3.3

BIOLOGICAL RESOURCES

3.3.1 Introduction

This section identifies the environmental setting for biological resources within the PMPU area, identifies applicable regulations, and analyzes the potential impacts that could result from implementing the proposed Program. Mitigation measures and the significance of impacts after mitigation also are described.

3.3.2 Environmental Setting

The Port has been an active port for approximately 100 years and has undergone significant physical changes associated with its development, including the construction of the San Pedro and Middle Breakwaters, deepening of navigational channels and basins, and creating new fills to support cargo terminals and other Port facilities. These changes have resulted in Outer and Inner Harbor basin, channel, dock/piling, riprap, and open-water habitats. The Port also includes localized areas of wetlands, mudflats, and sandy beach. Most of the land in the Port was created by filling former marshes and open-water areas, and is currently largely developed with industrial uses. The Port is within a highly urbanized setting, surrounded by industrial, commercial, and residential areas.

The biological resources of Los Angeles Harbor have been described in several environmental studies and documents. Surveys of marine biological resources in the port complex have been conducted since the 1950s, with the most comprehensive studies conducted in the 1970s and substantially updated in 1987-1988, 1999-2000, and 2007-2008 (Harbors Environmental Projects [HEP] 1980; MEC Analytical Systems Inc. [MEC] 1988, 2002; Science Applications International Corporation [SAIC] 2010). Those surveys provide harbor-wide baseline and historical trend information. Focused surveys of the endangered California least tern, which currently nests at a 15-acre undeveloped area at the southern end of Pier 400, have been conducted for more than 20 years (Keane Biological Consulting [KBC] 2012). Other relevant data are provided by the compliance monitoring surveys conducted within the port complex for the Harbor Generating Station and Terminal Island Treatment Facility (e.g., MBC Applied Environmental Sciences [MBC] et al. 2007; City of Los Angeles Environmental Monitoring Division [CLA-EMD] 2008; MBC 2009).

3.3.2.1 Regional Setting

The Port is part of the larger Los Angeles-Long Beach complex (port complex) on the western edge of San Pedro Bay. The bay is sheltered by the headlands of the Palos Verdes peninsula to the west and a series of long breakwaters to the south, and wave energy also is dampened by Santa Catalina Island.

The PMPU area consists of approximately 7,500 acres of land and water, of which, including approximately 2,800 acres is open water habitat. The protected environment and diversity of habitats provide important nursery and foraging habitat for coastal marine fish, and nesting and foraging habitat for many resident and migratory birds (MEC 2002; SAIC 2010).

Los Angeles Harbor is the terminus of the Dominguez Channel Watershed, which encompasses approximately 133 square miles of land and water within the southern portion of Los Angeles County. Approximately 81 percent of the watershed or 93 percent of the land is developed. The port complex represents approximately 9.5 percent of the watershed area. The Dominguez Channel, which is man-made, is the largest drainage feature in the watershed, extending approximately 15 miles from its origin in the City of Hawthorne to the Consolidated Slip at the northeast boundary of the Port.

The water areas of the Port are primarily tidal, open-water marine habitat. Salinities within the harbor are similar to the ocean, although somewhat lower salinities occur near storm drains and at the mouth of the Dominguez Channel.

Water and sediment quality within the Port is influenced by discharges from the watershed, as well as the industrial, commercial, and recreational uses within the ports. The State Water Resources Control Board (SWRCB) lists the Dominguez Channel, Los Angeles Harbor, and Long Beach Harbor as impaired within certain segments (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). However, existing biological conditions represent a significant improvement over historical conditions. Prior to the 1970s, harbor waters and sediments were significantly impaired by unregulated discharges of runoff and process waters. Biological studies have shown substantial improvements in marine habitat quality since the 1960s, largely because of federal and state water quality regulations governing wastewater and stormwater management (i.e., the Clean Water Act [CWA] and Porter-Cologne Water Quality Control Act, respectively) and industrial uses within the port complex (HEP 1980; MEC 2002; SAIC 2010). Dredge and fill projects also have removed contaminated sediments as part of channel deepening and created land, which has contributed to improved sediment conditions.

3.3.2.2 PMPU Area

The PMPU area (Figure 1.1-2) is within the coastal zone and extends from the outer breakwaters to most inland areas of the Port. Biologically sensitive areas within the PMPU area are shown in Figure 3.3-1. These include wetlands, coastal scrub, marine habitats of particular concern (eelgrass, kelp), and the designated California least tern nesting site.

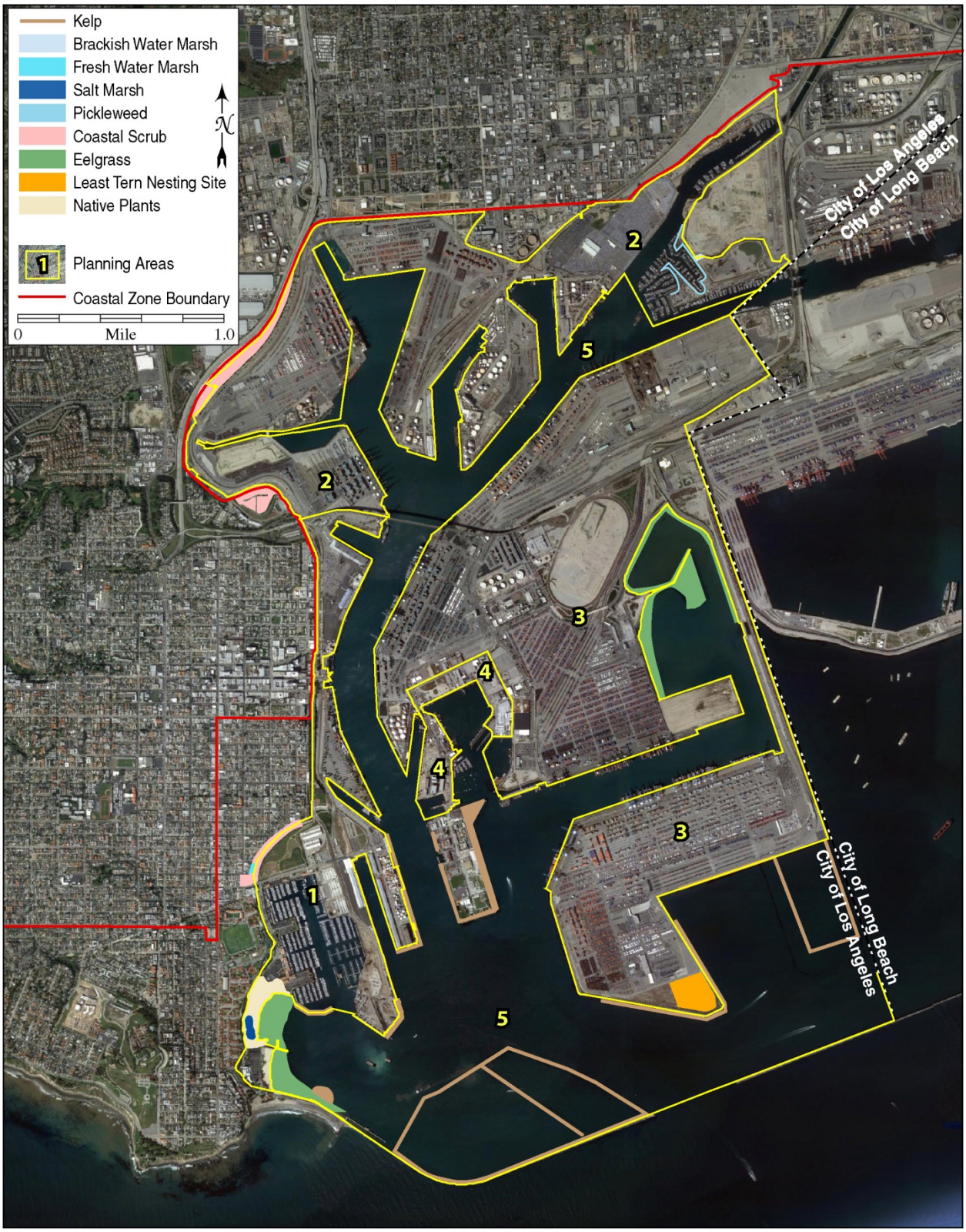

Figure 3.3-1. Biologically Sensitive Areas

Note: Eelgrass, kelp, and marsh habitats are illustrative and not intended for detailed planning. Nesting areas of birds covered under the Migratory Bird Treaty Act (MBTA) occur, but are not shown on the figure.
Source: LAHD unpublished georeferenced habitat layers

3.3.2.2.1 Terrestrial Habitats

Most of the terrestrial area within the PMPU area contains facilities and infrastructure such as buildings, roads, and paved container storage areas with limited vegetated habitats. Terrestrial habitats in this document are defined as uplands above tidal influence, but also encompass lands that may have freshwater influence.

Vegetation

Terrestrial areas within the ports are heavily modified and/or developed, such that, with minor exceptions, they provide only highly disturbed and remnant or ruderal (weedy) habitats (USACE and LAHD 2009, 2012b). Coastal scrub habitat occurs in localized areas near 22nd Street and in the northwestern portion of the Port boundary (Figure 3.3-1).

Undeveloped areas generally are dominated by non-native species (e.g., iceplant, castor bean, fan palm, and various grasses; SAIC 2004, 2007; KBC 2012; USACE and LAHD 2012), but may include a mix of non-native and native species. Native species such as alkali heath (*Frankenia salina*), coyote bush (*Baccharis pilularis*), evening primrose (*Oenothera* sp.), four-winged saltbush (*Atriplex canescens*), horseweed (*Conyza canadense*), mulefat (*Baccharis salicifolia*), salt heliotrope (*Heliotropium curassavicum*), telegraph weed (*Heterotheca grandiflora*), western ragweed (*Ambrosia psilostachya*) or wire lettuce (*Stephanomeria virgata*) also may occur (SAIC 2007; USACE and LAHD 2012).

Developed areas may include landscape trees, shrubs, or grass. Relatively common trees in ornamental areas include Brazilian pepper tree (*Schinus* sp.), Canary date palm (*Phoenix canariensis*), coral tree (*Erythrina* sp.), eucalyptus (*Eucalyptus* sp.), Indian Laurel trees (*Ficus microcarpa*), jacaranda (*Jacaranda mimosifolia*), melaleuca (*Melaleuca* sp.), and Mexican fan palm (*Washingtonia robusta*) (MBC 2008). Commonly observed species in landscaped areas include bougainvillea (*Bougainvillea* sp.), lantana (*Lantana* sp.), rosea iceplant (*Drosanthemum floribundum*), sweet clover (*Melilotis alba*), and weedy annual species.

Wildlife

Wildlife use of developed and most undeveloped areas within the PMPU area is limited. The majority of species that are known or have the potential to occur are adapted to human-disturbed landscapes. These include various common insects; native lizards; and, a variety of native and non-native small mammals, including Botta's pocket gopher (*Thomomys bottae*), Norway rat (*Rattus norvegicus*), black rat (*R. rattus*), house mouse (*Mus musculus*), cottontail rabbit (*Sylvilagus* sp.), Virginia opossum (*Didelphis virginiana*), common raccoon (*Procyon lotor*), feral cats (*Felis catus*), and possibly coyotes and red foxes (KBC 2011; LAHD 2012).

Bats (*Myotis* spp.) have been observed roosting under the Gerald Desmond Bridge in Inner Long Beach Harbor, and the Yuma bat (*M. yumanensis*) and Mexican free-tailed bat (*Tadarida brasiliensis*) are considered likely to occur (Port of Long Beach and California Department of Transportation [Caltrans] 2010).

A number of upland bird species may be found in the PMPU area (MEC 2002; MBC 2008; USACE and LAHD 2009, 2012a,b; SAIC 2010). Rock pigeon (*Columba livia*) and European starling (*Sturnus vulgaris*) generally are the most abundant species (SAIC 2010). Other commonly reported species include mourning dove (*Zenaida macroura*), loggerhead shrike (*Lanius ludovicianus*), northern mockingbird (*Euphagus cyanocephalus*), American crow (*Corvus brachyrhynchos*), common raven (*C. corax*), 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*). These common species are adapted to urban and disturbed habitats. Rock pigeon, European starling, and house sparrow are non-native species.

Several of the above-noted bird species may nest within the PMPU area. For example, American crows have been observed nesting on riprap; common ravens and European starlings nest on dock/pilings; and, rock pigeons nest on the underside of piers and on buildings (MEC 2002; SAIC 2010). Swallows, sparrows, and rock pigeons often nest under eaves; and hummingbirds, starlings, warblers, finches, and house sparrows commonly nest in shrubs and palm trees (MBC 2008; LAHD 2012). Loggerhead shrikes are suspected of having nested adjacent to the Pier 400 nest site in 2011 (KBC 2012).

Several raptors occur in the harbor area, including American kestrel (*Falco sparverius*), burrowing owl (*Athene cunicularia*), Cooper's hawk (*Accipiter cooperii*), merlin (*Falco columbarius*), red-tailed hawk (*Buteo jamaicensis*), peregrine falcon (*Falco peregrinus*), and turkey vulture (*Cathartes aura*) (MBC 2008; SAIC 2010; KBC 2011). American kestrels typically nest in the port complex in cavities of structures or under dead palm tree leaves (Port of Long Beach and Caltrans 2010). Peregrine falcons have been reported nesting on bridges in the port complex (Vincent Thomas, Gerald Desmond, and Schuyler F. Heim bridges) (MEC 2002; SAIC 2010).

Marine-associated birds are addressed in Section 3.3.2.2.4, Marine Birds.

3.3.2.2.2 Benthic Marine Environments

Organisms that live in (benthic infauna) and on (benthic epifauna) bottom sediments are important to overall biological community functions and productivity, contributing to nutrient recycling and providing important food sources for fish, invertebrates, and other organisms. Several hundred species of invertebrates occur in the port complex (MEC 2002; SAIC 2010).

The density and species composition of these organisms are influenced by sediment grain size, nutrient levels, water depth, pollutant levels in the sediments and overlying water, and time since dredging. Annual and seasonal variations in the density of infaunal organisms occur as a result of variations in climate and oceanographic conditions (e.g., El Niño events) and human activities (USACE and LAHD 1992; MEC 2002). Data from the 1950s to the present show that there have been improvements in the benthic environment, including increased species diversity, that have been attributed largely to better source control of discharges and ongoing improvements in water quality (USACE and LAHD 1984; MEC 2002). There has

been an expansion of healthy Outer Harbor species assemblages up the main channel and improved benthic indicators in Inner Harbor areas over the last decade (MEC 2002; SAIC 2010).

Common epifaunal invertebrates include black spotted shrimp (*Crangon nigromaculata),* New Zealand bubble snail (*Philine auriformis*), spotwrist hermit crab (*Pagurus spilocarpus*), tuberculate pear crab (*Pyromaia tuberculata),* and Xantus' swimming crab (*Portunus xantusii*) (MEC 2002; CLA-EMD 2008; SAIC 2010).

Fish commonly associated with soft bottoms include arrow goby (*Clevelandia ios*), bay goby (*Lepidogobius lepidus*), blenny (*Hypsoblennius* spp.), California halibut (*Paralichthys californicus*), California tonguefish (*Symphurus atricauda*), diamond turbot (*Hypsopsetta guttulata*), horneyhead turbot (*Pleuronichthys verticalis*), speckled sanddab (*Citharichthys stigmaeus*), and non-native yellowfin goby (*Acanthogobius flavimanus*).

3.3.2.2.3 Water Column Habitats

Organisms in the water column include plankton (small floating animals and plants) and fish. Phytoplankton (plant) communities tend to be less diverse in the Inner Harbor than in the Outer Harbor, but productivity can be higher in the Inner Harbor due to warmer water temperatures, nutrient inputs, and reduced circulation (HEP 1980). Zooplankton (animal) communities generally are dominated by copepods that have seasonal peaks and declines. Ichthyoplankton (fish eggs and larvae) species and abundances vary by location and season. However, an overall similarity in dominant species of ichthyoplankton, juvenile, and adult fish suggest that the harbor is an important nursery area for fish (Brewer 1983; MEC 1988, 2002; MBC et al. 2007; SAIC 2010).

Generally, the most abundant fish in water column habitats include northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), topsmelt (*Atherinops affinis*), queenfish (*Seriphus politus*), shiner surfperch (*Cymatogaster aggregata*), specklefin midshipman (*Porichthys myriaster*), and white croaker (*Genyonemus lineatus*) (MEC 2002; CLA-EMD 2008; SAIC 2010).

3.3.2.2.4 Marine Birds

Numerous water-associated birds are residents or seasonal visitors to the Port. More than 65 water-associated species were recorded throughout the port complex during 2000 and 2008 surveys (MEC 2002; SAIC 2010). Species numbers vary seasonally, with a greater variety of birds present in fall and winter months and fewer species during summer, consistent with large-scale migratory patterns. On average, each of the 20 surveys undertaken in the 2008 survey counted over 6,000 birds present in marine areas of the harbors at any one time.

Gulls generally are present in fairly consistent numbers throughout the year, with western gull (*Larus occidendalis*) as a dominant species. Other gulls that commonly occur during part of the year include California gull (*L. californicus*), Heermann's gull (*L. heermanni*), and ring-billed gull (*L. delawarensis*). Western gulls were

observed nesting on a variety of structures during surveys in 2008, including a barge, riprap, and dock/pilings (SAIC 2010).

The most common waterfowl species from recent surveys include Brandt's cormorant (*Phalacrocorax penicillatus*), double-crested cormorant (*P. auritus*), surf scoter (*Melanitta perspicillata*), and western grebe (*Aechmophorus clarkii*). Brandt's cormorants nested within Long Beach Middle Harbor and double-crested cormorants nested on transmission towers in Inner Long Beach Harbor in 2008 (SAIC 2010).

California brown pelicans (*Pelecanus occidentalis californicus*) seasonally move between nesting sites on offshore islands and mainland foraging and resting areas. The endangered California least tern (*Sternula antillarum browni*), as well as Caspian tern (*Hydroprogne caspia*) and elegant tern (*Thalasseus elegans*), may reach high numbers during late spring and summer while nesting on Pier 400 (MEC 2002; SAIC 2010; KBC 2011).

Black-crowned night herons (*Nycticorax nycticorax*), great blue herons (*Ardea herodias*), and snowy egrets (*Egretta thula*) nest in large trees and on structures such as light standards or transmission lines in the study area (MBC 2008; USACE and LAHD 2009; Mudry 2012, personal communication).

Shorebirds also are seasonal in occurrence. Black oystercatchers (*Haematopus bachmani*) nest on the outer breakwater and contribute to seasonally higher abundances during spring-summer (SAIC 2010). Black-bellied plovers (*Pluvialis squatarola*), least sandpipers (*Calidris minutilla*), sanderlings (*Calidris alba*), and whimbrels (*Numenius phaeopus*) are more abundant during winter and/or spring (SAIC 2010). Killdeer (*Charadrius vociferous*) are relatively common and may nest on Piers 300 and 400 and vacant lands within the port complex (Mudry 2012, personal communication).

Ospreys (*Pandion haliaetus*) have been observed in the harbor, in addition to the other raptors identified above for terrestrial habitats.

3.3.2.2.5 Marine Mammals

The California sea lion (*Zalophus californianus*) is the most abundant marine mammal in the port complex, and can be more numerous adjacent to the municipal fish market in the Main Channel and in Fish Harbor (MEC 2002; SAIC 2010). They haul out and rest on riprap, buoys, and docks. Harbor seals (*Phoca vitulina*) also generally occur, but in relatively lower numbers. No marine mammals breed in the harbor; local seals and sea lions primarily breed at the offshore Channel Islands.

The Pacific bottlenose dolphin (*Tursiops truncatus*) and common dolphin (*Delphinus delphis*) may occasionally occur in low numbers in the Outer Harbor (SAIC 2010). The gray whale (*Eshrichtius robustus*) rarely may enter the Outer Harbor (MEC 2002).

3.3.2.2.6 Special-Status Species

Several federally- or state -listed threatened or endangered species are known to be present, at least seasonally, in the port complex (Table 3.3-1). Sensitive birds with the potential to occur include three listed species, two fully protected species, and several

Species of Special Concern (SSC; primarily for nesting populations). Although not listed on the table, many bird species are protected under the Migratory Bird Treaty Act (MBTA) and Fish and Game Code 3513. In addition, Fish and Game Code Sections 3503 and 3503.5 specify protection of nests and eggs of any native or migratory bird.

Table 3.3-1. Special Status Wildlife Species With Potential to Occur in the PMPU Area

Common Name	*Scientific Name*	*Status*[a]		*Habitat Use*
		Federal	*State*	
California least tern	*Sternula antillarum browni*	E	E, FP	Nests at Pier 400; forages on fish in open waters; present April-August; migratory.
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	--	E	Transient visitor; insufficient pickleweed habitat at Salinas de San Pedro (Cabrillo marsh).
Western snowy plover	*Charadrius alexandrinus nivosus*	T		Migrant at Pier 400; no nesting 2003-2012; no critical habitat in harbor.
American peregrine falcon	*Falco peregrinus anatum*	Delisted	FP	Resident; nests on bridges in the Inner Harbor; forages over several miles throughout the Port on birds.
California brown pelican	*Pelecanus occidentalis californicus*	Delisted	FP	Roosts/rests on breakwaters, other structures, water; forages on fish in open waters. Nests on offshore islands.
Black skimmer	*Rynchops niger*	--	SSC[b]	Nested at Pier 400 in 2012; forages over water; present all year.
Brant	*Branta bernicla*	--	SSC	Migrant, few on open water of Long Beach Harbor in 2008.
Burrowing owl	*Athene cunicularia hypugea*	--	SSC[b]	Transient at Pier 400 and near Fries Ave. No nesting 2003-2012.
Common loon	*Gavia immer*	--	SSC[b]	Occasional winter visitor; no nesting documented in the Port.
Loggerhead shrike	*Lanuis ludovicianus*	--	SSC[b]	Primarily Inner Harbor on riprap or dock/piling habitat; forages on birds; suspected as nesting on Pier 400 in 2011.
Vaux's swift	*Chaetura vauxi*	--	SSC[b]	Widespread migrant (aerial only); no nesting documented in the Port.
California western mastiff bat	*Eumops perotis californicus*	--	SSC	Low potential for habitat in crevices or compartments in buildings or warehouses; may forage over uplands.
Townsend's big-eared bat	*Corynorhinus townsendii*	--	SSC	Potential to occur; prefer open roosting areas (e.g., large rooms in abandoned buildings, under bridges).
California sea lion	*Zalophus californianus*	P	--	Common year round in the Port.
Harbor seal	*Phoca vitulina*	P	--	Uncommon in the Port.
Gray whale	*Eschrichtius robustus*	Delisted	--	Migratory; southward in fall, northward Feb-May. Rare occurrence in harbor.
Green sea turtle	*Chelonia mydas*	T	--	Very low potential; transient sightings in Los Alamitos Bay, San Gabriel River; more common south of San Diego.

Notes:
a. E = endangered, T = threatened, FP = fully protected, P = protected under the Marine Mammal Protection Act, SSC = California Species of Special Concern
b. nesting population
Sources: MEC 2002; KBC 2005, 2007, 2012; Port of Long Beach and Caltrans 2010; SAIC 2010; LAHD 2012

Bat SSC with the potential to occur in the port complex, based on distribution and habitat preferences, are listed in Table 3.3-1.

All marine mammals are protected. The species of primary concern within the port complex are included on Table 3.3.-1; other marine mammals with the potential to occur offshore are reviewed below but are not listed on the table. Similarly, several species of sea turtles, which are federally protected, have the potential to occur offshore, although the potential for occurrence in the port complex is very low.

California Least Tern

The California least tern is a migratory species that has been nesting at the Port since at least 1973 (KBC 2012). In 1979, LAHD began providing nesting habitat for the species and in 1984 entered into a MOA with the USFWS, the USACE, and CDFG for management of a 15-acre least tern nesting site. The MOA sets forth the responsibilities of the signing parties for management of the designated least tern nesting site within the Harbor, and is renewed every 3 to 5 years, most recently in 2012.

The MOA allows the designated nesting site to be relocated under specific conditions. For example a site on Pier 300 was decommissioned in 1998 and since then most nesting has been within the fenced nesting site on Pier 400, although nesting also has been documented outside the fence on adjacent undeveloped land to the west.

Numbers of least tern pairs, nests, and eggs at Pier 400 were relatively high in 2003-2009, substantially declined between 2010 and 2011, and increased in 2012 to similar levels observed in 2010 (Table 3.3-2). Nesting success is dependent on several factors, including prey availability, predation, and disturbance. When prey is insufficient, there is an increase in egg abandonment or non-viability. Prey availability was considered the limiting factor to declines in nesting by least terns in 2010 and 2011 (KBC 2012). While egg predation was a contributing factor to low nesting success at Pier 400 in 2010, the majority of eggs were abandoned or infertile in 2011. Many other sites in the state also reported lower numbers of least terns in 2010 and 2011, but this was the first time since 1986 that the recorded statewide breeding population declined in two consecutive years (Marshalek 2011, 2012). In 2011, the estimated statewide number of least tern breeding pairs (minimum breeding pairs) was the lowest recorded since 2002. In 2011, statewide chick mortality due to non-predation factors was greater than predation. Limited food sources was suggested as contributing to the lack of nesting at some sites, lower numbers of breeding pairs, and higher chick mortality (Marschalek 2012). Commercial catches of northern anchovies, which sharply declined in 2009 and are a common prey species for least tern, were 93 percent lower in 2010 compared to 2008 (CDFG 2011).

Least terns feed in both saltwater and freshwater habitats on a variety of small (4 inches or less) fish (Atwood and Kelly 1984). The most abundant prey species selected by least terns breeding in California are northern anchovies, topsmelt, jacksmelt (*Atherinopsis californiensis*), deepbody anchovy (*Anchoa compressa*), and slough anchovy (*Anchoa delicatissima*) (H.T. Harvey & Associates 2012). Several of these species are typically dominant or relatively common members of fish communities in the port complex (SAIC 2010).

Table 3.3-2. Total Number of Least Tern Nests and Eggs at the Pier 400 Nest Site, 2003-2012

Year	*Pairs*	*Nests*	*Eggs*	*Fledgling Success/Pair*
2003	894	963	1,807	0.74
2004	951	1,071	1,748	0.58
2005	1,254	1,332	2,411	0.69
2006	835	907	1,494	0.77
2007	669	710	1,135	0.28
2008	486	529	891	0.43
2009	371	435	685	0.20
2010	190	216	345	0.02
2011	8	10	16	0
2012	203	211	358	0.17
Sources: KBC 2012; Mudry 2012, personal communication				

Several foraging studies have been conducted within the Port (KBC 2011). Surveys in 1982, 1984, and 1985 found that least terns foraged over shallow water (generally less than 20 feet deep) in the Outer Harbor, especially near the Pier 400 least tern nesting site, but not in the Inner Harbor. Surveys in 1986-1987 using radio-telemetry and observations showed that least terns foraged both inside and outside the harbor with more foraging near the breakwater during incubation and more foraging inside the harbor after the eggs hatched. A study in 1997-1998 found that least terns used the West Basin of Long Beach Harbor, Pier 300 Shallow Water Habitat, Seaplane "Lagoon," and the Gap (area between Naval Mole and Pier 400 Transportation Corridor). A foraging study in 2001-2003 found foraging to be high in the Pier 300 Shallow Water Habitat, north side of Pier 400 adjacent to the causeway (west side), and in the Cabrillo Shallow-Water Habitat near Cabrillo Beach (KBC and Aspen Environmental Group 2004) (Figure 3.3-1, shallow water).

During the 2000 and 2008 baseline studies, the majority of least tern observations were of individuals foraging or flying in the vicinity of their designated nesting site on Pier 400, although least terns also were observed foraging throughout outer Los Angeles Harbor, within outer Long Beach Harbor, inner harbor basin and channel areas of both ports, and along the outer breakwater (MEC 2002; SAIC 2010). It is notable that studies have varied in scope and do not equally assess the relative importance of various areas of the Port for least tern foraging. Construction of Pier 400 and the Cabrillo Shallow-Water Habitat also modified Outer Harbor foraging habitat. Nevertheless, studies indicate that least terns forage both inside and outside the harbor, and that different areas may be more or less utilized, presumably related to availability of suitable prey.

Other Special Status Bird Species

The endangered **Belding's savannah sparrow** inhabits pickleweed marshes exclusively (USACE and LAHD 1992). Small areas of pickleweed occur within the Port area, but do not support more than occasional visits by the species.

The threatened **western snowy plover** is a small shorebird that nests on coastal beaches and often co-occurs at least tern nest sites in California. Critical habitat has been designated and revised for the species (USFWS 2012); no locations occur within the Port area. Snowy plovers are occasional visitors at Pier 400, but have not been documented as nesting in the port complex (Mudry 2012, personal communication). Similarly, few individuals have been observed at Point Fermin and Cabrillo Beach outside the breakwater (Ryan Ecological Consulting et al. 2009).

American peregrine falcon has been removed from the state and federal endangered species lists (delisted), but remains fully protected by the State of California. The species has been reported as nesting on bridges in the port complex (Vincent Thomas, Gerald Desmond, and Schuyler F. Heim bridges). This species preys on birds, is a potential predator of least terns, and has been sighted in the vicinity of the Pier 400 least tern nest site in 2008-2011 (KBC 2012).

The **California brown pelican** has been removed from the endangered species list but remains fully protected by the State of California. There has been a substantial and widespread increase in their population since the mid-1980s that has been linked to the ban of DDT (dichloro-diphenyl-trichloroethane) (Burkett et al. 2007), and the species is now one of the most abundant marine birds in the harbor (SAIC 2010). Pelicans roost on the outer breakwater, plunge-dive for fish or rest on open waters within and outside the harbor. Although present year-round in the port complex, pelicans are more abundant between May and early November (MEC 2002; SAIC 2010). Most birds are at offshore islands during the January through April peak nesting season, with the nearest nesting colonies located on west Anacapa and Santa Barbara Islands.

Several species are designated as state SSC. In many cases, the SSC designation only applies to nesting colonies. **Black skimmers** nested at Pier 400 in 2012. **Loggerhead shrikes** are suspected of having nested adjacent to Pier 400 in 2011 (KBC 2012). **Brant** is a SSC at wintering and staging areas; six individuals were observed during a February 2008 survey (SAIC 2010). **Burrowing owls** occasionally have been observed near Fries Avenue on Mormon Island and Pier 400 in areas with potentially suitable nesting habitat); however, no nesting has been confirmed (Mudry 2012, personal communication). The **common loon** and **Vaux's swift** have been observed only as migrants, and thus their occurrence does not satisfy the nesting SSC definition.

Bats

The California western mastiff bat is a SSC and is considered rare or infrequent, possibly roosting in large buildings or tall trees (LAHD 2012). Townsend's big-eared bat is a SSC with the potential to occur under bridges in the port complex, but they have not actually been reported from the harbor area (Port of Long Beach and Caltrans 2010).

Marine Mammals

All marine mammals are protected under the Marine Mammal Protection Act (MMPA). Sea lions are the most commonly observed species in the port complex. Harbor seals are

less commonly observed, and Pacific and common dolphins may be seen occasionally. The gray whale, which is a delisted endangered species, has rarely been observed in the Outer Harbor.

Outside the breakwater, a variety of marine mammals use nearshore waters, including dolphins, porpoises, and whales. The most commonly observed whales are the gray whale, which migrates from the Bering Sea to Mexico and back each year, and the endangered blue whale (*Balaenoptera musculus*), which may be observed as single individuals or in small pods of several individuals. Other whales more likely to be observed nearshore, at least seasonally, include the federally endangered fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), sperm whale (*Physeter macrocephalus*), killer whale (*Orcinus orca*), and the protected minke whale (*Balaenoptera acutorostrata*) (LAHD 2012).

Collisions with vessels pose a threat to whales. A total of 65 vessel strikes with whales were recorded for California coastal waters between 1982 and 2007 (NMFS 2007). The total 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. Of the recorded vessel strikes, blue whales accounted for 15 percent, or less than one every 2 years, and gray whales accounted for about 42 percent of the strikes. An average of three California sea lions and three harbor seals are killed or injured by boat collisions in California each year (Carretta et al. 2004).

Vessel speed has been linked to collision and fatality of large whales. Jensen and Silber (2003) compiled and analyzed 134 cases of whale strikes based on the type of vessel and the vessel speed. Of these, 15 percent involved container/cargo ships/freighters, and 6 percent involved tankers. Vessel speed was known for 58 cases; of those, most vessels were traveling more than 13 knots, and the average speed was 18.6 knots. Jensen (2004) prepared a “white paper” review of whale strikes and vessel speed for NOAA, indicating data strongly suggest that ships going slower than 14 knots are less likely to collide with large whales, and recommended speed restrictions in the range of 10-13 knots where feasible to reduce the risk of ship strikes and facilitate whale avoidance. Similarly, Vanderlaan and Taggert (2007) analyzed these and other published records and determined there was a 50 percent chance of whale serious injury or mortality when struck at a speed of 11.8 knots, and the odds approached 100 percent at speeds greater than 15 knots. In a recent shipping industry outreach, NOAA (2012) recommends that from May through November vessels transiting the area between Point Arguello and Dana Point, including the Traffic Separation Schemes in the Santa Barbara Channel and San Pedro Channel, should exercise caution and reduce speed to reduce ship strike risk to whales.

Sea Turtles

No sea turtles have been reported during surveys within the port complex (MEC 1988, 2002; SAIC 2010). Sea turtles do not nest on beaches or congregate in nearshore waters of southern California, and no designated critical habitat occurs off California. Green sea turtles have been reported in Alamitos Bay and San Gabriel River, which are located several miles southeast of the study area (Aquarium of the Pacific 2008), but they most commonly occur from San Diego south (NMFS 2012a). They have a low potential to occur in the port complex.

Based on their distributional ranges (NMFS 2012a), the following sea turtles have the potential to occur offshore: loggerhead (*Caretta caretta*); leatherback (*Dermochelys coriacea*); and olive ridley (*Lepidochelys olivacea*). The leatherback sea turtle is federally endangered, and the other species are federally threatened.

Loggerhead sea turtles 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 2012a). Leatherback sea turtles are found worldwide with the largest north and south range of all the sea turtle species. Olive ridley sea turtles are occasionally seen along the southern California coast.

3.3.2.2.7 Essential Fish Habitat

Fish require healthy surroundings to survive and reproduce. Essential Fish Habitat (EFH) is managed under the Magnuson-Stephens Fishery Conservation and Management Act (Section 3.3.3.1, Federal Regulations). EFH means those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity. Substrate includes sediment, hard bottom, structures underlying the water, and associated biological communities. Habitat areas of particular concern (HAPC), which are a subset of EFH, also are recognized and include estuaries, canopy kelp, seagrass, rocky reefs, and other "areas of interest" (such as offshore banks, canyons, seamounts). HAPCs are not afforded any additional regulatory protection under the Magnuson-Stevens Act, but may be subject to more stringent EFH conservation recommendations or used to focus management and restoration efforts. Eelgrass, kelp, and estuarine waters of the port complex are considered HAPC under the *Pacific Coast Groundfish Fishery Management Plan* (FMP).

Federal agencies and permit applicants must consult with NMFS on actions that may adversely affect EFH, which is identified and described for managed species in the relevant FMPs. Two FMPs are relevant to fish occurring within the Port: Coastal Pelagics and Pacific Coast Groundfish. Of the more than 90 species federally managed under these plans, 4 coastal pelagic species and 17 Pacific coast groundfish have been collected as adults in the port complex (Table 3.3-3).

Northern anchovy was the most abundant and Pacific sardine was among the top five most abundant pelagic fish during recent baseline surveys (MEC 2002; SAIC 2010). Northern anchovy and Pacific sardine support a commercial bait fishery in the Outer Harbor. Jack mackerel (*Trachurus symmetricus*) and Pacific (chub) mackerel (*Scomber japonicus*) were less abundant, but relatively common throughout the port complex.

Pacific sanddab (*Citharichthys sordidus*), which occurs in deepwater, soft-bottom habitat in the Outer Harbor, was the most abundant Groundfish FMP species during recent baseline surveys (MEC 2002; SAIC 2010). Other Groundfish FMP species were collected in low numbers in the port complex. Several of the Groundfish FMP species are more typically associated with structures, kelp, or hard-bottom such as along breakwaters and dikes, which may contribute to their low numbers in trawls towed along the soft-bottom near such structures. Focused surveys along the San Pedro Breakwater in 1986-1987 found olive rockfish to be relatively common in occurrence (MEC 1988).

Table 3.3-3. Fisheries Management Plan Species in the PMPU Area

Common Name	*Scientific Name*	*Notes*
Coastal Pelagics Fishery Management Plan		
Northern anchovy	*Engraulis mordax*	Abundant throughout harbor [1, 5]
Pacific sardine	*Sardinops sagax*	Common throughout in harbor in 2000[1], 2008[5]
Pacific (chub) mackerel	*Scomber japonicus*	Common throughout harbor in 2000[1], uncommon 2008[5]
Jack mackerel	*Trachurus symmetricus*	Common in Inner to Middle Harbor and uncommon in Outer Harbor, primarily in deep water[1] uncommon 2008[5]
Pacific Coast Groundfish Fishery Management Plan		
English sole	*Parophrys vetulus*	Rare, 2000[1,5]
Pacific sanddab	*Citharichthys sordidus*	Common, primarily Outer Harbor deep water areas in 2000, 2008[1, 5]
Cabezon	*Scorpaenichthys marmoratus*	Rare, shallow water, multiple habitats, prefer hard substrate[1, 6]
California scorpionfish	*Scorpena guttatta*	Uncommon, along rock dikes and breakwaters, also on soft bottom at night[1-5]
Lingcod	*Ophiodon elongatus*	Rare, shallow water, multiple habitats, prefer hard substrate[1, 6]
Black rockfish	*Sebastes melanops*	Uncommon[1]
Bocaccio	*S. paucispinis*	Uncommon, juveniles in kelp around breakwater, multiple habitat associations[2, 6]
Brown rockfish	*S. auriculatus*	Rare, prefer hard substrate[6]
Calico rockfish	*S. dalli*	Rare, multiple habitats, prefer hard substrate[4]
Grass rockfish	*S. rastrelliger*	Rare, collected in Pier 300 Shallow Water Habitat and in Long Beach Harbor, hard substrate, kelp, eelgrass[1,6]
Kelp rockfish	*S. atrovirens*	Rare, in kelp along breakwater[2]
Olive rockfish	*S. serranoides*	Common, juveniles in kelp around breakwater[2,3]
Vermillion rockfish	*S. miniatus*	Uncommon, juveniles soft-bottom, adults hard bottom[1,5,6]
Big skate	*Raja binoculata*	Uncommon, soft bottom, primarily in shallow water[1]
California skate	*R. inornata*	Uncommon, soft bottom[1, 5]
Leopard shark	*Triakis semifasciata*	Rare, multiple habitat associations (soft bottom, kelp, eelgrass, near structures)[1,5]
Spiny dogfish	*Squalus acanthias*	Rare, pelagic and on muddy bottoms[5]
Sources: 1. MEC 2002; 2. MEC 1999; 3. MEC 1988; 4. SAIC and MEC 1997; 5. SAIC 2010; 6. MBC and Camp, Dresser and McKee 2011		

3.3.2.2.8 Special Aquatic Habitats

Eelgrass

Eelgrass beds are considered a special aquatic site (vegetated shallows) pursuant to the CWA 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and are considered EFH-HAPC. Eelgrass (*Zostera marina*) is a rooted aquatic plant that inhabits shallow, soft bottom habitats in bays and estuaries and sheltered coastal areas. It can form dense beds that provide substrate, food, shelter, and nursery habitat for a variety of invertebrates and fish, ranging from bat rays to halibut. Small anchovies and topsmelt also commonly occur, contributing to the foraging value of shallow water habitat to endangered California least terns.

Eelgrass occurs in the Pier 300 Shallow Water Habitat as well as adjacent Seaplane Lagoon, and in the shallows off Cabrillo Beach (Figure 3.3-1). Eelgrass beds vary in size seasonally and among years. Total eelgrass acreage in the harbor ranged from 50 to 85 acres across seasons and years during 2000 and 2008 surveys (MEC 2002; SAIC 2010). Eelgrass has substantially expanded from small planting efforts in localized portions of those two areas in 1985 (Cabrillo) and 2002-2003 and 2007 (Pier 300). Eelgrass also has been found as localized, sparse patches in the Cabrillo Way Marina (SAIC 2010).

Kelp

Kelp beds also are EFH-HAPC. Kelp substantially contributes to the overall quality of hard bottom habitats by providing structural height and diversity of habitat, food and nutrients, attachment sites for invertebrates and fish eggs, and protective cover and foraging opportunities for juvenile and adult fish.

Narrow kelp beds dominated by giant kelp (*Macrocystis pyrifera*) and to a lesser extent feather boa kelp (*Egregia menziesii*) are present in the Outer Harbor attached to rocky substrate, which occurs along the breakwater, marina jetty, riprap faces of piers, the containment dike of the Cabrillo Shallow Water Habitat, and the dike along the edges of the Pier 400 Submerged Storage Site (Figure 3.3-1). Kelp was originally planted along the breakwater in 1977 and has substantially expanded since then. Kelp beds undergo seasonal expansion in spring and die-back in late summer, and the surface canopy development also varies among years. For example, kelp acreage ranged between 14 and 25 acres in 2000 and 52 to 80 acres in 2008 (MEC 2002; SAIC 2010). Considerable among-year variability occurs in southern California in response to oceanographic conditions, such as El Niño/La Niña events. Expansion since 2000 likely was related to a combination of more favorable oceanographic conditions as well as increases in rocky substrate as a result of construction of additional jetties, riprap-supported piers, and the Cabrillo Shallow Water Habitat (SAIC 2010).

Mudflats

Mudflats are considered a special aquatic site under the CWA. Relatively small mudflat areas occur at the Salinas de San Pedro (Cabrillo Marsh) and in the vicinity of Berth 78-Ports O'Call (USACE and LAHD 2009). The mudflat at Salinas de San Pedro recently was expanded to approximately 1 acre in size as part of mitigation for the San Pedro Waterfront Development Project, which resulted in shading of a small (less than 0.2 acre) mudflat near Berth 78.

Wetlands

Wetlands are regulated under the CWA. The definition of wetlands varies somewhat among state and federal agencies, but the USACE uses a three-parameter method that includes assessment of vegetation, hydrology, and soils. The Salinas de San Pedro (also referred to as Cabrillo marsh) is a 3.3-acre salt marsh located near Cabrillo Beach in the Outer Harbor. The marsh was created by the LAHD as mitigation for fill, and provides habitat and educational opportunities for visitors to the Cabrillo Marine Aquarium. A small freshwater marsh has been restored near 22nd Street, and

remnant brackish marsh occurs along the shoreline of the Wilmington Marinas in the East Basin beyond the boundary of the PMPU area (Figure 3.3-1). Pickleweed (*Salicornia virginica*) also occurs along the shoreline of the Wilmington Marinas.

3.3.2.2.9 Wildlife Movement Corridors

The port complex occurs between dense, urban development and ocean waters; therefore, natural corridors (topographic or habitat pathways) supporting terrestrial wildlife movement do not occur. However, some marine fish species move into and out of the harbor for spawning, access to protected nursery areas, or to forage. Several species of migratory birds seasonally use (breeding or non-breeding) the Port. Marine mammals, such as the gray and blue whale, migrate along the coast, and several species of marine turtles are migratory offshore.

3.3.2.2.10 Invasive/Non-Native Species

At least 46 invasive aquatic species have become established in waters of the port complex (Gregorio and Layne 1997). The primary source of these organisms is likely to have been discharges of ballast water from cargo vessels using the ports (National Research Council 1996). Other potential vessel sources include hulls, anchors and chains, piping and tanks, propellers, and suction grids; while other non-vessel sources include aquarists and restaurant live fish trade.

The overall percentage of invertebrate species that are non-native or of unknown origin (cryptogenic) was estimated as ranging between 14 and 15 percent in 2000 and 2008 (MEC 2002; SAIC 2010). Common to abundant species included amphipod crustaceans (*Caprella simia, Corophium heteroceratum*, *Eochelidium* sp., *Grandidierella japonica*), clams (*Theora lubrica, Venerupis phillipinarium*), New Zealand bubble snail, and polychaete worms (*Pseudopolydora paucibranchiata, Cossura candida, Nicolea* sp.).

The only non-native fish that has been collected in the port complex is the yellowfin goby (*Acanthogobius flavimanus*) (MEC 2002; SAIC 2010).

Two non-native species of brown algae (*Sargassum muticum* and *Undaria pinnatifida*) occur in port complex. Sargassum occurs throughout the harbor, but was more prevalent in the inner and middle harbor areas in 2000 and 2008 (MEC 2002; SAIC 2010). *Undaria* was found at more stations in 2008 than 2000, indicating some expansion of its distribution in the harbors (SAIC 2010). In 2003, an additional species of sargassum (*S. filicinum*) was found in Long Beach Harbor (Miller et al. 2007).

The highly invasive green alga, *Caulerpa taxifolia,* has not been reported from the port complex. The CDFG and NMFS have established protocols for detection and eradication of *Caulerpa.* The only reported occurrences in California have been at Agua Hedionda Lagoon in San Diego County and Huntington Beach Harbor in Orange County. *Caulerpa* was successfully eradicated at both those locations. *Caulerpa* surveys are required in bays, estuaries, and harbors between Morro Bay and the U.S./Mexico border under the USACE's 404 permit program prior to conducting an activity that may disturb the bottom (e.g., bulkhead repair, dredging,

pile driving, placement of navigational aids, etc.) (NMFS 2012b). No *Caulerpa* has been found in the Port during more than 35 surveys since 2001 (Southern California Caulerpa Action Team 2012).

Non-native rock pigeons and European starlings are relatively abundant in the port complex, and the house sparrow was less frequently observed during 2000 and 2008 surveys (MEC 2002; SAIC 2010). Non-native rats, mice, feral cats, and opossum occur at the Port.

3.3.2.2.11 Significant Ecological Areas

The County of Los Angeles has established Significant Ecological Areas (SEAs) to preserve a variety of biological communities for public education, research, and other non-disruptive outdoor uses. The least tern nesting site is a designated SEA (County of Los Angeles 2012).

3.3.3 Applicable Regulations

Biological resources within the Port and its vicinity are governed by federal, state, and local regulations, as described below.

3.3.3.1 Federal Regulations

3.3.3.1.1 Clean Water Act

The CWA (33 USC Section 1251 *et seq*.) provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. Discharges of pollutants must be authorized through National Pollutant Discharge Elimination System (NPDES) permits. The act sets up a system of water quality standards, discharge limitations, and permit requirements. Activities that have the potential to discharge dredge or fill materials into waters of the U.S., including wetlands, are regulated under Section 404 of the Act, as administered by the USACE. A Section 404(b)(1) alternatives analysis must be conducted for disposal of dredge or fill material into waters of the U.S. In this analysis, impacts to special aquatic sites (sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes) must be minimized to the maximum extent practicable. A Section 401 Water Quality Certification or waiver from the Los Angeles Regional Water Quality Control Board (RWQCB) is also necessary for issuance of a Section 404 permit.

Additional water quality permitting requirements may include compliance with the Section 402 NPDES General Permit for Storm Water Discharges Associated with Construction Activity (including the development of a Storm Water Pollution Prevention Plan [SWPPP]) from the SWRCB for projects that would disturb 1 acre or more and a General Industrial Activities Stormwater Permit that requires dischargers to develop and implement a SWPPP, eliminate unauthorized non-storm discharges, and conduct visual and analytical stormwater discharge monitoring to verify the effectiveness of the SWPPP. An Industrial Waste Permit from the City of Los

Angeles, Bureau of Sanitation (BOS), is required if the project will dispose groundwater in the sewer system.

3.3.3.1.2 Oil Pollution Prevention Regulation

Originally published in 1973 under the authority of Section 311 of the CWA, the Oil Pollution Prevention regulation sets forth requirements for prevention of, preparedness for, and response to oil discharges at specific non-transportation-related facilities. To prevent oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil, the regulation requires these facilities to develop and implement Spill Prevention, Control, and Countermeasure (SPCC) Plans and establishes procedures, methods, and equipment requirements. In 1990, the Oil Pollution Act amended the CWA to require some oil storage facilities to prepare Facility Response Plans. On July 1, 1994, USEPA finalized the revisions that direct facility owners or operators to prepare and submit plans for responding to a worst-case discharge of oil.

The Oil SPCC regulations require that entities handling petroleum products in the Port have in place measures that help minimize the risk of oil spills protocols in place to contain spills that do occur, and neutralize their potential harmful impacts. SPCC plans and the companion Oil Spill Contingency Plans (OSCP) are reviewed and approved by the RWQCB or the CDFG Office of Spill Prevention and Response (OSPR), in consultation with other responsible agencies.

3.3.3.1.3 Coastal Zone Management Act

The CZMA was enacted in 1972 (15 CFR 930) to preserve, protect, develop, and, where possible, to restore or enhance the resources of the nation's coastal zone. The CZMA requires activities to be consistent with the enforceable policies of the approved state coastal program to the maximum extent practicable. The coastal zone management program is administered and managed by the CCC under the CCA (Section 3.3.3.2.1, CCA).

3.3.3.1.4 Rivers and Harbors Appropriation Act of 1899

Sections 9 and 10 of the Act (33 USC Section 401 *et seq*.) regulate development in navigable water, including dredging, filling, docks, wharves, jetties, outfalls, aids to navigation, and bridges. In coastal areas, it is typical for permits issued by the USACE to reference their Section 10 and CWA Section 404 authorities.

3.3.3.1.5 Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 (16 USC 1531 *et seq*.) protects threatened and endangered species, and their designated critical habitat, from unauthorized take. Section 9 prohibits such take, defining take as to harm, harass, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct. Take incidental to otherwise lawful activities can be authorized under Section 7 when there is federal involvement and under Section 10 when there is no federal involvement. The USFWS and NMFS share responsibilities for administering the ESA.

3.3.3.1.6 Magnuson-Stevens Fishery Conservation and Management Act

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (16 USC Section 1801 *et seq*.) require federal agencies that fund, permit, or carry out activities that may adversely impact EFH to consult with NMFS regarding potential adverse effects of their actions on EFH and respond in writing to the recommendations of NMFS. In addition, NMFS is required to comment on any state agency activities that would impact EFH.

3.3.3.1.7 Marine Mammal Protection Act of 1972

The MMPA (16 USC Section 1361 *et seq*.) prohibits the taking (including harassment, disturbance, capture, and death) of any marine mammals, except as set forth in the act. NMFS and the USFWS administer the MMPA. Marine mammal species occurring at the Port are under the jurisdiction of NMFS.

3.3.3.1.8 Migratory Bird Treaty Act, as Amended

The MBTA (Title 16 USC Section 703 *et seq*.), as amended, provides for the protection of migratory birds by making it illegal to possess, pursue, hunt, capture, or killing any migratory bird species, unless specifically authorized by a regulation implemented by the Secretary of the Interior, such as designated seasonal hunting. The MBTA also applies to removal of nests occupied by migratory birds during the breeding season. Disturbance that causes nest abandonment or loss of reproductive effort (e.g., killing or abandonment of eggs or young) is considered "take" and is unlawful. Under certain circumstances, a depredation permit can be issued to allow limited and specified take of migratory birds. The administering agency of the MBTA is the USFWS.

3.3.3.1.9 Executive Order 13112

EO 13112 was issued in 1999 to prevent the introduction of invasive species; provide for their control; and minimize the economic, ecological, and human health impacts that invasive species cause. This EO defines invasive species, requires federal agencies to address invasive species concerns and to not authorize or carry out new actions that would cause or promote the introduction of invasive species, and established the Invasive Species Council.

3.3.3.1.10 National Invasive Species Act of 1996

Prior to February 6, 2009, ballast water was regulated solely by the United States Coast Guard (USCG) through regulations developed under authority of the National Invasive Species Act of 1996. The USEPA also began regulating ballast water in 2009 after a court decision required ballast water and other discharges incidental to the normal operation of vessels to be regulated under the CWA. In August 2009, the USCG proposed regulations to establish federal performance standards for living organisms in ships' ballast water discharged in U.S. waters.

On March 23, 2012, the USCG published a Final Rule entitled ‘‘Standards for Living Organisms in Ships’ Ballast Water Discharged in U.S. Waters’’(33 CFR Part 151, 45 CFR Part 162), which establishes a standard for the allowable concentration of living organisms in ballast water discharged from ships in waters of the U.S. The regulations for engineering equipment were amended by establishing an approval process for ballast water management systems. In addition, 33 CFR 151.2050 (g)(3) requires that the ballast water management plan be updated to include marine fouling and sediment management procedures. The new regulations became effective on June 21, 2012.

The new rule includes a phased schedule with implementation required for all new vessels constructed on or after December 1, 2013 and for older vessels by their first drydocking after 2014 or 2016, depending on vessel size. The rule applies to two groups of vessels discharging ballast water into waters of the U.S. (termed as qualifying vessels herein): seagoing vessels that operate beyond the Exclusive Economic Zone (EEZ), and seagoing vessels that do not operate beyond the EEZ, but take on and discharge ballast water in more than one Captain of the Port (COTP) Zone, and are greater than 1,600 gross register tons (3,000 gross tons International Tonnage Convention). Vessels that do not operate outside the EEZ must operate exclusively within one COTP zone in order to be exempt from meeting the ballast water discharge standard. Vessels that take on dock water/municipal water for ballast tanks are only exempt if the water is from a U.S. public water system. Certain other vessels also are exempt, including crude oil tankers engaged in coastwide trade, vessels of the U.S. armed forces subject to the Uniformed National Discharge Standards for Vessels of the Armed Forces, or foreign-owned vessel used for governmental and non-commercial purposes.

Qualifying vessels also are required to install a ballast water treatment system capable of meeting the phase-one ballast water discharge standard specified in the 2012 final rule, which is equivalent to that adopted by the IMO in 2004. Ballast water treatment is an emerging technology, and the USCG provides an avenue for vessels to install and operate experimental ballast water treatment systems in U.S. waters through the Shipboard Technology Evaluation Program. Treatment methods may include biological (deoxygenation), chemical (e.g., chlorine, O_3, electrolysis), physical (e.g., filtration, heat treatment, cavitation), or a combination of methods (e.g., filtration plus ultraviolet treatment).

Ballast water reporting requirements apply for all qualifying vessels bound for ports or places of the U.S. regardless of whether a vessel operated outside of the EEZ, unless exempted by the rule.

3.3.3.2 State Regulations

3.3.3.2.1 California Coastal Act

The purpose of the CCA is to protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources. Development activities at the Port are subject to discretionary review and approval. The Port issues CDPs for non-federal projects that conform to the certified PMP and CCA, as amended. The CCC maintains jurisdiction for the

portion of the coastal zone seaward of the mean high tide line. Section 30700 of the CCA includes policies relevant to port development (Article 2) and preparation and implementation of a PMP (Article 3). Section 30711 specifies requirements associated with the preparation, adoption, and contents of a PMP. Particularly relevant to this section of the PMPU is CCA Article 3, Section 30711(a)(3), which requires an estimate of the effect of development on habitat areas and the marine environment, a review of existing water quality, habitat areas, and quantitative and qualitative biological inventories, and proposals to minimize and mitigate any substantial adverse impact.

Federal agency activities must be consistent with the CCA to the maximum extent practicable. This is achieved through a consistency review of Section 3 of the CCA and compliance with Section 307 of CZMA. The resulting product is a Coastal Consistency Determination or Federal Consistency Certification.

3.3.3.2.2 California Fish and Game Code (Section 1602)

Section 1600 *et seq.* of the Fish and Game Code requires notification of the CDFG before activities that would substantially alter the bed, bank, or channel of a stream, river, or lake, including obstructing or diverting the natural flow. This applies to all perennial, intermittent, and ephemeral water bodies as well as the associated riparian vegetation that are used by fish and wildlife resources. CDFG may or may not assert jurisdiction of coastal or port areas including shipping channels. Activities that have the potential to affect jurisdictional areas can be authorized through issuance of a Streambed or Lake Alteration Agreement. The Agreement specifies conditions and mitigation measures that will minimize impacts to riparian or aquatic resources from proposed actions.

3.3.3.2.3 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 the 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 project. For projects that could affect species that are both state- and federal-listed, compliance with the federal ESA will satisfy the CESA if CDFG determines that the federal incidental take authorization is consistent with the state Act under Fish and Game Code Section 2080.1.

3.3.3.2.4 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.

3.3.3.2.5 California Fish and Game Code (Sections 3503, 3503.5, 3111, and 3113)

Several sections of the California Fish and Game Code provide protection of migratory birds and birds-of-prey, except as otherwise provided by the code. Section 3503 specifies that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code. Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird. Section 3511(a)(1) specifies that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

3.3.3.2.6 California Fish and Game Code (Sections 5650-5656)

Sections 5650 through 5656 provide protection of waters by making it unlawful to discharge, place, or release petroleum products, industrial wastes, garbage, dead mammals or birds, or other debris in waters of the state. It is illegal to release *cocculus indicus* [herbal poison used to stun fish] or any substance or material deleterious to fish, plant life, mammals, or bird life. It also is unlawful to place rubbish or refuse where it can pass into waters of the state; or to abandon, dispose of, or throw away, within 150 feet of the high water mark of the waters of the state, any cans, bottles, garbage, rubbish, refuse, debris, or motor vehicle or parts. Use of vacuum or dredge equipment in any river, stream, or lake, except as authorized by permit. Section 5651includes reporting requirements for continuing or chronic pollution (Section 5651) and Sections 5654 and 5655 specify actions to be taken by CDFG in the event of a discharge or spill with the potential to impact fishing. This may include closure of fishing areas, public notifications, and public health risk assessment in the vicinity of the spill or discharge or where the spilled or discharged material has spread, or is likely to spread. In addition, the OSPR is designated as having authority to direct (or delegate) removal, abatement, response, containment, and cleanup efforts with regard to all aspects of any placement of petroleum or a petroleum product in the waters of the state, except as otherwise provided by law. Section 5655 also pertains to recovery of costs from the responsible party or parties for all reasonable costs incurred by the CDFG as a result of contamination testing, cleanup, or abatement. Section 5656 pertains to deposition of funds arising from recovery or settlement of money damages.

3.3.3.2.7 Marine Invasive Species Act of 2003, as Amended

California PRC Section 71200 *et seq.* (enacted January 1, 2000) is the authority for the state ballast water regulations. The 1999 Ballast Water Management for Control of Nonindigenous Species Act was revised, expanded, and renamed in AB 433, the Marine Invasive Species Act, in September 2003. This act requires ballast water

management practices for all vessels over 300 gross register tons, domestic and foreign, carrying ballast water into waters of the state after operating outside the EEZ or from another port within the Pacific Coast Region. Specifically, the regulation prohibits ships from exchanging ballast water within port waters, and requires that exchange occurs 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 Port. The Coastal Ecosystems Protection Act of 2006 charged the California State Lands Commission (CSLC) to implement performance standards for the discharge of ballast water and to prepare assessment reports of treatment technology. Recent amendments to the Marine Invasive Species Act (AB 740, SB 1781, and AB 248) address requirements regarding vessel hull husbandry practices, performance standards for the discharge of ballast water, and collection of data related to ballast water treatment technology installation and use on vessels operating in California waters.

Ballast water performance standards regulations were adopted in October 2007 (Title 2 CCR Section 2291 *et seq*.). California's discharge standards are more stringent than the federal standard (Section 3.3.3.1.10). The California standard for organisms greater than 50 micrometers in minimum dimension is "no detectable living organisms," which is not directly comparable to the IMO standard of 10 organisms per cubic meter. The organism size class of 10-50 micrometers is 1,000 times more stringent for California than the IMO standard. California's remaining standards for organisms less than 10 micrometers in size either have no comparison to the IMO standards (e.g., total bacteria and viruses) or are 2-3 times more stringent than IMO (e.g., human health indicator species).

The most recent legislatively mandated, ballast water treatment technology assessment report (Dobroski et al. 2011) identified 10 ballast water treatment systems with the potential to meet California's discharge standards. These included chemical (e.g., electrolysis with neutralizer) or combination treatments (e.g., filtration, electrolysis, ultrasound; filtration and chemical biocide). California requires ballast water reporting using the USGS reporting form. Statewide compliance with ballast water reporting was greater than 98 percent for the period July 2008 to June 2010 (Takata et al. 2011). Of the vessels reporting, 84 percent indicated that they complied with the mandatory management requirements, either through retaining ballast water on board or by exchanging ballast water prior to discharge. The San Pedro Bay Ports collectively received the greatest percentage of the California ballast water reporting forms, leading the state in qualifying vessels, for both foreign and coastal arrivals (Takata et al. 2011).

3.3.3.2.8 Porter-Cologne Water Quality Act

The State of California's Porter-Cologne Water Quality Control Act (California Water Code [CWC] 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 (Section 3.3.3.1.1, Clean Water Act), 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 Impacts and Mitigation Measures

3.3.4.1 Methodology

Impacts on species, communities, and habitats that may occur as a result of the PMPU were identified by examining the proposed land use changes relative to existing land uses and biological resource conditions as described in Section 3.3.2, Environmental Setting. Potential impacts on biota were assessed for both construction and operations related to the proposed Program, based on results from past projects, literature studies, and scientific expertise of the preparers.

Section 15125 of the CEQA Guidelines requires EIRs to include a description of the physical environmental conditions in the vicinity of a project that exist at the time of the NOP. These environmental conditions would normally constitute the baseline physical conditions by which the CEQA lead agency determines whether an impact is significant. For purposes of this Draft PEIR, the CEQA baseline for determining the significance of potential impacts is 2011. For some biological resources, however, such as local nesting populations of special-status birds and the extent of kelp beds, considerable variability can occur from year to year. Thus, using only 1 year as the baseline, such as the year preceding the NOP, may not be representative of conditions expected to be present when the proposed Program would be implemented. Accordingly, the conditions representing the status of the biological resources constituting the CEQA baseline were described using data from numerous studies conducted over several years.

3.3.4.2 Thresholds of Significance

The *L.A. CEQA Thresholds Guide* (City of Los Angeles 2006) is the basis for the following significance criteria and for evaluating the significance of impacts on biological resources resulting from the proposed Program. LAHD has developed harbor specific significance criteria for adverse effects on biological habitats. These criteria are consistent with the intent of the L.A.CEQA Thresholds Guide and Appendix G of the CEQA Guidelines. Biological resources impacts would be significant under the following conditions.

BIO-1: The proposed Program 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 species, or a Species of Special Concern or the loss of federally-listed critical habitat.

BIO-2: The proposed Program would result in a substantial reduction or alteration of a state-, federally-, or locally-designated natural habitat, special aquatic site, or plant community, including wetlands.

BIO-3: The proposed Program would result in interference with wildlife movement/migration that may diminish the long-term survival of a species.

BIO-4: The proposed Program would result in a substantial disruption of local biological communities.

BIO-5: The proposed Program would result in a permanent loss of marine habitat.

BIO-6: The proposed Program would conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

3.3.4.3 Impacts and Mitigation

Impact BIO-1: The proposed Program 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.

Potential impacts associated with the proposed appealable/fill projects and land use changes are discussed below for special-status species. Special-status birds and marine mammals that have the potential to occur in the port complex are discussed under construction impacts. No adverse effects are likely to occur to marine turtles from construction activities because of their low potential to occur in the port complex; consequently, this issue is not addressed further. In addition to consideration of special-status birds and marine mammals within the Port, the discussion of potential impacts of operations also considers the potential for adverse effects on marine mammals and turtles offshore associated with increased vessel calls. Impacts to critical habitat are not considered since no critical habitat is located within the Port.

Planning Area 2

Construction

The China Shipping Fill, Yang Ming Terminal Redevelopment, and Berths 187-189 Liquid Bulk Relocation projects would include in-water construction, including cut and fill, pile driving, and land-based development including liquid bulk facilities at Berths 191-194. Proposed land use changes could involve demolition, relocation, or construction of land-based infrastructure, including liquid bulk facilities on Mormon Island, an optional land use site. Construction or demolition activities would likely produce temporary increases in noise, night-time lighting, turbidity, and activity that could have adverse effects on special-status species, if present in the vicinity of work areas.

Special Status Birds

No adverse effects on endangered California least terns would be expected from temporary in-water and land-based construction activities associated with the China Shipping Fill or Yang Ming Terminal Redevelopment projects in the West Basin or Berths 187-189 in the East Basin. The California least tern designated nesting site on Pier 400 is located more than 3 miles from the areas where in-water construction would occur, and the construction areas are not important foraging areas for the terns. In-water construction impacts would not substantially affect foraging habitat used by other special status fish-eating birds (e.g., brown pelican, black skimmer) because the construction areas represent a very small proportion of the total available foraging area. USACE permits and RWQCB 401 certifications or waste discharge requirements (WDRs) would limit the extent of turbidity effects that could reduce the quality of foraging habitat. In addition, fish-eating birds forage broadly in the Outer Harbor (MEC 2002; SAIC 2010), which would not be affected by the construction activities.

No adverse effects on peregrine falcons would be expected because construction or demolition activities would be approximately 0.5 mile or greater from potential nest sites at the Vincent Thomas or Schuyler F. Heim bridges. Peregrine falcons and loggerhead shrike prey on other birds (e.g., rock pigeons, starlings), which may be disturbed away from the work areas during construction. This temporary disturbance of potential foraging area would not adversely affect peregrine falcons or loggerhead shrike, which forage over several miles throughout the port complex.

No adverse effects would be expected on burrowing owls, which have been recorded as transient visitors near Fries Avenue on Mormon Island, at distances more than 0.5 mile from construction or demolition activities associated with the proposed appealable/fill projects. No adverse effects would occur to other special status bird species listed on Table 3.3-1 (western snowy plover, Belding's savannah sparrow, brant, common loon), which have a low potential to occur and do not nest at the Port.

Land use changes involving construction or demolition associated with changes in types of facilities could adversely affect birds covered under the MBTA and/or similar provisions of the California Fish and Game Code, if construction/demolition occurs during the nesting season and suitable nesting areas are in the vicinity. Surveys generally are required to confirm presence or absence of nesting during the breeding season.

Marine Mammals

Marine mammals could be affected by construction noise or disturbance while under water or hauled out on land. NMFS (2011) estimated that airborne noise may disturb California sea lions within 30 feet of vibratory pile driving or within 500 feet of impact hammer pile driving (Table 3.3-4). Harbor seals on land generally are more sensitive to noise disturbance than sea lions, and could be disturbed within 95 feet of vibratory pile driving or 1,600 feet of impact hammer driving. During general construction activities using a variety of equipment, such as for pile removal, in-air noise levels would be unlikely to disturb seals or sea lions at distances more than approximately 50 feet from the source while on land, based on representative noise source levels relative to NMFS interim guidance thresholds (Table 3.3-4).

Table 3.3-4. Distances (feet) to Marine Mammal Noise Thresholds During Pile Driving or Removal

Interim Guidance Threshold[b]	*In-Air Pile Driving or Removal*			*Underwater - Impact Pile Driving*[a]	
	Impact Hammer	*Vibratory Hammer*	*Vibratory Removal*	*Unattenuated*	*With Attenuation Measures*
California Sea Lion					
Injury -190$_{rms}$				52	13
Disturb -160$_{rms}$				5,200	1,122
Disturb - 100$_{rms}$	522	30	23		
Harbor Seal					
Injury -190$_{rms}$				52	13
Disturb -160$_{rms}$				5,200	1,122
Disturb - 90$_{rms}$	1,643	95	66		
Cetaceans					
Injury -180$_{rms}$				243	52
Disturb -160$_{rms}$				5,200	1,122

Notes:

Numbers are estimated distances (feet) within which injury or disturbance may occur from pile driving or removal based on in-air and underwater interim guidance thresholds (left column), and noise levels considered by NMFS (2011), assuming no obstruction between noise and receptor.

The distances in the table are based on NMFS (2011) estimates of distances within which injury or disturbance thresholds would apply based on representative noise levels during impact driving of 30-inch steel piles and vibratory removal of 30-inch steel piles and 24-inch concrete piles; distances assume no obstructions between source and receptor. Actual distances may vary with type and size of piles and attenuation by physical obstructions.

a. The continuous noise disturbance threshold (120 dB$_{rms}$) (all marine mammals) may extend several miles from vibratory pile driving or up to 1 mile for vibratory pile removal based on pile type, size, and line of sight assumptions.

b. NMFS interim guidance thresholds are referenced to the sound pressure level at 3.3 feet, which is 1 micropascal (re 1 µPa) in water and 20 micropascals (re 20 µPa) in air; the sound pressure level is a logarithmic measure of the root mean square (rms) pressure of a particular noise relative to a reference noise source, such as, unweighted decibels (dB) that consider the full frequency range of sound. In contrast, noise levels used to assess impacts on humans are typically weighted (A-weighted sound level [dB(A)]) to reduce the contribution of low and high frequencies that are not audible (Section 3.9, Noise).

Underwater sound levels (dB$_{rms}$) associated with pile driving or removal (measured at 33 feet from source), include:

Concrete (24-inch), impact hammer	171-175
Cast-in-steel shell (CISS) (12-inch), drop	165
CISS (12-inch), impact hammer	180
CISS (30-inch), impact hammer	190
CISS (96-inch), impact hammer	197
Steel H-type, impact hammer	175
Steel (30-inch), impact hammer	190-196
Steel (24-inch), impact hammer	175-178
Steel (30-inch), vibratory driving	165-171
Steel (24-inch), vibratory removal	165
Timber (12-inch), drop hammer	165
Timber (14-inch), drop hammer	170
Steel sheet, impact hammer	189
Steel sheet, vibratory driving	163

Sources: ICF Jones and Stokes and Illingworth and Rodkin 2009, NMFS 2011

Under the water, both sea lions and harbor seals could be at risk of acoustic *injury* (Level A harassment) if within approximately 52 feet of impact hammer pile driving of steel or cast-in-steel shell (CISS) piles that are 30-inch or greater in diameter and within closer distances from steel sheet driving, based on lower underwater sound

levels (Table 3.3-4). Sea lions or harbor seals could be *disturbed* (Level B harassment) by lower noise levels from impact hammer driving of concrete, timber, or smaller diameter steel or CISS piles; vibratory driving or removal of piles; or general construction activities. In-water disturbance distances potentially could range a mile or more from pile driving under line-of-sight conditions, depending on the size and type of piles and equipment used. However, the basin-channel configuration of the Inner Harbor would tend to attenuate noise over shorter distances where in-water work associated with the China Shipping Fill, Yang Ming Terminal Redevelopment, or Berths 187-189 Liquid Bulk Relocation would occur. Generally, marine mammals would be expected to temporarily avoid an area with pile driving, thereby reducing their exposure to impacts. Because pile driving would be localized, other unaffected areas within the port complex would be available for use by marine mammals. Once the activity ceases, any opportunistic use of the area by marine mammals would be expected to resume. Impacts would be expected to be limited to a few individuals based on opportunistic use of riprap, buoys, and docks as haul out areas; lack of rookeries or major haulouts; or relatively low occurrence within the port complex.

Noise attenuation control measures (e.g., soft start and/or bubble curtains) may be used to substantially reduce the distance within which marine mammals could be at risk of acoustic injury from impact pile driving. Such control measures would be specified, as applicable, in USACE construction permits following consultation with NMFS. The need for control measures would depend on the number, size, and type (CISS, concrete, steel, or timber) of pilings as well as equipment used (impact or vibratory hammer). Generally, special control measures would not be necessary for temporary Level B behavioral disturbance, such as with projects using small diameter steel or CISS piles, concrete or timber piles, or vibratory equipment. No impacts would occur to endangered marine mammal species because none occur within the port complex. No long-term effects on non-listed marine mammal populations would occur and disturbance impacts would be negligible due to the localized and temporary nature of construction activities as well as lack of rookeries and major haulouts within the port complex.

Operations

No adverse effects on special-status birds would be expected from operation of the proposed appealable/fill projects (Berths 187-189 Liquid Bulk Relocation, China Shipping Fill, and Yang Ming Terminal Redevelopment) or changes in land use. Operations would be more than 3 miles from nesting sites of California least tern and other SSC on Pier 400 and would not affect potential nesting sites of the peregrine falcon on the Vincent Thomas or Schuyler F. Heim bridges. No adverse effects on special status species would occur with development of 8 acres of vacant land on Mormon Island to liquid bulk or break bulk because none are known to nest in this area. While potentially suitable nesting habitat for burrowing owls may be reduced, their occurrence on Mormon Island has been occasional and there are no records of nesting at the Port. In addition, conversion of 8 acres of vacant land would not substantially reduce peregrine falcon foraging habitat, which extends throughout several thousand acres of the port complex; nor would it substantially affect prey availability, including common upland birds (e.g., rock pigeons, starlings) that are adapted to urbanized areas within the Port. Future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills into the port complex. Specific effects would depend on the type and size of the, 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 spill. Accidental spills are considered unlikely due to the use of Port Pilots to navigate the harbor, slow vessel speeds, and use of tugs to guide vessels to and from berths. Should spills occur, containment and clean up would be rapid due to the long-established oil spill response system, overseen by the USCG and CDFG'S OSPR (Section 3.14.4.3, Water Quality, Sediments, and Oceanography).

Increased vessel calls at the Port would incrementally change the underwater sound environment in the harbor. However, the number of vessels in transit at any one time within the Port is controlled by the design capacity of the channels and basins, and vessel speeds are slow. Consequently, while passing ships may temporarily disturb marine mammals under water, any incremental increase in underwater noise level would not be expected to affect hearing or behavior of marine mammals.

An increase in vessel traffic could incrementally increase the collision risk to marine mammals; however, this would not be expected to substantially affect marine mammals at sea. Few vessel collisions with marine mammals occur in nearshore waters of southern California. Reduction of speed below 13 knots is recommended by NOAA to reduce the potential for serious injury to whales from vessel collision (Jensen 2004). The LAHD and the Port of Long Beach promote a VSRP of 12 knots or slower within 40 nm of Point Fermin. The VSRP was implemented in 2001 as a voluntary program to reduce smog-forming emissions. In 2006, the CAAP adopted the VSRP as control measure OGV1. The measure sets a standard for 100 percent of OGVs to decrease their speeds within 40 nm of Point Fermin. Since the speed reduction target is 12 knots or slower, it also reduces the risk of serious injury to whales from accidental collision with maritime vessels using the Port. The percentage of vessels in compliance has steadily increased since 2001, and was 92 percent within 20 nm and 70 percent within 40 nm in 2011 (Port 2011).

Increased vessels calls at the Port would not be expected to substantially change the remote potential to affect marine turtles, which do not normally occur in the port complex, do not nest or congregate offshore in southern California, and are sparse during their migrations along the coast.

Planning Area 3

Construction

The Berth 300 Development Project in Planning Area 3 would construct an 18-acre fill, which would involve removal, replacement, or installation of sheet pile bulkheads and wharf construction. Conversion of Berth 301, an optional land use site, to a liquid bulk facility also could involve installation of pilings to make the wharf MOTEMS compliant. An existing container area on Pier 400 would be changed to maritime support, and a wharf for berthing support vessels could be constructed. Proposed land use changes could involve demolition, relocation, or construction of land-based facilities. Construction or demolition activities would likely produce temporary increases in noise, night-time lighting, turbidity, and activity that could have adverse effects on special status species, if in the vicinity or work areas.

Special Status Birds

The endangered California least tern and species of special concern (e.g., black skimmer) could be disturbed by construction noise and activities during wharf construction on Pier 400, if construction is scheduled during the nesting season (April 15 to September 15). Other construction projects would be more than a mile away and would not be expected to disturb nesting activities of California least tern or black skimmer at Pier 400. USACE permits and RWQCB 401 certifications or WDRs would limit the extent of turbidity effects that could reduce the quality of foraging habitat for endangered California least terns or other special status fish-eating birds (e.g., brown pelicans, black skimmer). Most foraging habitat within the Outer Harbor, Pier 300 Shallow Water Habitat, Cabrillo Shallow Water Habitat, and other open water areas would be unaffected during construction. Additionally, California least tern monitoring is annually conducted at Pier 400 as part of the MOA, which ensures early identification and remedy, as necessary, of conditions with the potential to affect nesting success.

No adverse effects on peregrine falcons would be expected because construction or demolition activities would be more than 1 mile from potential nest sites at the Vincent Thomas or Schuyler F. Heim bridges. Temporary disturbance of potential foraging area would not impact peregrine falcons or loggerhead shrikes, which prey on other birds throughout the port complex.

No adverse effects would be expected on burrowing owls or western snowy plovers, which have been recorded as transient visitors at the designated nesting site on Pier 400, since the pier is located more than 1 mile from construction or demolition activities. No adverse effects would occur to other special status bird species listed on Table 3.3-1 (e.g., Belding's savannah sparrow, brant, common loon), which have a low potential to occur and do not nest at the Port.

The proposed Berth 300 development project or land use changes involving development of vacant land (conversion to container area with options for dry bulk and maritime support) or conversion to mixed use could adversely affect bird SSC or other birds covered under the MBTA and/or similar provisions of the California Fish and Game Code, if construction occurs during the nesting season and suitable nesting areas are in the vicinity. Similarly, land use changes associated with removal or relocation of facilities, such as with conversion from institutional to maritime support or from liquid bulk to container area, have the potential to impact birds if construction/demolition occurs during the nesting season and suitable nesting areas are in the vicinity. Surveys generally are required to confirm presence or absence of nesting during the breeding season.

Marine Mammals

Marine mammals could be affected by construction noise or disturbance while under water or hauled out on land, if within the vicinity of the proposed appealable/fill projects. As noted above under Planning Area 2, sea lions or harbor seals could be disturbed within 30 to 95 feet of vibratory pile driving or within 500 to 1,600 feet of impact hammer pile driving (Table 3.3-4). General construction noise levels would be unlikely to disturb marine mammals at distances of more than 50 feet. Under the water, both sea lions and harbor seals could be at risk of acoustic injury within 52

feet of impact hammer pile driving of larger steel or CISS piles or within lesser distances of sheetpile driving. Sea lions or harbor seals could be disturbed (Level B harassment) by lower noise levels from impact hammer driving of concrete, timber or smaller diameter steel, or CISS piles; vibratory driving or removal of piles; or general construction activities. In-water disturbance distances potentially could range a mile or more from pile driving under line-of-sight conditions, depending on the size and type of piles and equipment used. However, the basin-channel configuration near Fish Harbor would tend to attenuate noise over shorter distances. Noise attenuation control measures (e.g., soft start and/or bubble curtains) may be used to substantially reduce the risk of potential acoustic injury of marine mammals and would be specified, as applicable, in USACE construction permits following consultation with NMFS. As described for Planning Area 2, the need for control measures would depend on the number, size and type (CISS, concrete, steel, timber) of pilings as well as equipment used (impact or vibratory hammer). No impacts would occur to endangered marine mammal species because none occur within the port complex. No long-term effects on non-listed marine mammal populations would occur and disturbance impacts would be negligible due to the localized and temporary nature of construction activities as well as lack of rookeries and major haulouts within the port complex.

Operations

No adverse effects on special status species would be expected from operations of the proposed appealable/fill projects (Berth 300 Development, potential Berth 301 conversion) or changes in land use. Operations would not affect potential nesting sites of the peregrine falcon on the Vincent Thomas or Schuyler F. Heim bridges. No adverse effects on special-status species would occur with development of 250 acres of vacant land because none are known to nest within this area. In addition, conversion of vacant lands to mixed use or container area with an option for dry bulk would not substantially reduce peregrine falcon foraging habitat, which extends throughout the several thousand acres of the port complex; nor would it substantially affect prey availability, including common upland birds (e.g., rock pigeons, starlings) that are adapted to urbanized areas within the Port.

No adverse effects on sensitive species or their habitat would be expected from new maritime support wharves on Piers 300 and 400. With the exception of the potential conversion of container areas to maritime support uses, operations would be more than 1 mile from nest sites of California least tern and other SSC on Pier 400. Conversion to maritime support uses would not be expected to increase the intensity of operations to the extent they would interfere with least tern nesting. Marine mammals forage throughout the harbor, prey fish may commonly occur under pile supported structures (Merkel & Associates, Inc. 1999), and no protected vegetated habitats (eelgrass beds, kelp beds) that support forage base for marine mammals would be affected because none occur in the project area. New wharves would create over-water shading in localized areas, the extent of which would vary depending on deck materials, height above water, and time of day. Shading from Port-related structures generally would not be expected to affect eelgrass or kelp beds because none occur in the vicinity of the proposed appealable/fill projects and land use changes.

As described above for Planning Area 2, future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills into the port complex. However, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid.

Increased vessel calls at the Port would incrementally change the underwater sound environment in the harbor; however, the number of vessels in transit at any one time within the Port is controlled by the design capacity of the channels and basins, and vessel speeds are slow. Consequently, while passing ships may temporarily disturb marine mammals under water, an incremental increase in underwater noise level would not be expected to affect hearing or behavior of marine mammals.

An increase in vessel traffic could incrementally increase the collision risk to marine mammals; however, this would not be expected to substantially affect marine mammals at sea. Generally, collision risk is low off southern California because of sparse occurrence. Additionally, the VSRP described above for Planning Area 2 lessens the risk of serious injury to whales from accidental collision with maritime vessels using the Port. Increased vessels calls at the Port would not be expected to substantially change the remote potential for adverse effects on marine turtles, which do not normally occur in the port complex, do not nest or congregate offshore in southern California, and are sparse during migration along the coast.

Planning Area 4

Construction

Three proposed appealable/fill projects (Al Larson Marina, Tri Marine Expansion and 338 Cannery Street Adaptive Reuse) and land use changes would involve in-water and upland construction and demolition activities. The Al Larson Marina Project would include a marina facilities analysis to determine if new slips would be required prior to expansion. Activities could produce temporary increases in noise (e.g., pile removal, pile driving general construction machinery and equipment), night-time lighting, turbidity, and activity that could have adverse effects on special-status species, if present in the vicinity of work areas.

Special Status Birds

No adverse effects on endangered California least tern or other special-status birds (e.g., black skimmer) nesting at the designated Pier 400 nest site would be expected because construction/demolition activities would be more than 1 mile away. In-water construction impacts would not substantially affect potential foraging by endangered California least terns or other special status fish-eating birds (e.g., brown pelicans, black skimmer) because construction would occur in a small area of Fish Harbor, USACE permits and RWQCB 401 certifications or WDRs would limit the extent of turbidity effects, and substantial alternate foraging habitat would be available in the Outer Harbor in proximity to the nest site. Additionally, California least tern monitoring is conducted annually at Pier 400 as part of the MOA, which ensures early identification and remedy, as necessary, of conditions with the potential to affect nesting success. Similarly, no adverse effects on peregrine falcons would be expected because construction or demolition activities would be approximately 0.8 mile or greater from the Vincent Thomas or Schuyler F. Heim bridges.

Temporary disturbance of potential foraging area would not adversely affect peregrine falcons or loggerhead shrikes, which prey on birds throughout the port complex.

No adverse effects would be expected on burrowing owls or western snowy plovers, recorded as transient visitors at the designated nesting site on Pier 400, which would be more than 1 mile from construction or demolition activities. No adverse effects would occur to other special-status bird species listed on Table 3.3-1, which have a low potential to occur and do not nest at the Port (Belding's savannah sparrow, brant, common loon).

Land use changes involving development of vacant land (break bulk, commercial fishing, maritime support) and construction or demolition associated with changes in types of facilities could adversely affect birds covered under the MBTA and/or similar provisions of the California Fish and Game Code, if construction/demolition occurs during the nesting season and suitable nesting areas are in the vicinity. Surveys generally are required to confirm presence or absence of nesting during the breeding season.

Marine Mammals

Marine mammals could be affected by construction noise or disturbance while hauled out on land or under water, if within the vicinity. As noted for Planning Area 2, sea lions or harbor seals could be disturbed within 30 to 95 feet of vibratory pile driving or within 500 to 1,600 feet of impact hammer pile driving (Table 3.3-4). General construction noise levels would be unlikely to disturb marine mammals at distances of more than 50 feet. Under water, both sea lions and harbor seals could be at risk of acoustic injury within 52 feet of impact hammer pile driving of larger steel or CISS piles or within lesser distances of sheetpile driving. Sea lions or harbor seals could be disturbed (Level B harassment) by lower noise levels from impact hammer driving of concrete, timber, or smaller diameter steel or CISS piles; vibratory driving or removal of piles; or general construction activities. In-water disturbance distances potentially could range a mile or more from pile driving under line-of-sight conditions, depending on size and type of piles and equipment used although the basin-channel configuration near Fish Harbor would tend to attenuate noise over shorter distances. Noise attenuation control measures (e.g., soft start and/or bubble curtains) may be used to substantially reduce risk of potential acoustic injury of marine mammals and would be specified, as applicable, in USACE construction permits following consultation with the NMFS. As described for Planning Area 2, the need for control measures would depend on the number, size, and type (CISS, concrete, steel, timber) of pilings as well as equipment used. No impacts would occur to endangered marine mammal species because none occur within the port complex. No long-term effects on non-listed marine mammal populations would occur and disturbance impacts would be negligible due to the localized and temporary nature of construction activities as well as lack of rookeries and major haulouts within the port complex.

Operations

No adverse effects on special status species would be expected from operations of the proposed appealable/fill projects (Al Larson Marina, Tri Marine Expansion, and 338

Cannery Street Adaptive Reuse) or changes in land use. Operations would be more than 1 mile from nest sites of California least tern or SSC on Pier 400 and would not affect potential nesting sites of the peregrine falcon on the Vincent Thomas or Schuyler F. Heim bridges. In addition, no adverse effects on special-status species would occur with development of 74.5 acres of vacant land because none are known to nest within this area. In addition, conversion of vacant lands to break bulk, maritime support, and commercial fishing would not substantially reduce peregrine falcon foraging habitat, which extends throughout the several thousand acres of the port complex; nor would it substantially affect their prey availability, which includes common upland birds (e.g., rock pigeons, starlings) that are adapted to urbanized areas within the Port.

The Al Larson Marina Project would include a marina facilities analysis to determine if new slips would be required prior to expansion. New docks would create over-water shading in localized areas, the extent of which would vary depending on deck materials, height above water, and time of day. Shading from Port-related structures generally would not be expected to have a substantial effect on marine biological communities, although localized impacts could occur if individual projects resulted in shading of protected habitats such as eelgrass beds, kelp beds, mudflats, or wetlands (Anchor QEA 2012). No adverse effects on marine mammals would be expected from localized overwater structures because they forage throughout the harbor, prey fish may commonly occur under pile supported structures (Merkel & Associates, Inc. 1999), and no protected vegetated habitats (eelgrass beds, kelp beds) that support the forage base for marine mammals would be affected since these habitats do not occur in Planning Area 4.

As described above for Planning Area 2, future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills into the port complex. However, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid.

Increased vessel calls at the Port would incrementally change the underwater sound environment in the harbor; however, the number of vessels in transit at any one time within the Port is controlled by the design capacity of the channels and basins, and vessel speeds are slow. Consequently, while passing ships may temporarily disturb marine mammals under water, an incremental increase in underwater noise level would not be expected to affect hearing or behavior of marine mammals.

An increase in vessel traffic could incrementally increase the collision risk to marine mammals; however, this would not be expected to substantially affect marine mammals at sea. Generally, few collisions with whales occur off southern California because of their sparse occurrence. Additionally, the VSRP described under Planning Area 2 lessens the risk of serious injury to whales from accidental collision with maritime vessels using the Port.

Increased vessels calls at the Port would not be expected to substantially change the remote potential to impact marine turtles, which do not normally occur in the port complex, do not nest or congregate offshore in southern California, and are sparse during their migration along the coast.

Impact Determination

Construction

Impacts on endangered California least terns and species of concern could occur, if present, during temporary construction activities near the designated nesting site on Pier 400. No adverse effects on least terns or other special status bird species would be expected for the proposed Pier 300 appealable/fill projects due to distance from the Pier 400 nest site and controls used to minimize impacts to their foraging habitat. There would be no loss or reduction in existing habitat of federally or state-listed, rare, protected, candidate species, or SSC. Therefore, no construction impacts would occur to critical habitat for federally-listed species since none occurs in the Port.

Impacts on marine mammals would depend on the activity and location of the animals. In-water pile driving using an impact hammer could result in acoustic injury (Level A harassment) of sea lions or seals when under the water, if in close proximity to pile driving (depending on the size and type of CISS or steel piles) or steel sheetpile driving, and such impacts if they were to occur would be significant. However, injury from acoustic effects would not occur to seals or sea lions while hauled out on land, or with lower noise levels associated with driving concrete or timber piles, vibratory pile driving or removal, or general construction activities. Level B harassment (disturbance), which may result in temporary alteration of behavior, could occur depending on the type of equipment used and distance of marine mammals from construction or demolition activities, but would be less than significant. No impacts would occur to endangered marine mammal species because none occur within the port complex. No long-term effects on non-listed marine mammal populations would occur and disturbance impacts would be negligible due to the localized and temporary nature of construction activities as well as lack of rookeries and major haulouts within the port complex.

Construction activities on vacant land or demolition and construction activities associated with changes in land use could adversely affect nesting sites of non-sensitive species of birds covered under the MBTA and Fish and Game Code (3503, 3503.5). Impacts would be significant if construction resulted in abandonment of nests, loss of eggs, or loss of young.

Operations

Port facility operations would not result in loss of populations or habitat for rare, threatened, or endangered species, and impacts would be less than significant. No impact to federally listed critical habitat would occur since none occurs within the PMPU area.

Operational activities on 332.7 acres of vacant land that would be developed would have less than significant impacts on special-status birds that feed on fish, including the endangered California least tern, because the operations would not produce any conditions that would affect open-water foraging habitat nor would they affect the designated least tern nesting site on Pier 400. Similarly, developed lands would not substantially reduce peregrine falcon or loggerhead shrike foraging habitat, which extends throughout the several thousand acres of the port complex; nor would it substantially affect their prey availability. Therefore, impacts on special-status upland

birds would be less than significant. Similarly, operations would not adversely affect foraging habitat of marine mammals.

Because accidental spills and leaks into the port complex associated with increased vessel calls would be rare and would be contained and cleaned up by existing systems, impacts on sensitive species would be less than significant.

Noise from increased vessel calls at the Port may temporarily disturb, but would not injure marine mammals. Therefore, impacts to marine mammal populations would be less than significant.

An increase in vessel traffic could incrementally increase the potential for vessel collision with marine mammals or turtles. However, the impact would be less than significant because the collision risk is low off southern California due to the sparse occurrence of marine mammals and turtles, combined with the Port's VSRP.

Mitigation Measures

The following mitigation measures would be implemented, as applicable, for the proposed appealable/fill projects and land use changes under the proposed Program.

MM BIO-1: Avoid Marine Mammals. As applicable, depending on the number, size, and type (concrete, CISS, steel, timber) of pilings and equipment used (impact or vibratory hammer), pile driving activities related to the proposed Program shall include establishment of a safety zone and monitoring of the area surrounding the operations for seals and sea lions (pinnipeds) by a qualified marine biologist. The monitor shall have the authority to halt operations unless the LAHD Engineer determines halting operations would be unsafe. The safety zone would extend out to 1,640 feet 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 shall survey the safety zone to ensure that no marine mammals are present. If marine mammals are observed within the safety zone, pile driving shall be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor shall 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 driving has begun, pile driving can continue. The monitor shall record the species and number of individuals observed and make note of their behavior patterns. However, if an animal appears distressed, and if it is operationally safe to do so, the monitor shall inform the Engineer that pile driving shall 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 shall continue only until the Engineer deems it safe to discontinue.

MM BIO-2: Minimize In-water Pile Driving Noise. The construction contractor shall be required to use sound abatement techniques to reduce both noise and vibrations from pile driving activities. In addition to the "soft-start" technique, which

shall be required at the initiation of each pile driving event or after breaks of more than 15 minutes, sound abatement techniques may 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 would reduce both the intensity of the underwater sound pressure levels radiating from the pile driving location and the distance in which levels would exceed the Level A and B harassment levels for marine mammals, or disturbance of nesting by special status bird species.

MM BIO-3: Avoid and Minimize Disturbance of California Least Tern. If construction activities would occur during the nesting season (April 15 to September 15) within 500 feet of the designated nest site (presently on Pier 400), one or more of the following measures shall be implemented, as applicable and approved by the USFWS and CDFG.

> **3a. Schedule Construction**. All construction activities that would occur within 200 feet of the designated nest site (presently on Pier 400) shall be scheduled outside the nesting season (September 16 and April 14), unless otherwise approved by the USFWS and CDFG.
>
> **3b. Monitor California Least Tern.** A qualified biologist shall monitor California least tern and other special status bird species at the designated nest site (presently at Pier 400) during the least tern nesting season (April 15 through September 15). The monitoring frequency and reporting requirements will be confirmed with USFWS and CDFG prior to implementation. The focus of the monitoring is to determine if there are impacts to breeding, nesting, chick feeding activities, or vulnerability of eggs or chicks to predators. If construction activities need to be redirected to prevent impacts to special status birds, the monitor shall immediately contact LAHD and the Construction Manager.

MM BIO-4: Conduct Nest Site Surveys. Between February 15 and September 1 and prior to ground-disturbing activities, a qualified biologist shall 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 shall 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

Residual impacts would be less than significant.

Impact BIO-2: The proposed Program 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.

Planning Area 2

Construction

The China Shipping Fill, Yang Ming Terminal Redevelopment, and Berths 187-189 Liquid Bulk Relocation projects would include in-water construction, including cut and fill, pile driving, and land-based development including liquid bulk facilities at Berths 191-194. It is anticipated that the cut would involve excavation behind temporary bulkheads, and the fills would involve installation of sheetpiles with backfill from the land. Cut and fills have the potential to affect sensitive habitats. Proposed appealable/fill projects and land use changes that involve demolition, relocation, or construction of land-based facilities would not have effects on sensitive habitat areas in Planning Area 2. Potential impacts associated with the proposed appealable/fill projects and land use changes are discussed below according to sensitive habitat.

Essential Fish Habitat

The China Shipping Fill and Yang Ming Terminal Redevelopment projects would cause a net loss of 19 acres of EFH, which would result in a permanent loss of marine habitat. Any loss of marine habitat is considered significant (Impact BIO-5).

The fill would reduce benthic and water column habitat, including food sources for species covered under the Pacific Coast Groundfish or Coastal Pelagics FMPs. However, the 19-acre net habitat loss would not be expected to have a measurable effect on sustainable stocks of species covered under the FMPs. English sole and California skate were the only Groundfish FMP species found in the West Basin during recent baseline surveys, and both species were present in low abundance (average of one individual per trawl) (MEC 2002; SAIC 2010). Pelagic FMP species, particularly northern anchovy and Pacific sardine, were relatively common in the West Basin, but were also common throughout the port complex during recent baseline surveys. Consequently, the 19-acre net habitat loss represents less than 1 percent of the open water habitat highly utilized by these species in the Port.

In-water construction activities likely would disturb bottom sediments, reduce water quality, and increase underwater noise, lighting, and activity with the potential to impact FMP species. Generally, fish move away from areas of disturbance, although some fish may be attracted to turbidity to feed on suspended particulate matter and resuspended invertebrates (De Robertis et al. 2003).

Underwater sound pressure waves during pile driving can adversely affect fish, in the vicinity of work areas (Vagle 2003; Hastings and Popper 2005; Popper and Hastings 2009). Fish injury may occur in proximity to impact hammer pile driving, but would not be expected with a vibratory pile driving or removal. The most common behavioral effect is temporary movement away from areas of disturbance. Therefore,

effects would be temporary in nature, lasting only as long as the construction activities.

Benthic invertebrate prey would be expected to begin to colonize disturbed sediments in the cut area almost immediately as a result of larval settlement from the plankton and immigration from surrounding habitat, and would attain a similar community as surrounding habitat within a period of 1 to 3 years (as described under Impact BIO-4).

Construction or demolition activities on land would have limited, if any, effects on EFH. Indirect impacts to waters associated with erosion or runoff from uplands construction would be controlled with standard BMPs, project-specific SWPPPs, and permit compliance (Section 3.14.4.3, Water Quality, Sediments, and Oceanography).

Natural or Plant Communities

Eelgrass, kelp beds, mudflats, and wetlands would not be affected by construction activities since none occur in waters adjacent to lands in Planning Area 2. No adverse effects would occur to coastal scrub habitat areas, which would be at distances ranging from 0.2 to 0.4 mile or greater from construction activities.

Significant Ecological Areas

No SEAs occur in Planning Area 2.

Operations

Operation of the proposed appealable/fill projects and facilities consistent with changes in land uses would have limited, if any, effects on designated natural habitat, special aquatic sites, or plant communities. There would be no discharges other than stormwater runoff, and facilities would be operated in accordance with SWPPPs to ensure that stormwater quality complies with permit conditions (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). Consequently, no degradation in the quality of EFH would be expected. There would be no effects on eelgrass beds, kelp beds, wetlands, or SEAs since none occur in Planning Area 2.

Future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills into the port complex. However, as described under Impact BIO-1, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid.

Planning Area 3

Construction

The Berth 300 Development Project in Planning Area 3 would construct an 18-acre fill and a wharf, which would involve marine habitat loss and in-water construction with the potential to affect sensitive habitats similar to those described for Planning Area 2. Berth 301 upgrades to accommodate liquid bulk and conversion of a site on Pier 400 to maritime support could involve in-water construction, but would not result in loss of marine habitat.

Proposed land use changes that could involve demolition of existing facilities with construction of new facilities, demolition of facilities to create new container areas, conversion of vacant land to new container areas with options for dry bulk or maritime support facilities, or other construction to accommodate mixed uses at Berths 206-209 and 210-211 would not directly affect sensitive habitats since none are located on uplands of Pier 300 and Terminal Island.

Under the proposed Program, the south end of Pier 400 would be designated as open space, but the existing use of the SEA located on Pier 400 would remain the same.

Potential impacts associated with the proposed appealable/fill project and land use changes are discussed below according to sensitive habitat.

Essential Fish Habitat

The Berth 300 Development Project would result in loss of 18 acres of EFH, which would result in a permanent loss of marine habitat. Any loss of marine habitat is considered significant (Impact BIO-5).

The fill would reduce benthic and water column habitat and food sources for species covered under the Pacific Coast Groundfish or Coastal Pelagics FMPs. However, the 18-acre net habitat loss would not be expected to have a measurable effect on sustainable stocks of species covered under the FMPs. Vermillion rockfish was the only Groundfish FMP collected near Fish Harbor during recent baseline surveys, and had low abundance (average of one individual per trawl) (MEC 2002; SAIC 2010). Pelagic FMP species, particularly northern anchovy and Pacific sardine, were relatively common near Fish Harbor, but also were common throughout the port complex during recent baseline surveys. Consequently, the 18-acre net habitat loss would represent less than 1 percent of the open water habitat utilized by these species in the Port.

Pile driving and other in-water construction activities likely would disturb bottom sediments, reduce water quality, and increase underwater noise, lighting, and activity with the potential to impact FMP species. Similar to the discussion under Planning Area 2, the FMP species most likely to be affected would be northern anchovies and Pacific sardines. Pile driving using an impact hammer could result in acoustic injury or mortality of fish, if they occur in the immediate vicinity of the work area. Generally, mobile fish tend to move from areas of disturbance and may return after conditions improve; therefore, most impacts would be temporary in nature, lasting only as long as the construction activities. Compliance with USACE and RWQCB permit requirements would limit the extent and effects of construction on water quality (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). Consequently, effects on FMP fish species would be temporary in nature, lasting only as long as the construction activities.

Construction/demolition activities of land-based facilities would have limited, if any, effects on EFH. Indirect impacts to waters associated with erosion or runoff from uplands construction would be controlled with standard BMPs, project-specific SWPPPs, and permit compliance (Section 3.14.4.3, Water Quality, Sediments, and Oceanography).

Natural or Plant Communities

No impacts to eelgrass would occur since none occurs in Fish Harbor or the adjacent Pier 300 channel. The nearest eelgrass occurs in the Pier 300 Shallow Water Habitat and old Seaplane Lagoon, which are located on the opposite side of Pier 300, more than 1.5 miles from the proposed appealable/fill project.

Kelp beds would not be directly affected since none occurs in the area of the proposed Berth 300 fill, at Berth 301, or adjacent to the site on Pier 400 that would be converted to maritime support. Kelp beds were mapped along Reservation Point and the outside edge of the southwest entrance to Fish Harbor during recent baseline surveys (SAIC 2010), and could occur within 1,000 to 2,000 feet of construction activities. As noted above for EFH, indirect impacts to waters during construction would be minimized with compliance with USACE and RWQCB permit requirements (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). Therefore, effects on kelp would be unlikely. No mudflats or wetlands occur in Planning Area 3.

Significant Ecological Areas

The SEA on Pier 400 currently is within a land use area identified as institutional. Under the proposed Program, this area would be designated as open space, but the use of the area would remain the same. There would be no change in the size or management of the SEA with the change in land use designation.

Operations

Operations of the proposed appealable/fill project (Berth 300 Development Project) and land use changes in Planning Area 3 would have limited, if any, effects on designated natural habitat, special aquatic sites, or plant communities. There would be no discharges other than stormwater runoff, and facilities would be operated in accordance with SWPPPs to ensure that stormwater quality complies with permit conditions (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). Impacts of shading from a new wharf would be localized and would not substantially affect biological communities. New piles would create attachment surfaces for dock/piling invertebrate and plant communities, and benthic invertebrate communities persist and fish commonly occur under pile supported structures (Merkel & Associates, Inc. 1999). No sensitive habitats (eelgrass, kelp beds, mudflats, wetlands) would be affected by localized shading. Localized shading from Port-related structures have not affected ecosystem function or caused substantial disruption of marine biological communities within the port complex (Anchor QEA 2012).

Consequently, no degradation in the quality of EFH within Fish Harbor, kelp beds outside but adjacent to Fish Harbor, or eelgrass beds within the Pier 300 Shallow Water Habitat and Seaplane Lagoon would be expected. There would be no effects on mudflats or wetlands since none occur in Planning Area 3.

Future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills into the port complex. However, as described under Impact BIO-1, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid.

Planning Area 4

Construction

Essential Fish Habitat

Of the three proposed appealable/fill projects in Planning Area 4 (Tri Marine Expansion, 338 Cannery Street Adaptive Reuse, and Al Larson Marina), only the Al Larson Marina Project and construction supporting commercial fishing would involve in-water construction. Proposed land use changes would convert existing land to new break bulk, maritime support, or commercial fishing facilities that could involve in-water construction.

Pile driving or removal, or construction/removal of in-water marina structures likely would disturb bottom sediments, reduce water quality, and increase underwater noise, lighting, and activity with the potential to impact EFH or FMP species. Similar to the discussion under Planning Area 2, the FMP species most likely to be affected would be northern anchovies and Pacific sardines. Pile driving using an impact hammer could result in acoustic injury or mortality of fish, if they occur in the immediate vicinity of the work area. Generally, mobile fish tend to move from areas of disturbance and may return after conditions improve; therefore, most impacts would be temporary in nature, lasting only as long as the construction activities.

Construction and demolition activities for land-based facilities would have no direct effects on EFH, which is located in the water. Indirect impacts to waters associated with erosion or runoff from uplands construction would be controlled with standard BMPs, project-specific SWPPPs, and permit compliance (Section 3.14.4.3, Water Quality, Sediments, and Oceanography).

Natural or Plant Communities

No impacts to eelgrass would occur since none occurs in Fish Harbor and the nearest eelgrass beds are located more than 1.5 miles from the Planning Area 4. No direct effects on kelp beds would occur since none occurs in Fish Harbor. The closest kelp beds occur along Reservation Point and the outside edge of the southwest entrance to Fish Harbor (SAIC 2010). As noted above for EFH, indirect effects on waters during construction would be minimized based on compliance with USACE and RWQCB permit requirements (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). The location of kelp on the outside the entrance to Fish Harbor also would minimize potential exposure of plants to turbidity or sedimentation. Therefore, adverse effects on kelp would be unlikely. No mudflats or wetlands occur in Planning Area 4.

Significant Ecological Areas

No SEAs occur in Planning Area 4.

Operations

Operations associated with the proposed appealable/fill projects and changes in land use would have limited, if any, effects on designated natural habitat, special aquatic

sites, or plant communities. There would be no discharges other than stormwater runoff, and facilities would be operated in accordance with SWPPPs to ensure that stormwater quality complies with permit conditions (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). Consequently, no degradation in the quality of EFH would be expected.

The Al Larson Marina Project would include a marina facilities analysis to determine if new slips would be required prior to expansion. New docks would create over-water shading in localized areas, the extent of which would vary depending on deck materials, height above water, and time of day. Shading from Port-related structures generally would not be expected to have a substantial effect on marine biological communities, although localized impacts could occur if individual projects resulted in shading of protected habitats such as eelgrass beds, kelp beds, mudflats, or wetlands (Anchor QEA 2012). Impacts to EFH in Planning Area 4 would be localized and would not substantially reduce invertebrate prey species because pilings and docks create attachment surfaces for invertebrates and plant communities, and benthic invertebrate communities persist under pile supported structures (Merkel & Associates, Inc. 1999). In addition, no HAPC plant communities (eelgrass beds, kelp beds) would be affected since none occur in Planning Area 4.

There would be no effects on mudflats, wetlands, or SEAs since none occur in Planning Area 4.

As described for Impact BIO-1, future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills into the port complex. However, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid.

Impact Determination

Construction

Most construction activities from the proposed appealable/fill projects would result in only temporary impacts to EFH and would not result in substantial reduction in habitat quality. Therefore, impacts from construction activities would be less than significant. However, loss of aquatic habitat due to fills would have significant impacts on EFH.

No impact would occur to the Pier 400 SEA from the change in the land use designation to open space. No impacts to eelgrass beds, kelp beds, mudflats, wetlands, or other plant communities would occur from the proposed appealable/fill projects or land use changes.

Operations

Operations associated with the proposed appealable/fill projects and changes in land use would result in less than significant impacts on biological resources because runoff from landside activities would be managed in accordance with existing programs. Potential shading from overwater structures would result in less than significant impacts on EFH because effects would be localized, would not result in a substantial reduction in invertebrate prey species, and would not affect vegetated HAPC habitats (eelgrass or kelp beds). There would be no impacts from shading on

other protected habitats (mudflats, wetlands) or SEAs with the proposed appealable/fill projects or land use changes.

Future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills and leaks into the port complex. However, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid. Therefore, impacts on sensitive habitats would be less than significant.

Mitigation Measures

Impacts resulting in loss of marine habitat would be mitigated with **MM BIO-5**, as applicable.

Residual Impacts

Residual impacts would be less than significant.

Impact BIO-3: The proposed Program would not result in interference with wildlife movement/migration that may diminish the long-term survival of a species.

Planning Area 2

Construction

The China Shipping Fill, Yang Ming Terminal Redevelopment, and Berths 187-189 Liquid Bulk Relocation projects and land use changes would include in-water construction and upland demolition, relocation, or construction of land-based infrastructure, including liquid bulk facilities at an optional land use site on Mormon Island.

No terrestrial or aquatic migration corridors occur within the port complex. Construction activities would not block or interfere with the migration of special status birds or birds covered under the MBTA, which could fly over or around construction activities.

The movement of marine mammals, if present in the vicinity, could be affected by noise and disturbance associated with construction activities (discussed further under Impact BIO-1). No long-term effects on marine mammal populations would occur due to the localized and temporary nature of construction activities as well as lack of rookeries within the port complex.

In-water construction activities could temporarily disrupt fish movement patterns as a result of increased underwater noise, lighting, turbidity, or vibration. As discussed above under Impact BIO-2, fish generally would be expected to temporarily move away from work areas of disturbance. No long-term effects on fish populations would be expected due to the localized and temporary nature of the construction activities.

Operations

The proposed appealable/fill projects would not create barriers to wildlife movement within the port complex. Additional vessel calls to the Port associated with development in Planning Area 2 would not impede or interfere with migrations of whales or turtles, which are generally sparsely distributed along the coast.

Planning Area 3

Construction

Construction activities associated with the proposed Berth 300 Development Project, Berth 301 upgrades, and land use changes would include in-water construction and upland demolition or construction of land-based facilities. Similar to the discussion for Planning Area 2, no terrestrial or aquatic migration corridors occur within the port complex, and no long-term effects on populations would be expected from temporary, localized construction activities. Construction activities would not block or interfere with the migration of special status birds or birds covered under the MBTA, which could fly over or around construction activities. Movement of special-status bird species also would not be disrupted by construction activities associated with the noted projects.

In-water construction activities could temporarily disrupt fish and marine mammal movement patterns. As discussed under Planning Area 2, fish and marine mammals generally would be expected to move away from work areas of disturbance. While localized adverse effects on individual fish may occur during pile driving, no long-term effects on fish populations would occur due to the localized and temporary nature of the construction activities and primary use of the area by species that commonly occur throughout the port complex. No long-term effects on marine mammal populations would occur due to the localized and temporary nature of construction activities as well as lack of rookeries within the port complex.

Operations

The proposed appealable/fill projects and land use changes would not create barriers to wildlife movement within the port complex. Shading from a new wharf would be localized and would not be expected to have a substantial effect on the movement of fish or marine mammals within or adjacent to Fish Harbor. Additional vessel calls to the Port associated with development in Planning Area 3 would not impede or interfere with migrations of whales or turtles, which are generally sparsely distributed along the coast.

Planning Area 4

Construction

Construction activities associated with the Tri Marine Expansion, 338 Cannery Street Adaptive Reuse, and Al Larson Marina projects and proposed land use changes in Planning Area 4 would include in-water construction and upland demolition or construction of land-based facilities. Similar to the discussion for Planning Area 2, no terrestrial or aquatic migration corridors occur within the port complex and no long-

term effects on populations would be expected from temporary, localized construction activities. Construction activities would not block or interfere with the migration of special-status birds or birds covered under the MBTA, which could fly over or around construction activities. Special-status bird species also would not be disturbed from construction activities associated with the proposed appealable/fill projects and changes in land use more than 1 mile from the Pier 400 nest site.

In-water construction activities could temporarily disrupt fish and marine mammal movement patterns. As discussed for Planning Area 2, fish and marine mammals generally would be expected to move away from work areas of disturbance. While adverse effects on individual fish may occur during pile driving, no long-term effects on fish populations would occur due to the localized and temporary nature of the construction activities and primary use of the area by species that commonly occur throughout the port complex. No long-term effects on marine mammal populations would occur due to the localized and temporary nature of construction activities as well as lack of rookeries within the port complex.

Operations

The proposed appealable/fill projects and land use changes would not create barriers to wildlife movement within the port complex. Potential shading from new overwater structures, which may have localized occurrence, would not be expected to have a substantial effect on the movement of fish or marine mammals within Fish Harbor.

Additional vessel calls to the Port associated with development in Planning Area 4 would not impede or interfere with migrations of whales or turtles, which are generally sparsely distributed along the coast.

Impact Determination

Construction

Construction would have less than significant impacts on wildlife migration in the port complex, which is limited to birds that could fly above or around disturbance. Construction may result in temporary disturbance of wildlife movement. Pile driving and other in-water construction activities could affect the movement of fish and marine mammals, which may temporarily move away from disturbance, but would be expected to return after construction activities conclude. Such effects on special-status species are discussed under Impact BIO-1 and would be less than significant. Commonly occurring species in uplands that are adapted to urbanized lands or are non-breeding migrants would experience only temporary effects or impacts that would be less than significant.

Operations

The Port does not represent a migratory route for wildlife or marine organisms, although some marine fish move into and out of the Port for foraging, spawning, or nursery areas; marine mammals migrate along the coast; and, migratory birds visit the Port. Operation of the proposed Program would not interfere with any of these activities. As discussed under Impact BIO-1, future increases in vessel calls to the Port would have a less than significant impact on migrating marine mammals and

turtles. Therefore, operations of the proposed Program relative to impacts on wildlife migration or movement would be less than significant.

Mitigation Measures

No mitigation is required. Implementation of **MM BIO-2**, as applicable, would reduce impacts of pile driving on wildlife movement, including fish and marine mammals.

Residual Impacts

Residual impacts would be less than significant.

Impact BIO-4: The proposed Program would result in a substantial disruption of local biological communities.

Planning Area 2

Construction

Fills associated with the China Shipping Fill and Yang Ming Terminal Redevelopment projects would result in a net loss of 19 acres of marine aquatic habitat. The fills, which would be located on opposite shores, would substantially constrict the entrance of the Southwest Slip and to a lesser extent the West Basin. Benthic community composition in this area is similar to other areas in the Inner Harbor, with species assemblages indicative of low to moderate organic enrichment associated with fine sediment and slower tidal circulation (SAIC 2010). Therefore, a substantial change in the adjacent benthic invertebrate community would not be expected.

Benthic invertebrate prey would be expected to begin colonization almost immediately in the cut area as a result of larval settlement from the plankton and immigration from surrounding habitat, and attain a similar community as surrounding habitat within 1 to 3 years depending on existing conditions (Oliver and Slattery 1973; Oliver et al.1977; Merkel & Associates, Inc. 2010).

Most effects of construction on biological communities associated with the proposed appealable/fill projects and associated land use changes would be temporary, lasting only through the construction period or for a short time thereafter. This could include sediment disturbance, contaminant release, reduced water quality, and elevated turbidity, noise, and vibration. Compliance with RWQCB 401 certifications and USACE permits require construction monitoring and control measures to protect waters and beneficial uses (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). Therefore, no substantial disruption of marine communities would occur from temporary changes to water quality.

Impact hammer pile driving could result in acoustic injury of marine mammals or mortality of fish in certain instances, but would not be expected to impact populations because of the limited extent of the affected area, lack of marine mammal rookeries in the Port, and tendency of fish and marine mammals to move away from disturbance.

Construction disturbance of bottom sediments has the potential to dislodge and spread invasive species, if present. The invasive green alga, *Caulerpa*, has the potential to spread by fragmentation if present and disturbed by in-water construction. A pre-construction survey for *Caulerpa* is required for projects subject to the USACE's 404 permit program that involve disturbance of bottom sediments, such as for fill or pile driving. If no *Caulerpa* is found, construction may proceed as permitted. If *Caulerpa* is found, no in-water construction may be conducted until the infestation has been isolated, treated, and the risk of spread eliminated.

Redevelopment or expansion of backlands to change facilities or increase container areas could result in temporary disturbance of terrestrial animals (e.g., lizards, rodents, and upland birds) that may inhabit or use these industrial areas. As discussed under Impact BIO-1, construction or demolition associated with changes in types of facilities could adversely affect birds covered under the MBTA and/or similar provisions of the California Fish and Game Code, if construction/demolition occurs during the nesting season and suitable nesting areas are in the vicinity. Most terrestrial wildlife is dominated by non-native species or adapted to living in an urbanized environment; therefore, localized impacts would have limited, if any, effects on populations of native wildlife. Construction activities would have minimal effects on terrestrial plant resources because plant cover is generally sparse or dominated by non-native species. Indirect impacts to waters associated with erosion or runoff from uplands construction would be controlled with standard BMPs, project-specific SWPPPs, and permit compliance (Section 3.14.4.3, Water Quality, Sediments, and Oceanography).

Operations

Operations consistent with land use changes would have limited effects on biological communities. There would be no discharges other than stormwater runoff, and facilities would be operated in accordance with SWPPPs to ensure that stormwater quality complies with permit conditions (Section 3.14.4.3, Water Quality, Sediments, and Oceanography).

The fills associated with the China Shipping Fill and Yang Ming Terminal Redevelopment projects, which would be located on opposite shores, would constrict the entrance of the Southwest Slip and to a lesser extent the West Basin. Benthic community composition in this area is similar to other areas in the Inner Harbor, with species assemblages indicative of low to moderate organic enrichment associated with fine sediment and slower tidal circulation (SAIC 2010). Therefore, a substantial change in EFH habitat quality of benthic prey resources would not be expected with the fills.

As discussed under Impact BIO-1, future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills into the port complex. However, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid.

Increased vessel calls could increase the risk of introducing non-native invasive species within the port complex (Section 3.3.2.2.10, Invasive/Non-Invasive Species). Seagoing vessels entering the harbor from beyond the EEZ or that take on and discharge ballast water in more than one port along the west coast are subject to

ballast water management regulations to minimize the risk of accidental introductions of invasive species (Sections 3.3.3.1 Federal Regulations, 3.3.3. 2, State Regulations). Additionally, these regulations also include marine biofouling and sediment management requirements. Both federal and state regulations include a phased schedule for vessel compliance with ballast water performance standards through 2014 or 2016 depending on vessel size and date of construction. Ballast water treatment systems are emerging technologies that have yet to be proven 100 percent effective. Accordingly, it is not possible to fully avoid the potential for invasive species introductions with the potential to disrupt marine biological communities.

Planning Area 3

Construction

Fill associated with the Berth 300 Development Project would result in a net loss of 18 acres of marine aquatic habitat.

Most construction impacts on biological communities associated with the proposed appealable/fill project and associated changes in land use would be temporary, lasting only through the construction period or for a short time thereafter. Indirect impacts to waters would be controlled with monitoring, standard BMPs, and compliance with USACE permits, RWQCB 401 certifications, and project-specific SWPPPs (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). Therefore, no substantial disruption of marine communities would occur from temporary disturbance of marine habitat and waters during construction.

Impact hammer pile driving could result in acoustic injury of marine mammals or mortality of fish in certain instances, but would not be expected to impact populations because of the limited extent of the affected area, lack of marine mammal rookeries within the Port, and tendency of fish and marine mammals to move away from disturbance.

Construction disturbance of bottom sediments has the potential to dislodge and spread invasive species, if present. A pre-construction survey for *Caulerpa* is required for projects subject to the USACE's 404 permit program that involve disturbance of bottom sediments, such as from fill or pile driving. If no *Caulerpa* is found, construction may proceed as permitted. If *Caulerpa* is found, no in-water construction may be conducted until the infestation has been isolated, treated, and the risk of spread eliminated.

As discussed under Impact BIO-1, construction or demolition associated with changes in types of facilities could adversely affect birds covered under the MBTA and/or similar provisions of the California Fish and Game Code, if construction/demolition occurs during the nesting season and suitable nesting areas are in the vicinity. Most terrestrial wildlife in the planning area is dominated by non-native species or adapted to living in an urbanized environment; therefore, localized impacts would have minimal effects on terrestrial resources.

Operations

As described for Planning Area 2, operations consistent with land use changes would have limited effect on biological communities. There would be no discharges other than stormwater runoff, and facilities would be operated in accordance with SWPPPs to ensure that stormwater quality complies with permit conditions (Section 3.14.4.3, Water Quality, Sediments, and Oceanography).

Impacts of shading from a new wharf would be localized and would not substantially affect biological communities because new piles would create new attachment surfaces for dock/piling invertebrate and plant communities, and benthic invertebrate communities persist and fish commonly occur under pile supported structures (Merkel & Associates, Inc. 1999). Localized shading from Port-related structures have not affected ecosystem function or caused substantial disruption of marine biological communities within the port complex (Anchor QEA 2012).

Future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills into the port complex. However, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid.

Increased vessel calls could increase the risk of introducing non-native invasive species. However, seagoing vessels entering the harbor from beyond the EEZ or that take on and discharge ballast water in more than one port along the west coast are subject to ballast water management, marine biofouling, and sediment management requirements. Both federal and state regulations include a phased schedule for vessel compliance with ballast water performance standards through 2014 or 2016 depending on size and date of vessel construction. Ballast water treatment systems are emerging technologies that have yet to be proven 100 percent effective. Accordingly, it is not possible to fully avoid the potential for invasive species introductions to disrupt marine biological communities.

Planning Area 4

Construction

Most effects of construction on biological communities associated with the proposed appealable projects and associated land use changes would be temporary, lasting only through the construction period or for a short time thereafter. Indirect effects on water quality would be controlled with monitoring, standard BMPs, and compliance with USACE permits, RWQCB 401 certifications, and project-specific SWPPPs (Section 3.14.4.3, Water Quality, Sediments, and Oceanography). Therefore, no substantial disruption of marine communities would occur from temporary disturbance of marine habitat and waters during construction.

Impact hammer pile driving, if new docks and slips are required, could result in acoustic injury of marine mammals or mortality of fish in certain instances, but would not be expected to affect populations or communities because of the limited extent of the affected area, and the tendency of fish and marine mammals to move from disturbance.

Construction disturbance of bottom sediments has the potential to dislodge and spread invasive species, if present. A pre-construction survey for *Caulerpa* is required for projects subject to the USACE's 404 permit program that involve disturbance of bottom sediments, such as with pile driving or removal. If no *Caulerpa* is found, construction may proceed as permitted. If *Caulerpa* is found, no in-water construction may be conducted until the infestation has been isolated, treated, and the risk of spread eliminated.

As discussed under Impact BIO-1, construction or demolition associated with changes in types of facilities could adversely affect birds covered under the MBTA and/or similar provisions of the California Fish and Game Code, if construction/demolition occurs during the nesting season and suitable nesting areas are in the vicinity. Most terrestrial wildlife in the planning area is dominated by non-native species or adapted to living in an urbanized environment; therefore, localized impacts would have minimal effects on terrestrial resources.

Operations

The Al Larson Marina Project would include a marina facilities analysis to determine if new slips would be required prior to expansion. Impacts would be localized and would not substantially affect biological communities because new piles or docks would create new attachment surfaces for dock/piling invertebrate and plant communities, and benthic invertebrate communities persist and fish commonly occur under pile supported structures (Merkel & Associates, Inc. 1999). Localized shading from Port-related structures have not affected ecosystem function or caused substantial disruption of marine biological communities within the port complex (Anchor QEA 2012).

Operations consistent with land use changes would have limited effect on biological communities. There would be no discharges other than stormwater runoff, and facilities would be operated in accordance with SWPPPs to ensure that stormwater quality complies with permit conditions (Section 3.14.4.3, Water Quality, Sediments, and Oceanography).

Future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills into the port complex. However, as described under Impact BIO-1, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid.

Increased vessel calls could increase the risk of introducing non-native invasive species. However, seagoing vessels entering the harbor from beyond the EEZ or that take on and discharge ballast water in more than one port along the west coast are subject to ballast water management, marine biofouling, and sediment management requirements. Both federal and state regulations include a phased schedule for vessel compliance with ballast water performance standards through 2014 or 2016 depending on size and date of vessel construction. Ballast water treatment systems are emerging technologies that have yet to be proven 100 percent effective. Accordingly, it is not possible to fully avoid the potential for invasive species introductions to disrupt marine biological communities.

Impact Determination

Construction and Operations

Most in-water construction activities would have temporary effects on biological resources. However, those effects would not be expected to result in substantial disruption in marine biological communities and impacts would be less than significant.

Operations of the proposed appealable/fill projects would not result in degradation of water quality and effects of shading by overwater structures would be localized and relatively minor; therefore, substantial disruption of marine biological communities would not be expected and impacts would be less than significant.

Future increases in vessel calls associated with expansion of facilities could incrementally increase the risk of accidental spills and leaks into the port complex. However, potential spill events are considered unlikely and should they occur, containment and clean up would be rapid. Accordingly, impacts on marine biological communities would be less than significant.

Increased vessel calls could increase the risk of introducing non-native invasive species. Federal and state regulations substantially reduce the risk of invasive species introductions by requiring seagoing vessels entering the harbor from beyond the EEZ or that take on and discharge ballast water in more than one port to comply with ballast water management, marine biofouling, and sediment management requirements. While more vessels will be required to comply with these requirements through 2016, treatment system technologies have yet to be proven 100 percent effective. Consequently, it is not possible to ensure that no non-native species are introduced to the harbor environment, nor is it possible to ensure that introduced species are not invasive. Accordingly, it is not possible to fully avoid the potential for invasive species introductions to disrupt marine biological communities, and such impacts were they to occur could be significant.

Local biological communities in upland areas would not be substantially disrupted from backlands expansion because most plants and wildlife are non-native and/or adapted to disturbed or urbanized lands. Therefore, backlands expansion impacts would be less than significant.

Mitigation Measures

Implementation of **MM BIO-2**, as applicable, would reduce impacts of pile driving on fish and marine mammals. Implementation of **MM BIO-4**, as applicable, would reduce potential impacts on nesting birds protected under the MBTA and/or similar provisions of the California Fish and Game Code. No feasible mitigation is currently available to totally prevent introduction of invasive species due to lack of proven technologies.

Residual Impacts

Residual impacts would be significant and unavoidable.

Impact BIO-5: The proposed Program would not result in a permanent loss of marine habitat.

Planning Area 2

Construction and Operations

Two of the proposed appealable/fill projects (Yang Ming Terminal Redevelopment; and China Shipping Fill) in Planning Area 2 would result in a net reduction of 19 acres of marine habitat, which supports benthic invertebrate prey species and fish species covered under the Pacific Coast Groundfish and Pelagic FMPs. One of the proposed appealable/fill projects (Berths 187-189 Liquid Bulk Relocation) and proposed land use changes would not result in any loss of marine habitat in the planning area.

Planning Area 3

Construction and Operations

The proposed appealable/fill project (Berth 300 Development) in Planning Area 3 would result in a net reduction in 18 acres of marine habitat, which supports benthic invertebrate prey species and fish species covered under the Pacific Coast Groundfish and Pelagic FMPs. Potential conversion of the Berth 301 optional land use site to a liquid bulk facility and other proposed land use changes would not result in any loss of marine habitat in the planning area.

Planning Area 4

Construction and Operations

No loss of marine habitat would occur in Planning Area 4.

Impact Determination

Construction

Loss of marine habitat would be a significant impact.

Operations

Because operation of the proposed appealable/fill projects and land use changes would not result in losses of marine habitat, impacts would be less than significant.

Mitigation Measures

Fill in open-water areas would result in net loss of 37 acres of inner harbor marine habitat. These impacts would be mitigated using available credits from the LAHD's mitigation bank that will be compliant with the 2008 Compensatory Mitigation Rule (USACE and USEPA 2008). This measure would also offset impacts to EFH.

The LAHD shall offset the loss of marine habitat using the following measure:

MM BIO-5: Apply Credits from Existing Port Mitigation Banks. The LAHD shall apply 18.5 credits available in a mitigation bank that is compliant with the 2008 Compensatory Mitigation Rule to compensate for loss of marine habitat as a result of fill.

Residual Impacts

Residual impacts would be less than significant.

Impact BIO-6: The proposed Program would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Planning Area 2

Construction and Operations

Construction or demolition of facilities associated with the proposed appealable/fill projects or land use changes would have minimal effects on terrestrial vegetation because plant cover is generally sparse or dominated by non-native species. Removal of native trees is not expected; however, if that were to occur, the removal would be in compliance with the City of Los Angeles native tree protection and relocation ordinance.

Planning Area 3

Construction and Operations

As described for Planning Area 2, removal of native trees is not expected for the proposed appealable/fill projects and land use changes in Planning Area 3. However, if that were to occur, the removal would be in compliance with the City of Los Angeles native tree protection and relocation ordinance.

Planning Area 4

Construction and Operations

Removal of native trees would not occur since none are located in Planning Area 4.

Impact Determination

Construction and Operations

Because construction and operations would be conducted in compliance with local ordinances, impacts to biological resources protected by local policies or ordinances would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impacts

Residual impacts would be less than significant.

3.3.5 Summary Impact Determination

Table 3.3-5 summarizes the impact determinations related to biological resources for the proposed Program. Identified potential impacts may be based on federal, state, or City of Los Angeles significance criteria, Port criteria, and the scientific judgment of the report preparers. For each type of potential impact, the table describes the impact, summarizes the impact determination, identifies applicable mitigation measures, and notes potential residual impacts (i.e., the impact remaining after mitigation).

Table 3.3-5. Summary Matrix of Potential Impacts and Mitigation Measures for Biological Resources Associated with the Proposed Program

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impact after Mitigation*
Construction			
BIO-1: Construction of the proposed Program 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.	Significant	**MM BIO-1: Avoid Marine Mammals.** As applicable, depending on the number, size, and type (concrete, CISS, steel, timber) of piles and equipment used (impact or vibratory hammer), pile driving activities related to the proposed Program shall include establishment of a safety zone and monitoring of the area surrounding the operations for seals and sea lions (pinnipeds) by a qualified marine biologist. The monitor shall have the authority to halt operations unless the LAHD Engineer determines halting operations would be unsafe. The safety zone would extend out to 1,640 feet 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 shall survey the safety zone to ensure that no marine mammals are present. If marine mammals are observed within the safety zone, pile driving shall be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor shall 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	Less than significant

Table 3.3-5. Summary Matrix of Potential Impacts and Mitigation Measures for Biological Resources Associated with the Proposed Program

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impact after Mitigation*
		animal has left the vicinity. If pinnipeds enter the safety zone after pile driving has begun, pile driving can continue. The monitor shall record the species and number of individuals observed and make note of their behavior patterns. However, if an animal appears distressed, and if it is operationally safe to do so, the monitor shall inform the Engineer that pile driving shall 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 shall continue only until the Engineer deems it safe to discontinue. **MM BIO-2: Minimize In-water Pile Driving Noise.** The construction contractor shall be required to use sound abatement techniques to reduce both noise and vibrations from pile driving activities, as applicable, depending on the number, size, and type (CISS, concrete, steel, timber) of piles and equipment used (impact or vibratory hammer). In addition to the "soft-start" technique, which shall be required at the initiation of each pile driving event or after breaks of more than 15 minutes, sound abatement techniques may 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 would reduce both the intensity of the underwater sound pressure levels radiating from the pile driving location and the distance in which levels would exceed the Level A and B harassment levels for marine mammals, or disturbance of nesting by special status bird species. **MM BIO 3: Avoid and Minimize Impacts to California Least Tern.** If construction activities would occur during the nesting season (April 15 to September 15) within 500 feet of the designated nest site (presently on Pier 400), one or more of the following measures shall be implemented, as appropriate and approved by the USFWS and CDFG. **3a. Schedule Construction**: All construction activities that would occur within 200 feet of the designated nest site (presently on Pier 400)	

Table 3.3-5. Summary Matrix of Potential Impacts and Mitigation Measures for Biological Resources Associated with the Proposed Program

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impact after Mitigation*
		shall be scheduled outside the nesting season (September 16 and April 14), unless otherwise approved by the USFWS and CDFG. **3b Monitor California Least Tern**: A qualified biologist shall monitor California least tern and other special status bird species at the designated nest site (presently at Pier 400) during the least tern nesting season (April 15 through September 15). The monitoring frequency and reporting requirements will be confirmed with USFWS and CDFG prior to implementation. The focus of the monitoring is to determine if there are impacts to breeding, nesting, chick feeding activities, or vulnerability of eggs or chicks to predators. If construction activities need to be redirected to prevent impacts to special status birds, the monitor shall immediately contact LAHD and the Construction Manager. **MM BIO-4: Conduct Nest Site Surveys.** Between February 15 and September 1 and prior to ground-disturbing activities, a qualified biologist shall 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 shall 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-2: Construction of the proposed Program 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.	Significant	**MM BIO-5: Apply Credits from Existing Port Mitigation Banks.** The LAHD shall apply 18.5 credits available in a mitigation bank that is compliant with the 2008 Compensatory Mitigation Rule to compensate for loss of marine habitat as a result of fill.	Less than significant
BIO-3: Construction of the proposed Program would not result in interference with wildlife movement/migration that may diminish the long-term survival of a species.	Less than significant	No mitigation is required; however, **MM BIO-2** would reduce any potential for impact.	Less than significant

Table 3.3-5. Summary Matrix of Potential Impacts and Mitigation Measures for Biological Resources Associated with the Proposed Program

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impact after Mitigation*
BIO-4: Construction of the proposed Program would not result in a substantial disruption of local biological communities.	Less than significant	No mitigation is required; however, **MM BIO-2** and **MM BIO-4** would reduce any potential impact.	Less than significant
BIO-5: Construction of the proposed Program would not result in a permanent loss of marine habitat.	Significant	**MM BIO-5: Apply Credits from Existing Port Mitigation Banks.** The LAHD shall apply 18.5 credits available in a mitigation bank that is compliant with the 2008 Compensatory Mitigation Rule to compensate for loss of marine habitat as a result of fill.	Less than significant
BIO-6: Construction of the proposed Program would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than significant	No mitigation is required	Less than significant
Operations			
BIO-1: Operation of the proposed Program 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-2: Operation of the proposed Program 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-3: Operation of the proposed Program would not result in interference with wildlife movement/migration that may diminish the long-term survival of a species.	Less than significant	No mitigation is required	Less than significant
BIO-4: Operation of the proposed Program would result in a substantial disruption of local biological communities.	Significant	No feasible mitigation is currently available to fully avoid potential for invasive species introductions.	Significant and unavoidable
BIO-5: Operation of the proposed Program would not result in a permanent loss of marine habitat.	Less than significant	No mitigation is required	Less than significant

Table 3.3-5. Summary Matrix of Potential Impacts and Mitigation Measures for Biological Resources Associated with the Proposed Program

Environmental Impacts	*Impact Determination*	*Mitigation Measures*	*Impact after Mitigation*
BIO-6: Operation of the proposed Program would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than significant	No mitigation is required	Less than significant

3.3.6 Significant Unavoidable Impacts

A substantial increase in vessel traffic would increase the risk of introducing non-native invasive species, which cannot be fully avoided with current technologies and regulations. Residual impacts are considered significant and unavoidable.

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