammals would be adversely affected.

California sea lions and harbor seals using the proposed project study area could also be affected by waterborne construction activities other than pile driving, such as intake construction, wharf reconstruction, and floating dock installation. Both species are accustomed to human presence, however, including in-water construction and the industrial activities of the harbor. Accordingly, construction of the proposed Project could cause the animals to relocate to nearby areas, where there would be adequate food and places to rest, but would not be expected to result in take or other injury.

Managed Fish Species

As with marine mammals, underwater sound pressure from pile driving has the potential to disturb or injure adult and juvenile fish species. Fish are less likely to move away from areas affected by noise than are marine mammals, and are therefore more likely to be affected (NMFS 2003, 2004). The level of effect is influenced by a variety of factors, including species, size of fish (smaller fish are affected more), physical condition, number of pile strikes, the shape of the sound wave, water depth,

location of fish in the water column, amount of air in the water, surface waves, the nature of the sea bottom, tidal currents, and the presence of predators (NMFS 2003, 2004). Types of effects can include mortality from swim bladder rupture or internal hemorrhaging, changes in behavior, and temporary or permanent hearing loss (Caltrans 2001; Vagle 2003). The most common behavioral changes include temporary dispersal of fish schools. In addition to these direct effects, indirect effects (e.g., increased susceptibility to predation) can occur.

Two of the species in the Coastal Pelagics FMP, northern anchovy and Pacific sardine are common water-column species in the harbor that could be affected by pile driving. The only common Pacific Groundfish species, Pacific sanddab, is also likely to be present near construction area and could be affected by pile driving. As described above for marine mammals, the area affected by increased sound pressures from pile driving would be the East Channel and open waters south of the East Channel. The number of fish affected would depend on the distribution and abundance of these species in and near the East Channel at the time of construction. The sound pressure waves from pile driving could cause mortality of a few individual anchovies, sardines, and sanddabs, but these species are abundant in the harbor and the loss of a few individuals would not substantially affect their populations.

Impaired water quality near the construction site, if it occurred, could adversely affect fish in the East Channel and nearby waters. However, the controls on construction (see Section 3.13, "Water Quality, Sediments, and Oceanography") would ensure that any such occurrences would be localized and temporary. Furthermore, fish in the Coastal Pelagics and Pacific Groundfish FMPs would be expected to move away from areas affected by impaired water quality.

Birds

Birds would be displaced from active construction sites both by the noise of pile driving and by landside activity to an extent that would vary with the species. Sensitive terrestrial bird species (e.g., peregrine falcon, hawks, merlins, kites, burrowing owls, and loggerhead shrikes) would not be adversely affected by construction of the proposed Project because there is no nesting habitat and little or no foraging habitat for any of those species. No known peregrine falcon nesting areas would be affected due to their distances (the Vincent Thomas Bridge over 1.25 miles away, the Schuyler R. Heim Bridge over 1.2 miles away, and the Gerald Desmond Bridge over 2 miles away) from the proposed Project. Some species can be assumed to forage in the proposed project study area, but the amount of area that would be temporarily lost would be small relative to the rest of the harbor, and the quality of the habitat is poor.

Sensitive marine bird species in the harbor that could use the marine habitats in the proposed project study area include most of the marine species in Table 3.3-1, with the exception of long-billed curlew, common loon, and western snowy plover, which are very uncommon in the harbor and for which no nesting, feeding, or resting habitat occurs. In-water construction activities could affect foraging habitat for listed, candidate, or special-status species through a temporary increase in activity, noise, vibration, and turbidity, which have the potential to displace individuals from the

work area during construction. Pile driving and construction of the intake structure and of wharfs and docks have the potential to displace individuals during construction activities. Additionally, foraging activities of special-status species that feed on fish in the harbor could be affected as a result of construction and pile driving activities that produce localized turbidity in foraging areas.

In the case of the California least tern, the proposed project study area is more than 1.5 miles from the Pier 400 nesting site. Least terns feed on small fish in the surface waters of the harbor. The shallow waters (<20 feet mean lower low water [MLLW]) in the Outer Harbor are considered important feeding areas for the tern and are areas that require protection. The nearest such habitat is the shallow-water site on the inner face of the San Pedro Breakwater between Cabrillo Beach and the entrance to the harbor. That site is approximately 0.75 mile from the proposed project study area. The East Channel, the Main Channel, and Fish Harbor, all of which are more than 20 feet deep, are not considered essential foraging habitat for the least tern.

Outer Harbor shallow water would be unaffected by the proposed Project; construction activities would create a small amount of localized turbidity that would not migrate as far as the shallow water areas. Accordingly, construction activities for the proposed Project would not interfere with least tern foraging. The potential for impacts from turbidity would be further reduced by the controls and monitoring associated with the water quality permit (see Section 3.13, "Water Quality, Sediments, and Oceanography"), which would ensure that excess turbidity would not extend more than 300 feet from the construction zone. The remainder of proposed project construction activities would not result in short- or long-term effects on California least terns nesting on Pier 400.

The other marine-related bird species (specifically, California brown pelican, double-crested cormorants, California gulls, elegant terns, and black skimmers) are either common year around or seasonally abundant and do not nest in or near the proposed project study area (MEC et al. 2002; SAIC 2010). California brown pelicans and California gulls, in particular, are very habituated to human activities, and thus would not be expected to be disturbed by the construction. Foraging by marine birds in the proposed project study area could continue with no adverse effects. No nesting habitat exists at the proposed project study area for any of these species, so their presence at or near the proposed project study area would be for the purposes of feeding in harbor waters or along the shoreline, resting on the water surface, or roosting on structures. These species would be able to use other areas in the harbor if construction activities occurred when they were present and if the disturbances caused them to avoid the work area.

Birds protected by the MBTA that nest and forage in the harbor include black-crowned night heron, which have nested in trees near the Berth 78—Ports O'Call area approximately 0.25 mile north of the proposed project study area during past years; great blue heron, which have nested in several areas within approximately 0.25 mile of the proposed project study area; and possibly swallows nesting under the wharves. Foraging by these species could be affected by pile driving activities, but the small area that would be affected relative to the harbor as a whole and the temporary nature of the disturbance would prevent substantial disruption to these species.

No known nesting sites of migratory birds would be affected by proposed project construction. However, to comply with the MBTA, which prohibits take of migratory native birds, and similar provisions of the California Fish and Game Code, standard Port construction procedures, which would be reinforced as Mitigation Measure MM BIO-3, require that nesting surveys be conducted if construction would take place during the breeding seasons (February 15 through September 1). If active nests are found, a 100-foot radius would be established around the active nests to prohibit construction activities in this area.

Impact Determination

Despite the soft-start procedure for impact pile driving, pile-driving for construction of the proposed Project could exceed the NMFS threshold criteria for underwater sound pressure, which could result in Level A (potential injury) and Level B (disturbance) harassment of marine mammals, specifically sea lions and harbor seals. The potential for noise-related effects on special-status marine mammals is considered a significant impact.

Pile-driving for construction of the proposed Project could result in temporary disturbance of, and possible damage to, managed fish species, despite the soft-start procedure for impact pile driving. In-water construction other than pile driving would cause localized disturbance and turbidity that could disrupt the behavior of sensitive species of fish. Due to the small number of fish expected, the limited area affected by potentially harmful sound pressure levels, and the relatively short duration of pile driving (weeks to months), loss of individuals would not be substantial. Loss of essential fish habitat would be temporary and localized, consisting of short-term degradation of habitat due to noise and turbidity. Any such losses would be less than significant.

Proposed construction could adversely affect birds protected by the MBTA if they were to nest in the construction area. This impact is considered significant. Effects on other sensitive bird species (i.e., those that do not nest in the area such as marine birds and peregrine falcons) would be temporary and localized, and the impacts would be less than significant. No critical foraging habitat for least terns would be lost because no such habitat exists in or near the proposed project site. Accordingly, impacts related to critical habitat would be less than significant.

Mitigation Measures

Mitigation measures would be implemented to minimize the significant impacts on marine mammals from pile-driving activities and on migratory birds from disturbance of nests.

MM BIO-1. Avoid Marine Mammals. Via the construction contract and the development permit the LAHD will require that pile driving activities for construction of the proposed Project include establishment of a safety zone and monitoring of the area surrounding the operations for pinnipeds by a qualified marine biologist. The monitor will have the authority to halt operations unless, in the opinion of the Port's project engineer (Engineer), halting operations would be unsafe.

The safety zone will extend out to 500 meters from the site of the pile driving, wherever that activity is taking place.

Before pile driving is scheduled to commence, observers on shore or in boats will survey the safety zone to ensure that no marine mammals are present. If marine mammals are observed within the safety zone, driving will be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor will wait at least 15 minutes, and if no marine mammals are seen, it may be assumed that the animal has moved beyond the safety zone. This 15-minute criterion is based on a study indicating that pinnipeds dive for a mean time of up to about 4 minutes; the 15-minute delay will allow a more than sufficient period of observation to be reasonably sure the animal has left the vicinity.

If pinnipeds enter the safety zone after pile has begun, pile driving will continue. The monitor will record the species and number of individuals observed and make note of their behavior patterns. If animals appear distressed, and if it is operationally safe to do so, the monitor will inform the Engineer that pile driving will cease until the animal leaves the area. In certain circumstances pile driving cannot be terminated safely and without severe operational difficulties. Therefore, if it is deemed operationally unsafe by the Engineer to discontinue pile driving activities, and a pinniped is observed in the safety zone, pile driving activities will continue only until the Engineer deems it safe to discontinue.

MM BIO-2. Minimize In-water Pile Driving Noise. Via the construction contract the LAHD will require the contractor to use sound abatement techniques to reduce both noise and vibrations from pile driving activities. In addition to the "soft-start technique, which will be required at the initiation of each pile driving event or after breaks of more than 15 minutes, sound abatement techniques will include, but not be limited to, vibration or hydraulic insertion techniques, bubble curtains, isolation cage technology, sound aprons, and use of a cushion block on top of the pile being driven. Use of these techniques will reduce both the intensity of the underwater sound pressure levels radiating from the pile driving location and the area in which levels would exceed the Level A and B harassment levels for marine mammals.

MM BIO-3. Conduct Nesting Bird Surveys. Between February 15 and September 1 and prior to ground-disturbing activities, a qualified biologist will conduct surveys for the presence of nesting birds protected under the MBTA and/or similar provisions of the California Fish and Game Code within areas of the proposed project study area that contain potential nesting bird habitat. Surveys will be conducted 24 hours prior to the clearing, removal, or grubbing of any vegetation or ground disturbance. If active nests are located, then a barrier installed at a 50–foot radius from the nest(s) will be established and the tree/location containing the nest will be marked and will remain in place and undisturbed until a qualified biologist performs a survey to determine that the young have fledged or the nest is no longer active.

Residual Impacts

Impacts would be less than significant.

Impact BIO-2a: Construction of the proposed Project would not result in a substantial reduction or alteration of a state-, federally, or locally designated natural habitat, special aquatic site, or plant community, including wetlands.

Special aquatic sites and natural habitats identified in the proposed project study area that would be affected by proposed project construction include kelp outcrops along the Main Channel adjacent to Berths 70–71 and the western end of City Dock No. 1, the eelgrass beds adjacent to Cabrillo Beach, and EFH. No mudflat, salt marsh, cord grass, freshwater marsh habitat, or native plant community would be affected by construction of the proposed Project because no such habitats exist in or near the proposed project study area.

Kelp Beds

Kelp (predominantly *Egregia* and *Macrocystis*) grows on the riprap along the Main Channel side of the proposed project study area at Berths 70–71, and off the tip of City Dock No. 1. The kelp beds fluctuate in area throughout the growing season (March–October), but the beds are likely always present (SAIC 2010). Construction of proposed project features in these areas could affect those kelp beds if it involves pile placement or alterations to other in-water features. Specifically, the barges used for pile driving and work boat activities could damage kelp fronds, and the piles themselves could damage or remove kelp plants. However, these activities would be of short duration and limited extent, and any affected kelp would be expected to reestablish quickly once construction was over, given the vigor of the kelp in the harbor (MEC 1988; SAIC 2010).

Eelgrass

An extensive, dense bed of eelgrass is present approximately 0.7 mi from the proposed project site, in the shallow waters of the Outer Harbor just offshore of Cabrillo Beach and the youth facility north of the beach. Placement of pilings and construction of the water intake and discharge structures would cause increased turbidity in the immediate area of construction. Some of the suspended sediments could, depending on conditions, be carried into the eelgrass bed to increase turbidity there, but the distance involved means that any such effect would be very small.

Since the depth and substrates in the proposed project area are generally inadequate for eelgrass growth, and no eelgrass has been observed in these areas to date, and because construction-related turbidity would be unlikely to reach the existing beds, the proposed Project would be unlikely to affect eelgrass and associated biological communities.

Essential Fish Habitat

Marine habitat in the harbor functions as EFH for several fish species managed under the Coastal Pelagic and Pacific Groundfish FMPs (see Table 3.3-2). Construction of over-water structures such as wharf extensions and floating docks, and installation of pilings and the seawater intake, could affect use of water and sediments below those

structures by individuals of these EFH species as a result of noise, physical disturbance, turbidity, and loss of food resources (benthic invertebrates). These effects would be localized and temporary, and would not, therefore, have a substantial effect on EFH in the harbor.

A small amount of the benthic fauna in the harbor bottom below the proposed floating docks would be lost within the footprint of the piles being driven and rock placed around the base of these piles (if any), and soft-bottom habitat could be converted to hard bottom (pilings and rock) at these locations. The docks themselves would provide new attachment surfaces for marine life, including seaweeds and invertebrates, and shelter for small fish. The turbidity generated by driving each pile would be localized immediately adjacent to the pile and would dissipate rapidly with minor effects on nearby invertebrates and fish at the pile locations. The small loss of prey for managed fish species would not adversely affect their populations within the harbor due to the large amount of undisturbed foraging area available and the small number of individuals of managed groundfish species that feed on benthic organisms in the harbor. Construction disturbances such as turbidity would have a negligible effect on eggs and larvae of managed species, which are located primarily in the water column and move with water currents and, thus, would be exposed only briefly to turbidity. Additionally, only a small number would be affected in the construction area relative to those present in all marine habitats in the harbor.

Placement of the floating docks would shade a small area (less than one-half acre) in the East Channel. In shallow water shading could adversely affect the growth of seaweeds and eelgrass on the bottom, but the East Channel is too deep for extensive growths of plants at the bottom. Furthermore, the open structure of floating docks would allow light to penetrate among the docks. Accordingly, the effects of shading on EFH would be minor.

Upland construction activities would have no direct effects on EFH, which by definition is located in the water. Runoff of sediments from such construction could enter harbor waters; however, as discussed in Section 3.13, "Water Quality, Sediments, and Oceanography," implementation of sediment control measures (e.g., sediment barriers and sedimentation basins) would minimize such runoff and result in minimal effects on water quality that could affect EFH.

Impact Determination

Proposed project construction activities could have minor, short-term effects on kelp beds in and near the proposed project study area. Because these effects would be localized and temporary, impacts on special aquatic sites and natural habitats would be less than significant.

Temporary physical disturbances and turbidity from in-water construction would affect EFH through loss of food resource and avoidance by managed species, and could result in some loss of fish as described above. Because these disturbances would affect few individuals and a small area of the harbor and would be temporary, they would have less-than-significant impacts on EFH or managed species. Although the installation of new in-water piles would result in the loss of deep-water substrate,

it would be replaced by the hard vertical habitat of the new piles and the floating docks. Shading would not adversely affect habitat structure of function. Therefore, any potential loss of habitat, or changes in habitat functions, would be considered less than significant.

Construction activities in upland areas would also have less-than-significant impacts on EFH because of the controls that would be implemented to minimize runoff of pollutants from the land into the harbor.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact BIO-3a: Construction of the proposed Project would not result in interference with wildlife movement/migration corridors that may diminish the chances for long-term survival of a species.

No known terrestrial wildlife migration corridors are present in the proposed project study area. The only defined migratory species within the harbor are birds, including most of the upland, marine, and special-status species described in Sections 3.3.2.6 and 3.3.2.8.

California least tern and western snowy plover are migratory bird species that occur on Pier 400; the tern nests at the designated nesting site and the plover has been observed in low numbers at the least tern nesting site in recent years. Given the distance of the proposed Project from the Pier 400 nesting site (approximately 1.5 miles) and the limited extent of construction activities, construction of the proposed Project would not interfere with the migration or local movements of these species. California brown pelicans move between the harbor and their nesting sites in Mexico and on offshore islands in order to breed, and move around the harbor area on a daily basis. A number of other water-related birds that are present at least seasonally in the harbor are migratory as well. Construction activities within the proposed project study area would not block or interfere with migration or movement of these, and other species covered under the MBTA because the work would be in a small portion of the harbor area where the birds occur, these species are habituated to harbor activities, and the birds could easily fly around or over the work.

Fish species present in the harbor would be subject to temporary acoustic and possibly degraded water quality during pile driving and other in-water construction activities. These effects could result in result in temporary avoidance of the construction areas. However, these effects would be temporary. There would be no physical barriers to movement, and the baseline condition for fish and wildlife access would be essentially unchanged.

Project-related construction vessel traffic would consist of one or two barges and a few workboats to support the pile-driving and transport construction material. This level of activity would not interfere with marine mammal migrations along the coast because these vessels would represent a small proportion (much less than 1%) of the total Port-related commercial traffic in the area, and each vessel would have a low probability of encountering migrating marine mammals because these animals are generally sparsely distributed (LAHD and USACE 2007) and the bulk of the vessel trips would be inside the harbor.

Impact Determination

Construction of the proposed Project would have little, if any, adverse effect on wildlife movement or migration corridors. Accordingly, impacts of construction would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact BIO-4a: Construction activities for the proposed Project would not result in a substantial disruption of local biological communities.

Biological communities, the collection of species inhabiting a particular habitat or ecosystem, can potentially be disrupted by changes in environmental conditions that favor a different assemblage of species or that alter the dynamics among species that make up a biological community. The significance of changes in local conditions depends on the extent and duration of those changes, as well as the species or groups of species affected. Upland and road improvement activities would have minimal effect on terrestrial biota because the species present are nonnative and/or adapted to use of developed sites, and the proposed project study area contains no natural biological communities.

Construction-related impacts on marine biological communities are expected to be temporary, lasting through the construction period and for a short time thereafter. These include physical disturbance, underwater noise, and turbidity produced during pile driving, intake placement, and pipeline installation. Polluted runoff into study area waters from upland activities would be minimized by the proposed project controls described in Section 3.13, “Water Quality, Sediments, and Oceanography” (e.g., project-specific SWPPP and BMPs such as sediment barriers and sedimentation basins). In-water construction is expected to generate turbidity, but not to levels that could result in a substantial disruption of biological communities. Turbidity, noise, and vibration (primarily from pile driving) would likely cause some fish, birds, and marine mammals to leave the immediate proposed project study area temporarily, as described under Impact BIO-1a, above.

The underwater sound pressure levels generated by in-water pile driving are expected to exceed the disturbance or injury thresholds for some aquatic-dependent species occurring in portions of the proposed project study area and Outer Harbor. Therefore, pile driving is expected to affect the behavior of these species, and could result in harm or mortality is some instances. Although these activities would affect individuals, the populations of these organisms would not be adversely affected because the small number of individuals occurring in the affected area and the limited extent of the affected area. The implementation of Mitigation Measures MM BIO-1 and MM BIO-2 would provide additional protection for those species occurring in the areas affected by pile driving activities. Therefore, the proposed Project would not substantially disrupt biological communities.

The invasive green alga, *Caulerpa*, has the potential to spread by fragmentation. Prior to in-water work, (including pile driving), an underwater survey for the invasive alga *Caulerpa* would be conducted in order to ensure that no *Caulerpa* is present in the proposed project study area (NMFS and CDFG 2007). In the event that *Caulerpa* is detected during preconstruction surveys, an eradication program would be implemented per the requirements of the *Caulerpa* protocol (NMFS and CDFG 2007). Construction would commence only after the area is certified to be free of this invasive species. As discussed in the 3.3.2.10.2, more than 30 *Caulerpa* surveys have been conducted in the harbor to date as a standard procedure prior to sediment disturbing activities, and no *Caulerpa* has been found (SCCAT 2008). Considering the *Caulerpa* survey requirement and the absence of *Caulerpa* to date, and with implementation of the aforementioned *Caulerpa* protocols, the potential for proposed project activity to spread this species is low.

Impact Determination

As described above, construction activities in the upland portions of the proposed project study area would result in no substantial disruption of local biological communities. Runoff of sediments and pollutants from upland construction activities would have only localized, short-term effects that would not substantially disrupt biological communities in the East Channel, Main Channel, and Fish Harbor. These effects would represent less-than-significant impacts.

The effects of in-water construction on local biological communities would be limited for the following reasons: the number of organisms occurring in the affected area would be small, fish, birds, and mammals in the construction area would likely move out of the affected area, and the construction would be localized and temporary. Accordingly, underwater noise, physical disturbance, and turbidity would have less-than-significant impacts on local biological communities.

Implementation of the established protocols for the detection and control of *Caulerpa*, which would be required by the USACE permit, and the fact that *Caulerpa* is not likely to be present in the proposed project study area would ensure that impacts related to invasive species would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact BIO-5a: Construction of the proposed Project would not result in a permanent loss of marine habitat.

The proposed project study area's waterfront is already affected by boat docks, floats, and shading from wharfs, buildings, and vertical walls. Construction of the proposed Project would neither add nor remove marine habitat area because no new land or water area would be created, no structures that could substantially shade water area would be built, and no in-water structures would be permanently removed. Proposed project construction would, however, add small amounts of various materials (rock, steel, concrete) to the aquatic environment in the form of new pilings, the intake structure, and possible protection for the intake piping. These additions would represent minor changes to the aquatic habitat types in the proposed project study area. Over time, these in-water materials would be colonized by aquatic organisms and function as marine habitat, albeit of different character.

Impact Determination

There would be no permanent loss of marine habitat as a result of proposed project construction. Although there would be changes in habitat character/type from placement of materials and physical structures, the total quantity of open-water habitat would be unchanged. Impacts would, therefore, be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Residual impacts would be less than significant.

3.3.4.3.2 Operational Impacts

Impact BIO-1b: Operation of the proposed Project would not result in the loss of individuals, or the reduction of existing habitat, of a state- or federally listed endangered, threatened, rare, protected, or candidate species, or a species of special concern, or the loss of federally listed critical habitat.

Operation of the proposed Project would not adversely affect sensitive terrestrial species (birds and bats) because no activities would take place that could interfere

with bird or bat nesting, reproduction, foraging, or migration. Landside activities would have no effect on vegetation.

Under the proposed Project, the potential operational impacts on sensitive marine species would be associated vessel activity and the intake and discharge of up to 2 million gallons of seawater per day. Vessels could spill or leak fuel and lubricants, and vessel passage in the harbor and adjacent coastal waters could interfere with marine mammals. There would be little or no increase in vessel activity under Phase I, which would involve the existing SCMI fleet of small vessels (similar to the recreational fleet in the nearby West Channel) with the possible addition of a few small boats. Under Phase II, however, the wharf at Berths 70–71 is assumed to accommodate larger research vessels (up to 250 feet in length) that do not presently call at the Port of Los Angeles on a regular basis. It is not certain that such vessels would, in fact, be based or call at the proposed project facility, but to be conservative this document assumes that there would be up to 6 large vessel calls per year by NOAA research vessels, spending a total of 60 days in port.

Accidental fuel spills and leaks associated with research vessels could introduce petroleum hydrocarbons into the waters of the East Channel and Main Channel. This document assumes that there would be no illegal discharges (e.g., bilge water and sanitary wastewater), because only one of the SCMI vessels is large enough to have onboard systems that could produce such discharges, and both the SCMI vessels and any larger research vessels that might call are operated by marine scientists and technicians in accordance with best management practices. Fuel and lubricant spills from the SCMI fleet would involve small amounts of gasoline, oil, or diesel fuel spilled during transfer of tanks between the dock and the vessel, or would result from leaks. These events would be no more frequent than under baseline conditions, where they are very rare, but would occur in a different location in the harbor. Fuel spills from larger vessels would not occur at Berths 70–71 because no fueling would take place there; vessels would be fueled at local, existing fuel docks. However, leaks from vessels berthed at Berths 70–71 could occur in the event of piping failures, hull rupture, or other accident.

A variety of marine organisms could be affected by spills and leaks. Specific effects would depend on the type and size of the spill or leak, the timing (both season and time of day relative to tidal cycle), and the effectiveness of emergency response efforts to contain and clean up the fuel spill. Contaminants could have indirect effects on sensitive species by affecting prey species such as plankton, invertebrates, and fish. Some contaminants could bioaccumulate, potentially reducing the survival and reproductive success of sensitive species. Sensitive marine bird species could be affected by leaks and spills into critical nesting or foraging habitat. Insoluble hydrocarbons that would float on the water surface could coat the feathers of birds using the water surface for resting or those diving into the water. Most impacts would occur in the immediate vicinity of the spill, but tidal currents could move the pollutant out into the Outer Harbor. Dilution, flushing, and evaporation of volatile materials would reduce concentrations to below toxic levels and ultimately remove the materials from the harbor. The severity of the effects would depend on the number and species of organisms affected and the spill's extent, toxicity, and clean up response.

With appropriate operational controls and compliance with the various permit requirements and regulations related to spill control (water quality BMPs included in the proposed Project as detailed in Section 3.13, "Water Quality, Sediments, and Oceanography"), it is expected that spills and leaks would be contained at the vessel, cleaned up, and disposed of at an approved location, and would thus have minimal adverse effects on biological resources.

Large volume intakes may result in losses of aquatic organisms when these collide with intake screens (impingement) or are drawn into the intake along with the water (entrainment). The design of the intake would include screens that would reduce water velocities at the intake approach to less than about 0.5 feet per second, which is the velocity identified in the U.S. EPA guidelines as a rate which generally allows fish to move away from the intake structure and thereby results in de-minimus impingement levels. While these approaches would minimize or eliminate effects on most juvenile and adult fish, which can avoid low-velocity intakes, they would not substantially minimize the entrainment of planktonic eggs or larvae. A large number of fish eggs and larval species have been reported in the harbor (MEC 2002; SAIC 2010), which reflects the variety of nursery and adult habitats present.

SAIC (2010) found that the most abundant fish larvae collected at Station LA-2 (near the proposed project intake location) were blennies, gobies, and sculpins, which made up nearly 90% of the total. Northern anchovy larvae, in the Coastal Pelagics FMP, constituted approximately 0.5 % of the total number of larvae in the water column. Of the other managed species, only flatfish larvae (which may have included Pacific sanddab, in the Pacific Groundfish FMP) were captured. On the other hand, in the 2000 survey (MEC et al. 2002) northern anchovy larvae were the third most abundant species in the ichthyoplankton, accounting for 14% of the total catch. It is likely, therefore, that the seawater intake would cause some mortality of northern anchovy larvae, and to a lesser extent, Pacific sanddab larvae. The harbor is not a spawning ground for northern anchovy, which reproduce in coastal waters outside the harbor (SAIC 2010). Negligible mortality of other managed species would be expected because of their very low abundances in the harbor.

Based on the overall density of larval fish (4 per cubic meter, or 1.5 per 100 gallons) collected at Station LA-2 (SAIC 2010), the estimated entrainment at the proposed project intake (2 million gallons per day) would likely be on the order of about 30,300 larvae of all species per day, whereas a 100% recirculating seawater system, with an intake volume of 27,400 gallons per day, would entrain about 411 fish larvae per day. These losses would represent a tiny fraction of the standing stock of larvae in the harbor because the amount of water withdrawn by the intake would be a tiny fraction of the volume and turnover of the harbor.

A study of a proposed desalinization plant seawater intake in nearby Santa Monica Bay came to a similar conclusion. In that case, the withdrawal of 1 million gpd (approximately half the proposed project's flow-through volume) was estimated to cause the loss of less than $3/100^{ths}$ of 1% of the larvae of managed fish species and key invertebrates (crabs and lobsters) in the vicinity of the intake without an intake screen, and even less than that with the addition of a screen (West Basin Municipal Water District 2008). Accordingly, the presence of an intake withdrawing quantities of water that would be minor relative to the total volume and turnover of the harbor

and that would destroy few larvae would not adversely affect northern anchovy or any other species managed under the Coastal Pelagics or Pacific Groundfish FMPs.

Water discharged from the proposed facility directly to the harbor would be monitored to ensure compliance with water quality standards established by the SWRCB and the LARWQCB discharge permits for the facility. If these standards would not be met, discharge water would be further treated (in the case of a flow-through system) or routed through the sanitary sewer to the existing TIWRP (in the case of a recirculating system). Discharges to the harbor from a flow-through system would be approximately 2 million gpd, and to the Terminal Island facility from a recirculating system approximately 27,400 gal/day (consisting largely of the waste-stream generated during periodic filter backwash cleaning operations). Discharges to the sanitary sewer would be coordinated with the Bureau of Sanitation to avoid negative impacts to the treatment plant operations. With these controls, the likelihood of adverse effects on sensitive marine wildlife species as a result of water discharges would be low.

With both systems, discharges from tanks that housed non-native species would be specially treated (see Impact BIO-4b for more detail) before being discharged either to the TIWRP or to the harbor in order to prevent the introduction of non-native species into harbor waters. If treatment in the City Dock No. 1 facilities could not completely eradicate non-native species, discharge to the harbor would be prohibited by the facility's permits.

Sensitive marine birds, including the endangered California least tern, would not be affected by operation of the proposed Project because operation would not produce any conditions that would affect foraging or nesting behavior or critical habitats. Leaks and spills would be small and localized, meaning that few, if any, individuals would be exposed to pollutants such as oil and toxic hydrocarbons. Pollutant effects on food resources such as fish and invertebrates would be too small, in the context of the harbor habitat as a whole, to have a substantial adverse effect on foraging. The passage of vessels and other activities would not affect nesting or critical foraging habitat not only because no such habitats exist near Berths 70–71 or the navigation channels but also because marine birds in the harbor are acclimated to vessel activity.

Operation of the proposed Project would have a low probability of harming marine wildlife species of concern such as marine mammals and sea turtles. The existing SCMI fleet consists of small vessels that are very unlikely to harm marine mammals and sea turtles by collision; operational-phase threats to such organisms would come from the 6 calls per year by larger research vessels.

The addition of 24 vessel calls per year to the Port would have a low probability of harming marine mammals and sea turtles. Specifically, despite the large volume of vessel traffic along the coast, few whale strikes in California coastal waters have been reported over the past 25 years (NMFS 2007b), and very few ship strikes involving pinnipeds have been reported over the past 28 years by the Santa Barbara Marine Mammal Center (1976–2004). Furthermore, larger research vessels move at very slow speeds, which greatly reduce the chance of colliding with marine mammals. For instance, the largest vessel in the NOAA fleet, the R/V Ronald H.

Brown, cruises at 11 knots and has a top emergency speed of 15 knots (NOAA 2012). As discussed in Section 3.3.2.8.2, NMFS recommends that speed restrictions in the range of 10 to 13 knots be used, where appropriate, feasible, and effective, in areas where lower speed is likely to reduce the risk of ship strikes and facilitate whale avoidance. At such low speeds, whales, sea lions, seals, and other marine mammals would be easily able to avoid vessels calling at the Berth 70–71 facilities. Accordingly, the likelihood of collisions with marine mammals would be very low.

No sea turtle ship strikes have been reported in the area, although an olive Ridley sea turtle stranded in the Santa Barbara Channel in 2003 showed signs of blunt force trauma consistent with a vessel strike (Santa Barbara Marine Mammal Center 1976–2004). Sea turtles are infrequent visitors to the harbor; that fact, the few additional vessel transits, and the low vessel speed make encounters with sea turtles unlikely.

Impact Determination

Operation of the proposed Project would not affect terrestrial biological resources, including sensitive birds and bats. Accordingly, impacts on sensitive terrestrial biological resources would be less than significant.

Operation of the proposed Project would result in adverse effects on some fish species of special concern. While the design of the seawater intake structures would minimize or eliminate potential effects on adults and most juvenile fish, by meeting approved screening criteria, the intake operations would result in the entrainment or impingement of eggs and larvae. The maximum effect would result from a 100% flow-through system, which would destroy eggs and larvae in approximately 2 million gallons of water per day. However, because this amount would represent a tiny fraction of the total water volume and turnover of the harbor, and because the harbor is not a spawning ground for managed species, the impacts on managed fish species would be less than significant.

Increased vessel traffic would incrementally increase the potential for accidental leaks and spills. These spill and leak events are considered unlikely, and implementation of spill control mitigation measures (described in Section 3.13, "Water Quality, Sediments, and Oceanography") would reduce their consequences. Accordingly, impacts on sensitive species would be less than significant.

Research vessels transiting the nearshore waters of southern California and the Outer Harbor could collide with endangered, threatened, or species of concern such as marine mammals and sea turtles. Impacts of project-related vessel traffic on marine mammals and sea turtles would be considered less than significant, however, because the slow ship speeds, infrequent vessel calls, and low numbers of marine mammals in the harbor area makes the probability of vessel strikes involving proposed project vessels very low.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact BIO-2b: Operation of the proposed Project would not result in a substantial reduction or alteration of a state-, federally, or locally designated natural habitat, special aquatic site, or plant community, including wetlands.

Kelp Beds

Little or no kelp (predominantly *Egregia* and *Macrocystis*) exists in the East Channel (SAIC), although sparse patches occur near the site of the proposed project seawater intake at the end of Berth 60. However, the operation of the intake would not adversely affect kelp because kelp is adapted to high-energy environments characterized by strong waves and currents and, in any case, intake velocities would be low. Kelp does grow on the riprap at Berths 70–71. Vessels docking at those berths could affect the kelp by propwash during maneuvering into and away from berth. As stated above, however, kelp is adapted to high-energy environments, so it is unlikely that propwash would have substantial adverse effects on the kelp bed. No other operational activities would affect the kelp bed.

Eelgrass

No eelgrass occurs in or adjacent to the proposed project study area. Therefore, operation of the proposed Project, specifically vessel activity and intake of seawater, would not adversely affect the eelgrass beds in the Cabrillo Beach vicinity.

Essential Fish Habitat

The Los Angeles-Long Beach Harbor represents EFH for the Coastal Pelagics and Pacific Groundfish FMPs. The only potential effects of proposed project operations on EFH would be associated with the quality of water discharged to the harbor under the flow-through option. Degraded water quality could result in locally degraded habitat quality for the managed species. However, the discharge of water under this scenario would not have deleterious effects on EFH because the composition of the discharged water would be regulated by permit conditions and the water would be treated before discharge (see Impact WQ-1b in Section 3.13 for details on water quality, treatment, and potential impacts).

Impact Determination

Because vessel activity would be infrequent, operational impacts on kelp would be less than significant. No eelgrass is close enough to the proposed Project to be affected by operational activities; accordingly, impacts on eelgrass would be less than significant. Operation would have less-than-significant impacts on EFH because the discharged water would not degrade the quality of the local habitats.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact BIO-3b: Operation of the proposed Project would not result in interference with wildlife movement/migration corridors that may diminish the chances for long-term survival of a species.

As described in Section 3.3.2.11, the proposed project study area occurs at the edge of a dense urban and industrial development that precludes the existence of natural terrestrial corridors. Although the harbor itself does not constitute a migratory route for marine organisms, some marine fish species move into and out of the harbor for spawning or for nursery areas, several species of whales and dolphins migrate along the coast outside the harbor, and migratory birds are visitors to the Port. Operation of the proposed Project would not interfere with any of these activities. The negligible increase in large vessel traffic of 6 calls per year and daily trips of smaller boats would have little, if any, effect on wildlife movement or migration within or near the harbor, and would therefore not diminish the chances for the long-term survival of any species.

Impact Determination

Because operation of the proposed Project would not interfere with wildlife migration or other movements, impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact BIO-4b: Operation of the proposed Project would not result in a substantial disruption of local biological communities.

The terrestrial biological resources of the proposed project area would not be substantially disrupted because those resources are sparse and because no proposed project operation other than vehicle parking and pedestrian activities would take place on land.

The operational aspects of the proposed Project with the greatest potential to affect biological communities would be the seawater intake. The intake would be designed to minimize potential impingement or entrainment of most adult and juvenile fish, by following approved intake screening and approach velocity criteria. However, impingement and entrainment planktonic biota would still occur. While this would not result in a significant effect on the overall biological communities in the harbor, some localized populations could be affected by the operation of the intake. For example, California grunion spawn at nearby Cabrillo Beach and larvae and juvenile fish from this local population could be adversely affected by the operation of the intake, particularly if the 100% flow-through system (2 million gallons per day) is selected. The potential effects of intake operations are discussed in detail above (see Impact BIO-1b).

Operation of the proposed Project would have no effect on the physical nature of the harbor environment because the only physical changes would be replacement of existing pilings and the addition of a few new pilings for small boat docks. Because the proposed project study area is already characterized by extensive pilings and other hard substrata, these alterations would not cause any changes in the nature of the biological community.

The proposed Project could support research on marine species not native to southern California. At least some of these organisms could be maintained in circulating seawater systems, using seawater taken from the harbor. If that water were to be discharged to the harbor via an outfall, the result could be introduction of nonindigenous species to the harbor environment. The design of the proposed Project recognizes the risk. Researchers would be required to install and maintain controls, both physical and procedural, on their experiments to prevent the escape of organisms into the environment, whether via spent seawater or other means. Spent seawater from such experiments would typically be discharged to the sanitary sewer for treatment through the City of Los Angeles wastewater treatment system. That treatment would destroy any multicellular organisms (some bacteria could survive the treatment process). If, however, water must be discharged back into the harbor, the facility would require that discharged water be treated in accordance with standard research aquarium practices, including UV light treatment, microfiltration, and other mechanical and chemical treatments as appropriate, before being discharged into the harbor. The specific treatment techniques would vary with the source of the water (e.g., exotic species or hormonal research tanks vs. local species holding tanks) to ensure that exotic species and potentially harmful substances such as antibiotics are not released to the harbor. Further, the NPDES permit would include required treatment standards, as appropriate.

Operation of the proposed Project is assumed to increase the number of large vessels (approximately 250 feet) visiting the harbor by about 6 per year. Most of the research vessels that would call at the proposed Project under Phase II would conduct research within the EEZ, including the existing operations of the SCMI vessels, or have arrived from another Pacific coast port. Some, however, would likely arrive from beyond the EEZ, and the larger ones that utilize ballast water could have taken some on in a foreign port. Ships entering the harbor from beyond the EEZ, including research vessels, are subject to ballast water management regulations to minimize the risk of accidental introductions of invasive species, as described in Section 3.3.3.12.

This increase in vessel traffic, amounting to a fraction of 1% of the total vessel traffic in Los Angeles-Long Beach Harbor, would incrementally increase the potential for invasive species introductions. Research vessels require minor amounts of ballast water compared to cargo vessels, but there would still be a risk of invasive species introduction, which would disrupt biological communities. In view of the very small increment of vessel traffic that the proposed Project would represent, however, and the controls on ballast water, the likelihood that project-related vessels would introduce invasive species would be small. Similarly, the risk of accidental introductions of invasive species attached to the hull or other equipment would also be very small.

Impact Determination

Under the flow-through scenario for the seawater system, spent seawater to the harbor would be discharged to the harbor. Under this design, discharge permit conditions would require that the water be treated to eliminate viable organisms and harmful chemicals. Accordingly, impacts of spent seawater discharge from the research facilities at the proposed project study area would be less than significant.

Although very unlikely, operation of the proposed Project has the potential to introduce invasive marine species into the harbor through the minor ballast water exchanges that could inadvertently occur, or through organisms attached to ship hulls or equipment. Invasive species would substantially disrupt biological communities. However, due to the limited increase in vessel arrivals, particularly from outside of the EEZs, this effect is considered less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

Impact BIO-5b: Operation of the proposed Project would not result in a permanent loss of marine habitat.

Operation of the proposed Project would consist of research activities both on land and on the water. No use of natural habitats would occur beyond the withdrawal of water from the harbor. Accordingly, there would be no permanent loss of marine habitat.

Impact Determination

There would be no permanent loss of marine habitat as a result of proposed project operation. Accordingly, there would be no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

3.3.4.3.3 Summary of Impact Determinations

Table 3.3-3 summarizes the impact determinations of the proposed Project related to biological resources. Identified potential impacts may be based on federal, state, and City of Los Angeles significance criteria, LAHD criteria, and the scientific judgment of the report preparers.

For each potential impact, the table describes the impact, notes the impact determination, describes any applicable mitigation measures, and notes the residual impacts (i.e., the impact remaining after mitigation). All impact determinations, whether significant or not, are included in this table.

Table 3.3-3: Summary Matrix of Potential Impacts and Mitigation Measures for Biological Resources Associated with the Proposed Project

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
3.3 BIOLOGICAL RESOURCES			
Construction			
BIO-1a: Construction activities would result in the loss of individuals, or the reduction of existing habitat, of a state- or federally listed endangered, threatened, rare, protected, or candidate, or a species of special concern, or the loss of federally listed critical habitat.	Significant	**MM BIO-1. Avoid Marine Mammals.** Via the construction contract and the development permit the LAHD will require that pile driving activities for construction of the proposed Project include establishment of a safety zone and monitoring of the area surrounding the operations for pinnipeds by a qualified marine biologist. The monitor will have the authority to halt operations unless, in the opinion of the Port's project engineer (Engineer), halting operations would be unsafe. The safety zone will extend out to 500 meters from the site of the pile driving, wherever that activity is taking place. Before pile driving is scheduled to commence, observers on shore or in boats will survey the safety zone to ensure that no marine mammals are present. If marine mammals are observed within the safety zone, driving will be delayed until they move out of	Less than significant

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
		the area. If a marine mammal is seen above water and then dives below, the contractor will wait at least 15 minutes, and if no marine mammals are seen, it may be assumed that the animal has moved beyond the safety zone. This 15-minute criterion is based on a study indicating that pinnipeds dive for a mean time of up to about 4 minutes; the 15-minute delay will allow a more than sufficient period of observation to be reasonably sure the animal has left the vicinity. If pinnipeds enter the safety zone after pile has begun, pile driving will continue. The monitor will record the species and number of individuals observed and make note of their behavior patterns. If animals appear distressed, and if it is operationally safe to do so, the monitor will inform the Engineer that pile driving will cease until the animal leaves the area. In certain circumstances pile driving cannot be terminated safely and without severe operational difficulties. Therefore, if it is deemed operationally unsafe by the Engineer to discontinue pile driving activities, and a pinniped is observed in the safety zone, pile driving activities will continue only until the Engineer deems it safe to discontinue. **MM BIO-2. Minimize In-water Pile Driving Noise.** Via the construction contract the LAHD will require the contractor to use sound abatement techniques to reduce both noise and vibrations from pile driving activities. In addition to the "soft-start technique, which will be required at the initiation of each pile driving event or after breaks of more than 15 minutes, sound abatement techniques will include, but not be limited to, vibration or hydraulic insertion techniques, bubble curtains, isolation cage technology, sound aprons, and use of a cushion block on top of the pile being driven. Use of these techniques will reduce both the intensity of the underwater sound pressure levels radiating from the pile driving location	

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
		and the area in which levels would exceed the Level A and B harassment levels for marine mammals. **MM BIO-3. Conduct Nesting Bird Surveys.** Between February 15 and September 1 and prior to ground-disturbing activities, a qualified biologist will conduct surveys for the presence of nesting birds protected under the MBTA and/or similar provisions of the California Fish and Game Code within areas of the proposed project study area that contain potential nesting bird habitat. Surveys will be conducted 24 hours prior to the clearing, removal, or grubbing of any vegetation or ground disturbance. If active nests are located, then a barrier installed at a 50–foot radius from the nest(s) will be established and the tree/location containing the nest will be marked and will remain in place and undisturbed until a qualified biologist performs a survey to determine that the young have fledged or the nest is no longer active.	
BIO-2a: Construction activities would not result in a substantial reduction or alteration of a state-, federally, or locally designated natural habitat, special aquatic site, or plant community, including wetlands.	Less than significant	No mitigation is required.	Less than significant
BIO-3a: Construction activities would not result in interference with wildlife movement/ migration corridors that may diminish the chances for long-term survival of a species.	Less than significant	No mitigation is required.	Less than significant
BIO-4a: Construction activities for the proposed Project would not result in a substantial disruption of local biological communities.	Less than significant	No mitigation is required.	Less than significant
BIO-5a: Construction of	Less than	No mitigation is required.	Less than significant

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impacts after Mitigation*
the proposed Project would not result in a permanent loss of marine habitat.	significant		
Operations			
BIO-1b: Operation of the proposed Project would not result in the loss of individuals, or the reduction of existing habitat, of a state- or federally listed endangered, threatened, rare, protected, or candidate species, or a species of special concern, or the loss of federally listed critical habitat.	Less than significant	No mitigation is required.	Less than significant
BIO-2b: Operation of the proposed Project would not result in a substantial reduction or alteration of a state-, federally, or locally designated natural habitat, special aquatic site, or plant community, including wetlands.	Less than significant	No mitigation is required.	Less than significant
BIO-3b: Operation of the proposed Project would not result in interference with wildlife movement/migration corridors that may diminish the chances for long-term survival of a species.	Less than significant	No mitigation is required.	Less than significant
BIO-4b: Operation of the proposed Project would not result in a substantial disruption of local biological communities.	Less than significant	No mitigation is required.	Less than significant
BIO-5b: Operation of the proposed Project would not result in a permanent loss of marine habitat.	No impact	No mitigation is required.	No impact

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3.3.4.4 Mitigation Monitoring

Table 3.3-4. Mitigation Monitoring for Biological Resources

Impact BIO-1a: Construction of the proposed Project would result in the loss of individuals, or the reduction of existing habitat, of a state- or federally listed endangered, threatened, rare, protected, or candidate, or a species of special concern, or the loss of federally listed critical habitat.	
Mitigation Measure	**MM BIO-1. Avoid Marine Mammals.**
Timing	During construction activities.
Methodology	Via the construction contract and the development permit the LAHD will require that pile driving activities for construction of the proposed Project include establishment of a safety zone and monitoring of the area surrounding the operations for pinnipeds by a qualified marine biologist. The monitor will have the authority to halt operations unless, in the opinion of the Port's project engineer (Engineer), halting operations would be unsafe. The safety zone will extend out to 500 meters from the site of the pile driving, wherever that activity is taking place. Before pile driving is scheduled to commence, observers on shore or in boats will survey the safety zone to ensure that no marine mammals are present. If marine mammals are observed within the safety zone, driving will be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor will wait at least 15 minutes, and if no marine mammals are seen, it may be assumed that the animal has moved beyond the safety zone. This 15-minute criterion is based on a study indicating that pinnipeds dive for a mean time of up to about 4 minutes; the 15-minute delay will allow a more than sufficient period of observation to be reasonably sure the animal has left the vicinity. If pinnipeds enter the safety zone after pile has begun, pile driving will continue. The monitor will record the species and number of individuals observed and make note of their behavior patterns. If animals appear distressed, and if it is operationally safe to do so, the monitor will inform the Engineer that pile driving will cease until the animal leaves the area. In certain circumstances pile driving cannot be terminated safely and without severe operational difficulties. Therefore, if it is deemed operationally unsafe by the Engineer to discontinue pile driving activities, and a pinniped is observed in the safety zone, pile driving activities will continue only until the Engineer deems it safe to discontinue.
Responsible Parties	LAHD
Residual Impacts	Less than significant.
Mitigation Measure	**MM BIO-2. Minimize In-water Pile Driving Noise.**
Timing	During in-water pile driving activities
Methodology	Via the construction contract the LAHD will require the contractor to use sound abatement techniques to reduce both noise and vibrations from pile driving activities. In addition to the "soft-start technique, which will be required at the initiation of each pile driving event or after breaks of more than 15 minutes, sound abatement techniques will include, but not be limited to, vibration or hydraulic insertion techniques, bubble curtains, isolation cage technology, sound aprons, and use of a cushion block on top of the pile being driven. Use of these techniques will reduce both the intensity of the underwater sound pressure levels radiating from the pile driving location and the area in which levels would exceed the Level A and B harassment levels for marine mammals.

Responsible Parties	Contractor
Residual Impacts	Less than significant.
Mitigation Measure	**MM BIO-3. Conduct Nesting Bird Surveys.**
Timing	During construction that occurs between 15 February and 1 September.
Methodology	Between February 15 and September 1 and prior to ground-disturbing activities, a qualified biologist will conduct surveys for the presence of nesting birds protected under the MBTA and/or similar provisions of the California Fish and Game Code within areas of the proposed project study area that contain potential nesting bird habitat. Surveys will be conducted 24 hours prior to the clearing, removal, or grubbing of any vegetation or ground disturbance. If active nests are located, then a barrier installed at a 50–foot radius from the nest(s) will be established and the tree/location containing the nest will be marked and will remain in place and undisturbed until a qualified biologist performs a survey to determine that the young have fledged or the nest is no longer active.
Responsible Parties	LAHD
Residual Impacts	Less than significant.

3.3.4.5 Significant Unavoidable Impacts

The proposed Project would not result in any significant unavoidable impacts on biological resources. Mitigation measures would be incorporated to reduce potentially significant impacts on marine wildlife from pile driving activities to less-than-significant levels.