3.3 BIOLOGICAL RESOURCES

3.3.1 Introduction

This section identifies the existing conditions of biological resources within the Port, the Main Channel, and Outer Harbor area and evaluates potential impacts to biological resources associated with the Proposed Action. Information for the entire harbor area is presented to characterize the area. Specific information is then given for locations that could be affected by the Proposed Action. Sampling in past surveys (described in the following section) has not always occurred in the exact locations that would be affected by the Proposed Action, mobile species such as fish can move from one location to another, and project effects could extend beyond the disposal sites. Therefore, information from locations near or from similar habitats has been used as necessary in the impact analysis.

3.3.2 Environmental Setting

Marine biological resources in the Los Angeles/Long Beach Harbor (Inner and Outer Harbor areas) have been studied for the last 30 years and described in several environmental documents, including the Deep Draft Navigation Improvement EIS/EIR (USACE and LAHD, 1992), Pier 400 (LAHD, 1999), Channel Deepening Project (LAHD, 1997c; USACE and LAHD, 2000), and biological surveys conducted by MEC (1988); and MEC and Associates (2002). The following description of biological resources incorporates information from the previous environmental documents including information from the most recent surveys. Biological resource sampling throughout the Harbor is not undertaken on an annual basis, with the most recent comprehensive surveys completed in 2000. The *Year 2000 Biological Baseline Study of San Pedro Bay* (MEC and Associates, 2002) is incorporated by reference. The Executive Summary of that study is included in Appendix H, while the entire study is available for review at the office of the Port's Environmental Management Division. Relevant parts of this document are summarized where used throughout Section 3.3.

Over the years, the Port of Los Angeles (POLA or the Port) and Port of Long Beach (POLB) have worked with the State and Federal resource agencies to conduct periodic evaluations of Harbor conditions, which serve to define baseline conditions for habitat assessments associated with Port development projects. Based on these assessments, the resource agencies and the POLA and POLB establish appropriate Harbor habitat and habitat mitigation values. The last major assessment, which was conducted in 2000, resulted in modification of the mitigation values in the Harbor (LAHD, 2004). These modifications were indicative of a gradual increase in habitat value in the Harbor and resulted in an increase in mitigation requirements in the Main

Channel from lower value Inner Harbor habitat to higher value Outer Harbor habitat. While still valuable, the remainder of the Inner Harbor was identified as having lower habitat values relative to the deep and shallow waters of the Outer Harbor (USACE and LAHD, 2006). In general, marine resource fluctuations along the California coast and in the Harbor can occur seasonally and annually based on general fluctuations in the environment including, but not limited to, the amount of rainfall and El Niño and La Niña events. However, substantial improvements in habitat quality associated with improved water quality in the Harbor occurred in the period between the 1970s and mid 1980s. Further improvements in marine resources have occurred since that time, though at a slower pace than during the previous 10-year period (MEC and Associates, 2002). The types of habitats (shallow and deep pelagic, benthic, riprap, and piling) in the Inner Harbor and Outer Harbor and the species associated with them, have remained fairly predictable as described below for each habitat. Perhaps the most significant change has been the expansion of eelgrass habitat in the shallow soft bottom habitats of the Outer Harbor (MEC and Associates, 2002).

For these reasons, 2000 and earlier data (to about the mid 1980s) accurately reflect 2004 environmental conditions in the Harbor because those conditions have remained about the same or even improved from 2000 to 2004. The 2002 MEC and Associates report included the first survey data which identified non-native taxa that have been introduced over-time to the POLA and POLB.

Marine habitats in the areas to be dredged or filled in the Proposed Action area are primarily deep soft bottom, although some shallow soft bottom would be altered for construction of the Eelgrass Habitat Area. Rock riprap, pilings, and concrete or sheetpile walls along the existing landfills for Harbor facilities provide hard substrate habitats. Upland areas where surcharge material would be removed are recently filled areas that provide limited terrestrial habitat for wildlife.

The biological resources within soft bottom, hard substrates, and water column habitat types are described below as well as the sensitive species present in the Harbor and that could occur at or adjacent to the project sites. Beneficial uses in the Outer Harbor include marine habitat as defined in the Basin Plan (RWQCB, 1994). Biological resources baseline studies (MEC, 1988; MEC and Associates, 2002) have shown no depreciation in the quantity or quality of marine resources from 1987 through 2000 even though the Harbor has experienced commercial development that includes new facilities and increased vessel traffic.

3.3.2.1 Terrestrial Habitats

Terrestrial habitats in the Los Angeles Harbor are primarily developed terminal areas and associated backlands. Most of these areas are paved. Unpaved areas are either barren or have a low density of predominantly non-native weedy species. Some small areas adjacent to buildings are landscaped with a variety of horticultural species that range from grasses to palm trees. Wildlife associated with these industrial areas are limited to species that are adapted to human disturbance. Common birds include gulls (*Larus* spp.), Brewer's blackbird (*Euphagus cyanocephalus*), American crow (*Corvus brachyrhynchos*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), northern mockingbird (*Mimus polyglottos*), and rock dove (*Columba livia*). Mammals are generally limited to mice, rats, and feral cats. The recent landfill in Southwest Slip was completed in 2005 as part of the Channel Deepening Project and has surcharge material on top of it. This area is essentially barren sandy material that provides no cover or food for wildlife. A few birds may temporarily rest on the ground. The Anchorage Road Soil Storage Site (ARSSS) has been disturbed in the past, leaving bare ground and some patches of weedy vegetation in areas that have not been disturbed recently.

3.3.2.2 Benthic Environment

Benthic habitats in Los Angeles Harbor include soft bottom and hard substrates. These occur in both shallow, less than 20 feet (6 m) below MLLW, and deep water. The shallow water habitat is primarily in the subtidal zone (i.e., always covered with water), but some is in the intertidal zone (exposed to the air during low tides). Most of the habitat in the intertidal is hard substrate, although small amounts of soft bottom habitat occur at locations such as Cabrillo Beach and the Pier 300 Shallow Water Habitat.

Soft Bottom Habitats

Organisms that live in (benthic infauna) and on (benthic epifauna) the bottom sediments provide a food source for fish, invertebrates, and other organisms. The density and species composition of these organisms are influenced by sediment grain size, nutrient levels, water depth, pollutant levels in the sediments and overlaying water, and/or the time since dredging. Since the 1950s, improvements in water quality have aided the establishment of diverse assemblages of benthic animals in previously disturbed Inner Harbor and channel areas (USACE and LAHD 1980, 1984). Data from the 1970s showed that the pollution-tolerant polychaete, *Tharyx parvus*, accounted for most of the benthic organisms in soft bottom samples (HEP, 1976; USACE and LAHD, 1980). An assessment of dominant species in the Harbor indicates a gradient of increasing environmental stress (enrichment/contamination) from the Outer to Inner Harbor and

from basins to slips (MEC and Associates, 2002). Over time there has been an increasing tendency for movement of healthy Outer Harbor assemblages up the Main Channel and improved benthic indicators in the Inner Harbor areas (MEC and Associates, 2002).

Over 400 species of invertebrates (infaunal and epifaunal) were collected in the Los Angeles-Long Beach Harbor during the year 2000 (MEC and Associates, 2002). Harbor-wide, the benthic infauna in 2000 was dominated by polychaete worms with crustaceans moderately abundant and mollusks, plus other taxa, least abundant. For the Los Angeles Harbor in 2000, infaunal biomass averaged 49 g/m^2 for the Inner Harbor and 58 g/m^2 for the Outer Harbor (MEC and Associates, 2002). The range for seven Outer Harbor stations was 16.7 to 160.5 g/m^2 while nine Inner Harbor stations ranged from 13.7 to 91.9 g/m^2. Shallow water generally had a higher biomass than deep water. Average annual abundance (number/m^2) of organisms in the sediments also varied considerably among stations with higher numbers in shallow water than in deep water (MEC and Associates, 2002). The infaunal data for locations sampled in 2000 in or near areas to be affected by the Proposed Action are shown in Table 3.3-1. Annual and seasonal variations in biomass and abundance of these organisms are to be expected as a result of variations in oceanographic (chemical and physical) conditions over time and human activities (USACE and LAHD, 1992).

Table 3.3-1. Benthic Infauna at Specific Locations in Los Angeles Harbor

Location	No. Species	Biomass (g/m^2)	Abundance (#/m^2)
West Basin (north)	31	21.1	2,330
Glenn Anderson Ship Channel	43	19.1	2,990
Cabrillo Shallow Water Habitat	40	127.7	8,760
Cabrillo Fishing Pier	37	48.6	6,065
Main Channel	41	85.0	2,400

Source: MEC and Associates, 2002.

Epifaunal invertebrates associated with, but not living in, soft-bottom sediments are generally larger than infaunal organisms and are also referred to as macroinvertebates. These species are most commonly caught during trawl sampling. Trawl sampling in 2000 collected 61 species from all stations sampled, with a mean of 5 to 8 taxa collected per station (MEC and Associates, 2002). The epifaunal macroinvertebrate assemblage is dominated by arthropod species, particularly Xantus swimming crab (*Portunus xantusii*) and black spotted shrimp (*Crangon nigromaculata*) in the Outer Harbor and by the tuberculate pear crab (*Pyromaia tuberculata*) and black spotted shrimp in the Inner Harbor (MEC and Associates, 2002). These are the three most abundant macroinvertebrate species collected throughout the Los Angeles-Long Beach Harbor. Other species occasionally collected include nudibranchs and other gastropod mollusks, sea stars, and sea cucumbers. The annual mean density of epifaunal invertebrates southeast of Pier 400 was 16 organisms per trawl and ranged from 7 to 28 individuals per trawl (MEC and

Associates, 2002). The annual mean biomass was 0.03 kg/trawl with a range of 0.01 to 0.05 kg/trawl. In the Main Channel, the annual mean density was 32 individuals per trawl with an annual mean range of 17 to 60 per trawl. The annual mean biomass of these organisms was 0.14 kg/trawl with a range of 0.02 to 0.28 kg/trawl. In the CSWH area, the annual mean density of these organisms ranged from 27 to 70 individuals per trawl with an annual mean biomass of 0.8 to 2.99 kg/trawl.

Surveys in the Outer Harbor in 1986-1987 (MEC, 1988) collected a mean of 10 individuals per trawl (adjusted for smaller trawl size) in three Outer Harbor locations. The number of individuals per trawl, however, varied considerably among the nine sampling dates (0 to 71 individuals per trawl). Surveys in the Outer Harbor in 1996-1999 by the City of Los Angeles indicated that the abundance of invertebrates collected by trawl decreased considerably during the 1997-1998 El Niño, but subsequently recovered (MEC and Associates, 2002). These data and the 2000 data discussed above indicate that epifaunal invertebrate abundance can vary within a year, but has not decreased from 1987 to 2000.

Fish associated with soft bottoms are discussed under "Water Column Habitat" below. The Pier 300 Shallow Water Habitat is located over 2.7 mi (4.4 km) by water to the northeast of the proposed Cabrillo SWH Expansion Area and Eelgrass Habitat Area disposal sites and over 2.8 mi (4.5 km) by water to the east of the Berths 243-245 disposal site. The latter disposal site is also 1.3 mi (2.1 km) north of the existing Cabrillo Shallow Water Habitat.

Hard Substrate Habitats

Hard substrates provide surfaces for attachment of invertebrates and algae as well as shelter for mobile invertebrates and fish. Surveys in 2000 found 265 species of invertebrates and algae on hard substrates (riprap) in the Los Angeles-Long Beach Harbor (MEC and Associates, 2002). Organisms on hard substrates in the harbor show vertical zonation similar to that on rocky shores. Substrate type (e.g., vertical concrete or sloping rock riprap) as well as shading by wharves influence the species composition and abundance present at specific locations. Species present include barnacles, mussels, polychaete worms, limpets, anemones, and algae (MEC, 1988; LAHD, 1991). The Inner Harbor was dominated by sparse coverage of stress-tolerant algal species such as *Ulva* spp. and *Enteromorpha* spp., and the Outer Harbor was dominated by red and brown algal species, including *Sargassum* spp., *Taonia* spp., *Gigartina* spp., and *Corallina* spp. (USACE and LAHD, 1984). A strip of giant kelp (*Macrocystis* sp.) currently lines the inner side of the breakwater and along rock dikes in the Outer Harbor (see Section 3.3.2.10).

In 2000 (MEC and Associates, 2002), four riprap stations were sampled in Los Angeles Harbor: the Middle Breakwater, Berth 48, Berth 136, and Berth 192. The first two locations are in the

Outer Harbor and the other two are in the Inner Harbor (West Basin and East Basin). Samples were collected in the upper intertidal, lower intertidal, and subtidal zones. The intertidal zone was dominated by barnacles (*Balanus amphitrite* and *Chthalamus fissus*), except in West Basin where the non-native Pacific oyster (*Crassostrea gigas*) dominated.

In the Outer Harbor, the Middle Breakwater had a greater number of species than the Berth 48 riprap (126 compared to 78) but had a similar density of organisms per unit area over all three vertical strata (MEC and Associates, 2002). Barnacles dominated the upper and lower intertidal along with snails (*Littorina* sp.). The non-native Mediterranean mussel (*Mytilus galloprovincialis*) was abundant in the lower intertidal zone at both locations as well. Green and red algae were common to abundant in the lower intertidal zone on the breakwater. Organisms in the subtidal zone at both locations included barnacles, Mediterranean mussels, snails, tanaids (crustaceans), sea anemones (*Anthopleura* sp.), purple sea urchins (*Strongylocentrotus purpuratus*), and brown algae (*Colpomenia sinuosa*). At the breakwater, the wavy turban snail (*Astraea undosa*), coralline algae (*Corallina* sp.), feather boa kelp (*Egregia* sp.), and ectoprocts were common. For the breakwater, the mean biomass of organisms was 2,877 g/m2 in the upper intertidal zone, 7,409 g/m^2 in the lower intertidal zone, and 2,505 g/m^2 in the subtidal zone. At Berth 48, the mean biomass for each zone was 2,124 g/m^2, 5,816 g/m^2, and 3,838 g/m^2.

Surveys at Berth 136, under a wharf, found the non-native Pacific oyster to be the only species in the upper intertidal zone and the dominant species in the lower intertidal zone, where coralline algae were also present (MEC and Associates, 2002). The Pacific oyster is new to the Harbor since the 1986-87 surveys. The subtidal zone also supported Pacific oyster as well as sponges, a stalked tunicate (*Styela* sp.), and crustaceans. A total of 39 invertebrate and algal species were found including five non-native species. The mean biomass of organisms was 2,413 g/m^2 in the upper intertidal zone, 3,832 g/m^2 in the lower intertidal zone, and 2,497 g/m^2 in the subtidal zone. The 2000 surveys also noted that the bay mussel had been misidentified in previous surveys and is actually the non-native Mediterranean mussel. No macroalgae was found at Berth 136, but the non-native sargassum (*Sargassum muticum*) was present at the entrance to West Basin.

In East Basin, the riprap surveys found a total of 61 invertebrate and algal species in all zones combined. Barnacles and snails were the dominant species in the upper and lower intertidal zone as well as the subtidal zones. The Mediterranean mussel was also present in the lower intertidal zone and subtidal zones. Green algae (*Ulva* spp.) were abundant in the subtidal zone. The mean biomass was 2,945 g/m^2 in the upper intertidal zone, 3,588 g/m^2 in the lower intertidal zone, and 3,503 g/m^2 in the subtidal zone.

Fish associated with hard substrates are discussed below under Section 3.3.2.3, Water Column Habitats.

3.3.2.3 Water Column Habitats

The water column provides habitat for plankton (small floating animals and plants) and fish. In the Outer Harbor, phytoplankton (plant) communities showed seasonal patterns of abundance with diatom blooms in the spring and more intense dinoflagellate-dominated blooms in the fall (Environmental Quality Analysts and Marine Biological Consultants, 1978; Soule and Oguri, 1976, 1979). The most abundant phytoplankton species included *Chaetoceros* spp., *Asterionella japonica*, and *Skeletonema costatum*, although red tides were dominated by *Lingulodinium polyedrum*. Phytoplankton communities tend to be less diverse in the Inner Harbor than in the Outer Harbor, but productivity can be higher in the former due to warmer water temperatures, nutrient inputs, and reduced circulation (Allan Hancock Foundation, 1980). Zooplankton (animal) communities in the Outer Harbor were dominated by copepods and cladocerans such as *Acartia tonsa*, *A. californiensis*, *Paracalanus parvus*, *Corycaeus anglicus*, *Oithona* sp., *Evadne nordmanni*, *E. spinifera*, *Penilia avirostris*, and *Podon polyphemoides*. In the Inner Harbor, copepods that have seasonal peaks and declines are the dominant zooplankton species. In the Outer Harbor near Pier 300, the mean density of zooplankton was 3,000 to 4,000 per m^3 (USACE, 1985). Phytoplankton and zooplankton communities were not sampled in the 2000 baseline study.

Ichthyoplankton (fish eggs and larvae) species and abundances vary on a spatial and temporal basis in the Harbor. Larvae were most abundant in spring and summer (May and August) while fish eggs were most abundant in February and August. The species composition and abundance of ichthyoplankton in the Harbor has been shown to be similar to that of the juvenile and adult fish community (Brewer 1983), suggesting that the Harbor is a nursery for nearly all of the fish species found there as adults (MEC, 1988; MBC, 1984).

Larvae of northern anchovy (*Engraulis mordax*), white croaker (*Genyonemus lineatus*), blenny (*Hypsoblennius* spp.), arrow goby (*Clevelandia ios*), queenfish (*Seriphus politus*), and other members of the family Gobiidae (gobies) have all been found to be abundant in studies from the 1970s to 2000 (MEC and Associates, 2002). The most abundant larvae collected in the deep waters of the Outer Harbor during 2000 were northern anchovy, unidentified goby, and queenfish (*Seriphus politus*), while the most abundant fish eggs were unidentified croaker and unidentified fish. In shallow water habitats, the most abundant larvae were California clingfish (*Gobiesox rhessodon*), queenfish, unidentified goby, bay goby (*Lepidogobius lepidus*), northern anchovy, and blennies (*Hypsoblennius* spp.), with abundant fish eggs represented by unidentified fish, croaker, speckled sanddab (*Citharichthys stigmaeus*), and California tonguefish (*Symphurus*

atricauda). In the Los Angeles Inner Harbor, the most abundant larvae were unidentified goby, bay goby, northern anchovy, yellowfin goby (*Acanthogobius flavimanus*), blenny, and queenfish. The yellowfin goby is a non-native species. The most abundant species of fish eggs were unidentified fish and croaker. The species composition and abundance of ichthyoplankton in the Harbor has been shown to be similar to that of the juvenile and adult fish community (Brewer, 1983), suggesting that the Harbor is a nursery for nearly all of the fish species found there as adults (MEC, 1988; MBC, 1984).

The Los Angeles-Long Beach Harbor complex is habitat for over 130 species of juvenile and adult fish, some of them transient visitors and some permanent residents (Horn and Allen, 1981; MEC, 1988; USACE and LAHD, 1980). Three species, however, dominated fish populations in the harbor: white croaker, northern anchovy, and queenfish (Brewer, 1983).

Four other species are also relatively abundant and are considered important residents of the harbor. These are white surfperch (*Phanerodon furcatus*), California tonguefish (*Symphurus atricauda*), speckled sanddab (*Citharichthys stigmaeus*), and shiner surfperch (*Cymatogaster aggregata*) (Horn and Allen, 1981). Juvenile and adult individuals of most species are more abundant during the spring and summer than in winter (Horn and Allen, 1981).

Seventy-four species of juvenile/adult fish were collected in the Los Angeles-Long Beach Harbor during the 2000 baseline study (MEC and Associates, 2002). Of these, northern anchovy, white croaker, and queenfish were the dominant species. Abundance was greater in summer than in winter. Deep open water of the Outer Harbor was dominated by northern anchovy and white croaker in both otter trawl and lampara net samples, with Pacific sardine (*Sardinops sagax*) and queenfish also abundant in lampara samples. The mean catch for both harbors per lampara net haul was 279 fish, and the mean catch per trawl was 509 fish. Northern anchovy, white croaker, and queenfish were the most abundant species in the trawl and lampara samples in the Outer Harbor shallow water habitats, with shiner perch (*Cymatogaster aggregata*) also abundant in the lampara samples. The mean catch per lampara haul in shallow water was 389 fish in both harbors. For trawl samples, the mean catch was 445 fish. Commercially important species such as the California halibut (*Paralichthys californicus*), barred sand bass (*Paralabrax nebulifer*), and California barracuda (*Synodus argentea*) were found in the Harbor.

Within Los Angeles Harbor in 2000 (MEC and Associates, 2002), deep open water in the Outer Harbor was dominated by northern anchovy and Pacific sardine with white croaker and queenfish common in lampara samples. For trawl samples, northern anchovy was the dominant species in Los Angeles Harbor with white croaker common. The mean catch was 186 fish per lampara haul, and 692 fish per trawl. Shallow water habitats in the Outer Harbor (Cabrillo

Shallow Water Habitat) were dominated by northern anchovy in both lampara and trawl samples. Shiner surfperch were common in lampara samples, and white croaker and queenfish were common in trawl samples. The mean catch was 350 fish per lampara haul and 335 fish per trawl.

Deep water basins, slips, and channels of the Los Angeles-Long Beach Inner Harbor in 2000 (MEC and Associates, 2002) were dominated by northern anchovy in lampara samples and by white croaker and northern anchovy in trawl samples. The mean catch was 1,295 fish per lampara haul and 385 fish per trawl.

Within Los Angeles Harbor in 2000 (MEC and Associates, 2002), deep water in the Inner Harbor was dominated by northern anchovy, topsmelt (*Atherinops affinis*), and Pacific sardine in lampara samples and by northern anchovy in trawl samples, with white croaker and queenfish also common. The mean catch was 286 fish per lampara haul and 262 fish per trawl.

Fish surveys in August 1999 using Lampara nets and otter trawls found that the number of species at both Los Angeles Harbor shallow water habitats (Cabrillo and Pier 300) were approximately twice the number at a deep water habitat in the Outer Harbor while the abundance and biomass of fish was more than four times greater in the shallow water habitats (MEC, 1999). The dominant species at the CSWH (in numbers of individuals and biomass) was the northern anchovy. The deep water location was numerically dominated by the northern anchovy while biomass was dominated by white croaker. Both shallow water habitats had an abundance of young fish indicating that these areas serve as nurseries for many species. Beach seine samples at Cabrillo Beach in four quarters of 2000 (MEC and Associates, 2002) found topsmelt (*Atherinops affinis*) to be the most abundant species, with dwarf surfperch (*Micrometrus minimus*) also common. Total abundance showed no seasonal pattern at either location in 2000.

Inner and Outer Harbor riprap and the breakwaters are important adult fish habitats. Giant kelp has become established along sections of the breakwater inside the harbor (USACE and LAHD, 1992) and adds to the water column structure.

3.3.2.4 Water Birds

Numerous water-associated birds use the Harbor as residents and as seasonal visitors. They use the water surface for resting, and forage over or in the water. Some species also rest or roost on breakwaters and other structures in the Harbor. Recent surveys (MEC and Associates, 2002) found 69 species in the Harbor that depend on marine habitats and another 30 species that are not. Gulls comprised 44.5 percent of the birds observed in 2000 with waterfowl (21.4 percent) and aerial foragers (22.4 percent) also common. The remaining 21.7 percent of the birds were small and large shorebirds, wading/marsh birds, raptors, and upland birds. Density estimates

(individuals per acre) showed the highest densities to be along the Middle Breakwater in Long Beach Harbor and near Cabrillo Beach. Gulls were the densest near Cabrillo Beach while gulls and aerial foragers were the densest along the breakwater. In the Los Angeles Outer Harbor, aerial foragers and gulls were the most abundant guilds with waterfowl also common. The western gull (*Larus occidentalis*) was commonly present all year while Heermann's gull (*Larus heermanni*) was common from June through January. Western grebes (*Aechmophorus occidentalis*) were also present throughout the year. Four species of terns and black skimmers (*Rynchops niger*) were present in the summer with the elegant tern (*Thalasseus elegans*) very abundant in July and August. Great blue herons (*Ardea herodias*) were present along the Los Angeles Outer Harbor riprap all year but were more abundant in the fall. This species and the black-crowned night heron (*Nycticorax nycticorax)* nest in Gull Park on the Navy Mole in Long Beach Harbor. The least tern (*Sternula antillarum browni*) and black skimmer are discussed below under Special Status Species.

Gulls were the dominant group in the Los Angeles Inner Harbor, excluding Southwest Slip which has been partially filled since the 2000 surveys (MEC and Associates, 2002). Upland birds and waterfowl were also common. All other types of birds (large shorebirds, wading/marsh birds, aerial foragers, and raptors) were represented but were generally less abundant. The most abundant species were western gull (*Larus occidendalis*), rock dove, Heermann's gull, California brown pelican (*Pelecanus occidentalis occidentalis*), and California gull (*L. californicus*). The brown pelican is discussed below under Special Status Species.

Black oystercatchers (*Haematopus bachmani*) are present in the Harbor all year with the highest numbers observed in September and October (MEC and Associates, 2002). This species nests on the breakwater.

3.3.2.5 Special Status Species

Several state- and federally-listed threatened or endangered bird species, along with other special status bird species, are known to be present at least seasonally in the Harbor (see Table 3.3-2). Other migratory birds are discussed above in the sections on Water Birds and Terrestrial Habitats. In addition to special status bird species, several species of marine mammals and sea turtles are known to be present in or near the Harbor as discussed below.

Table 3.3-2 Special Status Bird Species in the Proposed Action Area

Common Name	Scientific Name	Status		Notes
		Federal	State	
California least tern	*Sternula antillarum browni*	E	E, FP	Nests at designated site on Pier 400; forages over shallow waters near nest site; present April – August; three in Southwest Slip and two in East Basin June 2000.
California brown pelican	*Pelecanus occidentalis californicus*	E	E	Roosts on breakwaters; forages over open water; rests on water or structures; present all year
Western snowy plover	*Charadrius alexandrinus nivosus*	T	SC	Several migrants at Pier 400 in the California least tern nesting site, but; no nesting in 2003 - 2007.
American peregrine falcon	*Falco peregrinus anatum*	Delisted	E, FP	Resident; nests in the Inner Harbor; forage throughout the Harbor on birds.
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	-	E	Inhabits pickleweed marsh; transient visitor to Harbor.
Black skimmer	*Rynchops niger*	-	SC	Nested on Pier 400 in 1998-2000 and 2004; forages over water near nests; present all year.
Common loon	*Gavia immer*	-	SC	Infrequent winter visitor to Harbor; a few observed in the Outer Harbor in 2000; does not nest in Harbor
Loggerhead shrike	*Lanius ludovicianus*	-	SC	Primarily in Inner Harbor riprap or dock/piling habitat; on Pier 400 in 2003.
Burrowing owl	*Athene cunicularia*	-	SC	One observed on riprap in Long Beach Outer Harbor in 2000; one trapped on Pier 400 in 2003 and 2004; observed on Pier 400 in 2005, 2006, and 2007

Sources: CNDDB Special Animals List June 2008; MEC and Associates 2002; Keane Biological Consulting 2003, 2005b, 2007a, 2007b
Note:
E= endangered;
T = threatened;
SC = Special Concern (nesting populations for birds in this table);
FP= Fully Protected

California Least Tern (Federally and State Listed)

The California least tern was federally listed as endangered in 1970 and state listed as endangered in 1971. Loss of nesting and nearby foraging habitat due to human activities caused a decline in the number of breeding pairs (USFWS, 1992). The biology of this species in the Harbor area has been described in the biological assessment for the Channel Improvement and Landfill Development Feasibility Study (USACE, 1990), biological opinion for the Los Angeles Harbor Development Project (1-6-92-F-25), Channel Deepening EIS/EIR (USACE and LAHD 2000), and Deep Draft Navigation Improvement EIS/EIR (USACE and LAHD, 1992). The following is a summary of information on least tern use of the Los Angeles Harbor.

Summary of Least tern Population within L.A. Harbor

The least tern is a migratory species that is present and breeds in California from April through August. The species has nested during the summer on Terminal Island (including Pier 300) since at least 1974 (Keane Biological Consulting, 1999a). In 1979, the Los Angeles Harbor Department began providing nesting habitat for the species and entered into a Memorandum of

Agreement (MOA) with the United States Fish and Wildlife Service (USFWS), USACE, and California Department of Fish and Game (CDFG) for management of a 15-acre (6.1-ha) least tern nesting site in 1984. This MOA sets forth the responsibilities of the signing parties for management of the designated least tern nesting site within the Harbor, and it is renewed every three to five years. A new MOA was approved by the Board of Harbor Commissioners in June 2006. The MOA also allows the designated nesting site to be relocated under specific conditions. The location of this nesting site has changed over time due to port development activities and is now on the southern tip of Pier 400 (Keane Biological Consulting, 2003). In 1997 the only successful nesting occurred on the newly constructed Pier 400, and in 1998 the Pier 300 nesting site was decommissioned (Keane Biological Consulting, 1999a). The number of nests in the Harbor varied from 0 to 134 between 1973 and 1994 and then steadily increased from 16 in 1995 to 565 in 2000, with decreases in 2001 and 2002 and an increase to 963 in 2003, 1,071 in 2004, and 1,322 in 2005 (Keane Biological Consulting, 2005b). The number of nests then declined to 906 in 2006 (Keane Biological Consulting 2007a) and further declined to 710 in 2007 (Keane Biological Consulting, 2007b). Most of the 2003, 2004, and 2005 nests were within the 15.7-acre (6.4-ha) fenced nesting site although 67 in 2003, 29 in 2004, and 25 in 2005 were located in the adjacent area to the west.

A comparison of the Los Angeles Harbor 1998 nesting success with that from other areas in Los Angeles and Orange counties showed that the Harbor produced 19 percent of the total number of fledglings and the highest number of fledglings per pair (Keane Biological Consulting, 1999a). In 2003, the Harbor produced 55 percent of the total number of fledglings in Los Angeles and Orange counties and 25 percent of the statewide fledglings (Keane Biological Consulting, 2003). In 2005 these numbers increased to 71.4 percent of the total fledglings in Los Angeles and Orange counties and 45 percent of the statewide number of fledglings (Keane Biological Consulting 2005b). The number of fledglings produced on pier 400 in 2006 decreased to 44.3 percent of those in Los Angeles and Orange counties and 20 percent of the state total (Keane Biological Consulting, 2007a). In 2007, the number of fledglings at the Pier 400 nesting site decreased further to 20.8 percent of those in Los Angeles and Orange counties and 8 percent of the state total (Keane Biological Consulting, 2007b). Nesting success at the Pier 400 site is dependent on a number of factors, many of which are unrelated to Port activities. These factors include annual variations in abundance and distribution of prey (primarily anchovies) within and adjacent to the Harbor, as influenced by changes in oceanographic conditions (e.g., water temperature and upwelling).

Several foraging studies have been conducted in the Harbor. The 1982, 1984, and 1985 surveys found that least tern foraged over shallow water (generally less than 20 feet [6 m] deep) in the Outer Harbor, especially near (adjacent to) the Pier 300 nesting site, but not in the Inner Harbor

(Keane Biological Consulting, 1997). Surveys using radio-telemetry and observations in 1986 and 1987 showed that the least terns foraged both inside and outside the Harbor during egg incubation. More foraging occurred near the breakwater than adjacent to Terminal Island during incubation but this reversed after the eggs hatched (Keane Biological Consulting, 1997). Based on the 1994-1996 surveys, least terns foraged around the east and south sides of Pier 300 with greater use of the Seaplane Lagoon in 1996 than in the other two years. These locations are less than 0.5 mi (0.8 km) from the nesting site. After the south side of Pier 300 was dredged to deepen the water, use of this area by the terns declined. The Cabrillo Beach and Cabrillo Saltmarsh areas, approximately 2.6 mi (4.2 km) from the nesting site, were used to varying degrees (Keane Biological Consulting, 1997). A study in 1997 and 1998 found that the least terns used the West Basin of Long Beach Harbor, approximately 2.0 mi (3.2 km) from the nesting site on Pier 400, as well as the Pier 300 Shallow Water Habitat, Seaplane Lagoon, and the Gap (area between Naval Mole and Pier 400 Transportation Corridor), which are all located 1.5 to 2.0 mi (2.4 to 3.2 km) from the Pier 400 nesting site. The foraging frequency (dives per acre) varied among locations and between years. This variation may be related to changes in availability of prey and to distance from nest sites (Keane Biological Consulting, 1998). A foraging study in 2001-2003 in Los Angeles Harbor (Keane Biological Consulting and Aspen Environmental Group, 2004) found that foraging varied among locations and between years and that both shallow and deep water areas were used, probably in response to localized fish abundance within the size range suitable for least terns.

Foraging by least tern at the Pier 300 Shallow Water Habitat increased even more than the number of nests in recent years. This suggests that least tern prey were more abundant over the period of 1994 to 1998. Thus, the increase in nesting may be related to increases in both the amount of suitable nesting habitat and prey. Foraging by least terns in 1998 also occurred in the shallow waters of the then incomplete Pier 400 Phase 2 fill area to the north of the Phase 1 area (Keane Biological Consulting, 1999a). In 1999, least tern foraging was again very high in the Pier 300 Shallow Water Habitat with much of the activity in the waters immediately adjacent to Pier 300 (Keane Biological Consulting 1999b). Foraging was also very high there in 2001 and 2003, but in 2002 the highest foraging was on the north side of Pier 400 adjacent to the causeway (west side) and near Cabrillo Beach (Keane Biological Consulting and Aspen Environmental Group, 2004). Foraging showed three peaks in 2003: early to mid May (egg-formation period), mid June (chick hatching period), and early to mid July (fledging period). In 2003, foraging outside the harbor increased relative to that of the previous two years.

California Brown Pelican (Federally and State Listed)

The California brown pelican was federally listed as endangered in 1970 and was state listed as endangered in 1971 (CDFG, 2000). The USFWS published a 90-day finding for the California Brown Pelican delisting petition, initiated a status review to determine if delisting is warranted (see 71 FR 29908 dated 24 May 2006), and has now proposed to delist the species (USFWS 2008). Low reproductive success attributed to pesticide contamination that caused thinning of eggshells was the primary reason for their listing. After the use of DDT was prohibited in 1970, the population began to recover (USACE and LAHD, 1992). Abundance of this species has increased to 9.5 percent in 2000 (MEC and Associates, 2002) since surveys conducted in 1973 found they comprised only 3.8 percent of the total bird observations in the POLA and POLB (HEP, 1980). The only breeding locations in the U.S. are at West Anacapa and Santa Barbara Islands, although a few have begun nesting at the south end of the Salton Sea (CDFG, 2005, Patten et al. 2003). Breeding also occurs at offshore islands and along the mainland of Mexico.

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

Brown pelicans use the Harbor year-round, but their abundance is greatest in the summer when post-breeding birds arrive from Mexico. The highest numbers are present between early July and early November, when several thousand can be present (MBC, 1984). Pelicans use all parts of the Harbor, but they prefer to roost and rest on the Harbor breakwater dikes, particularly the Middle Breakwater (MBC, 1984; MEC, 1988, MEC and Associates, 2002). They forage over open waters for fish such as the northern anchovy, and accounted for 9.5 percent of the total number of birds observed in the Harbor during the 2000-2001 surveys. Brown pelican were observed adjacent to Pier 400 throughout the year during the 2000 baseline surveys. The brown pelican does not breed in the Harbor area.

Western Snowy Plover (Federally Listed)

The Pacific coast population of the western snowy plover was federally listed as threatened in 1993 (USFWS, 1993). This small shorebird nests on coastal beaches from southern Washington to southern Baja California and winters along the coast of California and Baja California (NatureServe, 2005). The birds forage on invertebrates (crustaceans and worms) along the shore in or near shallow water (Bent, 1929). Western snowy plovers were observed on Pier 400 during the least tern nesting surveys in 2003 through 2007. The plovers were not nesting and appeared to be stopping during migration (Keane Biological Consulting, 2003, 2005a, 2007a, 2007b). The

species also is present at Cabrillo Beach during the winter (non-breeding season) (L. Chilton, personal communication, 2008). Critical habitat was designated for this species in September 2005 (USFWS, 2005) and included four locations within coastal Los Angeles County, none of which is in the Los Angeles-Long Beach Harbor area.

American Peregrine Falcon (State Listed)

Peregrine falcons have been removed from the federal endangered species list but are state-listed as endangered. The species nests in the Inner Harbor area (Vincent Thomas, Gerald Desmond, and Schuyler F. Heim bridges) and forages on birds. Although none were observed at Pier 400 during the 2000 baseline surveys, individuals of this species could forage in the area, as noted during the least tern surveys in 2003 (Keane Biological Consulting 2003).

Other Special Status Species

Birds (State Listed)

The following species have been reported from the project vicinity:

The Belding's savannah sparrow, State listed as endangered, exclusively inhabits pickleweed marshes (USACE and LAHD, 1992). Salt marsh habitat is located at the Cabrillo Salt Marsh in Los Angeles Harbor, over 0.6 mi (1.0 km) from the closest proposed disposal area. Construction activities would not affect this habitat or species therefore it is not discussed in the impact analysis.

The black skimmer is a California Species of Special Concern (at nesting sites only) that was present in the Harbor all year in 2000, but numbers were greatest during the summer nesting season (MEC and Associates, 2002). The species nests along the Atlantic and Gulf coasts to southern Mexico and along the coast of southern California, as well as at the Salton Sea (Collins 2006). Black skimmers nested on Pier 400 in 1998 to 2000 (range of 10 to 170 nests) with poor success (Collins, 2006) and in 2004 (about 25 nests) (Keane Biological Consulting, 2005b).

The burrowing owl is a state Species of Special Concern at burrow sites. One or more burrowing owls were observed on Pier 400 during the least tern surveys in 2003 through 2007 (Keane Biological Consulting, 2003, 2005a, 2005b, 2007a, 2007b). In 2003 one burrowing owl was trapped and relocated to a raptor rehabilitation center in Orange County (Keane Biological Consulting 2003). Another was trapped and relocated in 2004 (Keane Biological Consulting, 2005a), and five were trapped and relocated in 2007 (Keane Biological Consulting, 2007b). The individuals observed were likely present to prey on California least tern adults and chicks (Keane Biological Consulting, 2007b). Although no evidence of burrowing owl nesting on Pier 400 has been observed during the California least tern monitoring, it is possible that nesting could occur

(K. Keane, personal communication, 2008). The nesting season for the burrowing owl is February through August (California Burrowing Owl Consortium, 2008), so the burrowing owls observed on Pier 400 could be nesting or post-nesting individuals. The Proposed Action would not affect any potential nesting habitat for this terrestrial species on Pier 400, therefore it is not discussed in the impact analysis.

Other special status bird species known to use the Harbor area include the loggerhead shrike and common loon. These species are designated as Species of Special Concern by CDFG for nesting locations only. Loggerhead shrikes are terrestrial and have been observed along the shoreline within the Harbor, such as at Cabrillo Salt Marsh and the Inner Harbor. Common loons have been observed in the Outer Harbor during winter, but no nesting occurs in the region. Because these species are only of special concern at their breeding locations, non-breeding individuals in the Proposed Action area are treated as common wildlife species in the impact analysis.

The City of Los Angeles CEQA Thresholds Guide, Exhibit C-7, provides a summary of existing known sensitive biological resources and classifications within the City of Los Angeles and vicinity, habitat requirements, and the biological assessment zone in which the species may exist. Portions of the Project are within the Coastal Biological Planning Assessment Zone. The Sensitive Species Compendium was reviewed to determine if other sensitive species have the potential to be affected by project activities (City of Los Angeles, 2006). The black tern (*Chlidonias niger*) is a California Species of Special Concern (CSC) (nesting colonies) that is identified as occurring in open water habitats in Coastal Biological Planning Assessment Zone and nests in marsh vegetation. Several species were identified as CSC in the Sensitive Species Compendium (City of Los Angeles, 2006) but were recently listed as watch list species (CNDDB Special Animals List, June 2008) including the long-billed curlew (*Numenius americanus*, nesting colonies), double crested cormorant (*Phalacrocorax auritas*, rookery) , and osprey (*Pandian haliaetus*, nesting). The long-billed curlew nests in open prairie and is reported in MEC and Associates (2002) as an infrequent visitor to the Harbor. The double crested cormorant is a seasonal visitor but is not known to nest in the area (MEC and Associates, 2002). The osprey nests in trees, rocks, and on the ground (Unitt, 2000) and is not known to nest in the Harbor area (NatureServe, 2008). As with the other species described above, these species are only of concern at their breeding locations and if non-breeding individuals were to occur in the Proposed Action area, they would be treated as common wildlife species.

Sea Turtles (Federally Listed)

No sea turtles have been observed within the POLA or POLB during more than 20 years of biological surveys (MEC, 1988; MEC and Associates, 2002). However, several species have

regional distributions in southern California. Therefore, it is possible that sea turtles may be occasional visitors to the Outer Harbor areas of the POLA and POLB.

Several turtle species are found in the eastern Pacific Ocean, including loggerhead, green, leatherback, and olive ridley sea turtles. Loggerhead sea turtles (*Caretta caretta*), federally listed as threatened, are found in all temperate and tropical waters throughout the world and are the most abundant species of sea turtle found in U.S. coastal waters (NOAA Fisheries, 2007a).

Green sea turtles (*Chelonia mydas*), federally-listed as threatened, are found in all temperate and tropical waters throughout the world. They primarily remain near the coastline and around islands and live in bays and protected shores, especially in areas with seagrass beds. In the eastern North Pacific, green turtles have been sighted from Baja California to southern Alaska, but most commonly occur from San Diego south (NOAA Fisheries, 2007a). They are rarely observed in the open ocean.

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

Olive ridley sea turtles (*Lepidochelys olivacea*), federally listed as threatened, are found in tropical regions of the Pacific, Indian and Atlantic Oceans. They typically forage off shore in surface waters or dive to depths of 500 feet (150 m) to feed on bottom dwelling crustaceans (NOAA Fisheries, 2007a).

Marine Mammals

All marine mammals are protected under the Marine Mammal Protection Act (MMPA) of 1972, and some are also protected by the Endangered Species Act (ESA) of 1973. Marine mammals known to occasionally use the Los Angeles Harbor include both pinnipeds and cetaceans. Cetaceans observed in the Outer Harbor include the gray whale (*Eshrichtius robustus*), Pacific bottlenose dolphin (*Tursiops truncatus*), common dolphin (*Delphinus delphis*), and Pacific white-sided dolphin (*Lagenorhynchus obliquidens*) (USACE and LAHD, 1992). Sightings of these species within the harbor are rare. A dead grey whale was observed in the Outer Harbor in April of 2000 (MEC and Associates 2002). None of these species breed in the Harbor. In 2000, California sea lions (*Zalophus californianus*) were the most commonly observed marine mammal in the Harbor and were especially numerous adjacent to the municipal fish market in the Main Channel and in Fish Harbor. They also haul out and rest on buoys in the Harbor. Harbor seals (*Phoca vitulina*) were present but in low numbers. California sea lions were found

more often in the Los Angeles Inner (89 observations) than in the Outer (37 observations) Harbor (MEC and Associates, 2002). This species was most frequently observed in the Main Channel. Harbor seals were less common with 10 observed in the Outer Harbor and two in the Inner Harbor (Sea Plane Lagoon). Neither species breeds in the Harbor.

A variety of marine mammals use the nearshore waters outside the breakwater. These include the gray whale that migrates from the Bering Sea to Mexico and back each year. This and other species of baleen whales generally are found as single individuals or in pods of a few individuals. Toothed whales and particularly dolphins can be found in larger groups of up to a thousand or more (Leatherwood and Reeves 1983). Several species of dolphin and porpoise are commonly found in coastal areas near Los Angeles including the Pacific white-sided dolphin, Risso's dolphin (*Grampus grisseus*), Dall's porpoise (*Phocoenoides dalli*), bottlenose dolphin, northern right whale dolphin (*Lissodelphis borealis*), and common dolphin, with the common dolphin the most abundant (Forney et al. 1995).

The National Marine Fisheries Service (NOAA Fisheries) has records of vessel strikes with whales for 1982 through 2007 (NOAA Fisheries, 2007b). Of 65 recorded strikes, most of the identified species were gray whales (42 percent) and blue whales (*Balaenoptera musculus*) (15 percent) with a few fin whales (*Balaenoptera physalus*) and humpback whales (*Megaptera novaeangliae*). The number of strikes per year ranged from none to seven and averaged 2.6, but the actual number is likely to be greater because not all strikes are reported. The type of vessels involved often were not known but included freighters/container vessels going to the Los Angeles-Long Beach Harbor. When vessel speed exceeds 10 knots, strikes are usually fatal (J. Cordaro, 2008). The gray whale is no longer federally listed under the ESA, but the other three species are listed as endangered.

3.3.2.6 Wildlife Movement Corridors

The Conservation Element of the City of Los Angeles General Plan addresses wildlife corridors. These are for movement of animals between large habitat areas. The Harbor does not provide any such terrestrial wildlife movement corridors. However, some marine fish species move into and out of the Harbor for spawning or nursery areas. Marine mammals, such as the gray whale, migrate along the coast, and migratory birds are visitors to the Harbor.

3.3.2.7 Invasive Species

At least 46 invasive aquatic species have become established in waters of the Los Angeles/Long Beach Harbor (Gregorio and Layne, 1997). These include a Japanese brown alga (*Sargassum muticum*), bubble snail (*Philine auriformis*), Japanese mussel (*Musculista senhousia*), an isopod (*Sphaeroma quoyanum*), and yellowfin goby (*Acanthogobius flavimanus*). The primary source

of these organisms is likely to have been discharges of ballast water from cargo vessels using the POLA and POLB (NRC, 1996; USCG, 1998). 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. A total of 33 non-native species were identified in the 2000 surveys (MEC and Associates, 2002). Eight invasive invertebrate species have been found in the sediments of Los Angeles Outer Harbor near Pier 400, another 10 species were found in the riprap samples, and one species was collected in trawl samples. These species include *Theora lubrica*, *Aricidea catherinae* and *A. horikoshii*, *Levinsenia gracilis*, *Sigambra tentaculata*, *Dipolydora socialis* and *D. girardi*, *Pseudopolydora paucibranchiata*, *Sinocorophhium heteroceratum*, Mediterranean mussel, *Boccardiella hamata*, *Nicolea gracilibranchis*, *Polydora lingi* and *P. websteri*, and *Syllis gracilis* and *S. fasciata*. The non-native alga, sargassum (*Sargasum muticum*), was recorded at three of the four sampling transects in the Los Angeles Outer Harbor, and the alga, *Undaria pinnatifida,* was found at one location during the 2000 baseline kelp and macroalgae surveys (MEC and Associates, 2002),. Another non-native sargassum (*S. filicinum*) has recently been found in Long Beach Harbor (Miller, 2006) and has the potential to be present in Los Angeles Harbor. In the West Basin area, 11 non-native species were found in the soft bottom and riprap samples. These species included *Dipolydora socialis*, *Polydora cornuta*, *Pseudopolydora paucibranchiata*, *Eochelidium* sp., *Aricidea catherinae*, *Sigambra tentaculata*, *Levinsenia gracilis*, Asian clam, Pacific oyster, and Mediterranean mussel (MEC and Associates, 2002). Invasive species can compete with or prey upon native species and thus alter the local ecology, which can have economic effects as well.

The Mediterranean strain of Caulerpa (*Caulerpa taxifolia*) is an invasive alga that is listed as a federal noxious weed under the Plant Protection Act. This species has never been identified in San Pedro Bay, but is of particular concern because it is a fast growing green alga native to tropical waters where it typically grows in isolated patches. However, in areas outside its native range, Caulerpa grows rapidly and quickly overtakes native species. In the Mediterranean, Caulerpa has caused ecological devastation by overwhelming local seaweed species and altering fish distributions. Its rampant growth has also resulted in huge economic losses by harming tourism, pleasure boating, fishing, and the diving industry. Species of Caulerpa are used in the aquarium trade and can enter coastal marine waters through disposal of the plants or aquarium water into storm drains or coastal waters. Currently, Caulerpa has been found in two southern California locations. Due to its potential to create severe ecological and economic losses, a Caulerpa survey must be completed in accordance with the Caulerpa Control Protocol (NOAA Fisheries, 2008) prior to any underwater disturbance (defined as bulkhead repair, pile driving, dredging, placement of navigational aids, etc).

3.3.2.8 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. SEAs do not preclude limited development that is compatible with the biological community. Policies and regulations for SEAs, however, do not apply within city boundaries. The only designated SEA in Los Angeles Harbor is Pier 400, Terminal Island for the California least tern nesting site (County of Los Angeles, 2005). The SEA least tern nest site at Pier 400 is protected under an interagency agreement between the POLA, USFWS, CDFG, and the USACE. The 15-acre nesting site on Pier 400 is protected by fencing and is designated a no-trespassing area during the nesting season (April 1-August 1). During the offseason, the site can be used for other temporary purposes as long as it is restored prior to the following nesting season. Since California least terns are listed as endangered both federally and by the state, potential impacts are addressed as a special status species issue.

3.3.2.9 Essential Fish Habitat

In accordance with the 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act, the following assessment of Essential Fish Habitat (EFH) has been prepared. The Proposed Action would be located within areas designated as EFH for two Fishery Management Plans (FMPs): Coastal Pelagics Plan and Pacific Coast Groundfish Management Plan. Of the 94 fisheries management species federally managed under these plans, 19 are known to occur in the Los Angeles-Long Beach Harbor (Table 3.3-3).

Table 3.3-3 Fisheries Management Plan (FMP) Species Potentially Affected by the Proposed Action

Common Name	*Scientific Name*	Comment
Coastal Pelagics FMP		
Northern anchovy	*Engraulis mordax*	Most common species in harbor; adults & larvae present (1,2,3)
Pacific sardine	*Sardinops sagax*	Abundant species in harbor; predominantly adult (1,3)
Pacific (chub) mackerel	*Scomber japonicus*	One of top ten species in deeper portions of the harbor; adult (1); common in lampara net samples, particularly in fall (3); common in Long Beach Harbor (4)
Jack mackerel	*Trachurus symmetricus*	One of top ten species in deeper portions of the harbor; adult (1,2); common in lampara net samples (3); common in Long Beach Harbor (4)
Pacific Groundfish FMP		
English sole	*Parophrys vetulus*	Rare; adult; 1 of 30,733 fish caught in trawl (1); 3 out of 57,884 fish by trawl, 1 was in West Basin (3)
Pacific sanddab	*Citharichthys sordidus*	Common; adult; 1 of 30,733 fish caught in trawl and 4 out of 61,257 by lampara net (1); 51 out of 57,884 by trawl and 1 out of 110,089 by lampara net (3)
Leopard shark	*Triakis semifasciata*	Rare; adult; 1 of 20,184 fish caught in beach seines (1); 3 of 57,884 by trawl, all in shallow water habitats (3)
California skate	*Raja inornata*	Uncommon; 9 out of 57,884 fish caught by trawl, most in deep water (3)
Big skate	*Raja binoculata*	Uncommon; 8 out of 57,884 fish caught by trawl, primarily in shallow water (3)

Common Name	*Scientific Name*	Comment
Bocaccio	*Sebastes paucispinis*	Uncommon; juvenile in kelp around breakwater (1)
Vermillion rockfish	*Sebastes miniatus*	Rare; 4 of 57,884 fish caught by trawl (3)
Grass rockfish	*Sebastes rastrelliger*	Rare; 3 out of 57,884 fish caught by trawl (3)
Black rockfish	*Sebastes melanops*	Uncommon; 31 out of 57,884 fish by trawl and 1 out of 110,089 by lampara net, all but 1 in Cabrillo Shallow Water Habitat (3)
Calico rockfish	*Sebastes dalli*	Rare; Long Beach Harbor (4)
Kelp rockfish	*Sebastes atrovirens*	Rare; in kelp along breakwater (1)
California scorpionfish	*Scorpaena gutatta*	Common; adults found in rock dikes and breakwater, soft bottom at night (1,2); 13 out of 57,884 by trawl and 3 out of 110,089 by lampara net (3); common in Long Beach Harbor (4)
Olive rockfish	*Sebastes serranoides*	Common; juveniles in kelp around breakwater (1)
Cabezon	*Scorpaenichthys marmoratus*	Rare; adult (1); 1 out of 57,884 fish by trawl in shallow water (3)
Lingcod	*Ophiodon elongatus*	Rare; 1 out of 57,884 fish by trawl and 3 out of 110,089 by lampara net, all in shallow water (3)

Sources: (1) MEC, 1988; (2) MEC, 1999; (3) MEC and Associates, 2002; (4) SAIC and MEC, 1997.

Two of the four species in the Coastal Pelagics FMP potentially affected by the Proposed Action (northern anchovy and Pacific sardine) are well represented in the area of the Proposed Action, with both adults and larvae present. Both species support a commercial bait fishery in the Outer Harbor. Adult jack mackerel are present in both shallow and deep water habitats of the Harbor and likely to prey upon small northern anchovy. Adult Pacific mackerel are also fairly common throughout the Harbor. Only 2 of the 15 Pacific Groundfish FMP species (Pacific sanddab and California scorpionfish) are common in the Outer Harbor (MEC and Associates, 2002; MEC 1999, 1988; SAIC and MEC, 1997). The California scorpionfish and olive rockfish were commonly observed in videos taken in the kelp along the breakwaters. The scorpionfish was also collected in otter trawl and lampara samples at a number of locations within the harbor while the olive rockfish was not collected by any of the sampling gear.

3.3.2.10 Wetlands and Other Special Habitats

Several wetlands and other special marine habitats are present in the Los Angeles Harbor.

Wetlands

Wetlands are regulated under the Clean Water Act (CWA). The definition of wetlands varies among state and federal agencies, but the USACE uses a three-parameter method that includes assessing vegetation, hydrology, and soils. Wetlands commonly present in estuarine to marine habitats are salt marshes dominated by pickleweed (*Salicornia virginica*) and other salt tolerant plant species. No wetlands under the USACE jurisdiction are present at or near the Proposed Action sites based on aerial photographs of the Proposed Action area (Google Earth) and baseline survey reports for the Harbor (MEC and Associates 2002). The closest wetlands via water are at Cabrillo Beach in the Outer Harbor, including the Cabrillo Salt Marsh (a 3.25-acre

[1.3-ha] wetland constructed by the Port), over 0.6 mi (1.0 km) from the closest Proposed Action disposal area.

Eelgrass Beds

Eelgrass (*Zostera marina*) beds are a special aquatic site (vegetated shallows) under EPA's 404(b)(1) Guidelines. Eelgrass is a rooted aquatic plant that inhabits shallow, soft bottom habitats in quiet waters of bays and estuaries as well as sheltered coastal areas (Dawson and Foster, 1982). It can form dense beds that provide substrate, food, and shelter for a variety of marine organisms. Most eelgrass beds in bays or estuaries are found in water less than 20 feet (6 m) deep with light being the primary limiting factor. Surveys of the Harbor in 2000 found eelgrass beds along Cabrillo Beach and on the east side of Pier 300, including in the Seaplane Lagoon (MEC and Associates, 2002). Surveys in March and August 2000 (MEC and Associates, 2002) found the eelgrass beds at Cabrillo Beach to cover 21.7 acres (8.8 ha) in March and 42.3 acres (17.1 ha) in August. The beds extended to depths of -10 feet MLLW. No other eelgrass beds were found in either harbor, although a few plants were observed in Cerritos Channel during the riprap surveys (MEC and Associates, 2002), and individual plants or very small beds may be present. Eelgrass beds along Cabrillo Beach are more than 800 feet (244 m) from the closest Proposed Action disposal site (CSWH Expansion Area), and those in the Pier 300 Shallow Water Habitat are more than 2.7 mi (4.4 km) away.

Kelp Beds

Kelp canopy is considered a Habitat Area of Particular Concern (HAPC) under the 2006 Groundfish Fishery Management Plan. HAPCs are a subset of EFH used to focus management and restoration efforts. Small kelp beds and scattered kelp plants are present in the Outer Harbor along the breakwaters, on the containment dike for the Cabrillo Shallow Water Habitat, at Reservation Point, along the eastern sides of Pier 400, near Cabrillo Beach, and along the Naval Mole (MEC and Associates, 2002). The algal species comprising these kelp beds are predominantly feather boa kelp (*Egregia menziesii*) and giant kelp (*Macrocystis pyrifera*).

The mapped kelp bed canopy in both harbors covered 24.8 acres (10 ha) for giant kelp and 2.1 acres (0.9 ha) for feather boa kelp in the spring of 2000. The area of kelp declined to 14.2 acres (5.7 ha) by fall while the amount of feather boa kelp increased slightly.

Mud Flats

The shoreline at and near the Proposed Action disposal site in Northwest Slip is rock riprap, and no mudflats are present. The closest mudflats are at Berth 78 along the Main Channel, located

approximately 0.4 mi (0.6 km) from the Berths 243-245 disposal site. Mudflats are considered a special aquatic site under the CWA (40 C.F.R. § 230.42).

3.3.3 Applicable Regulations

This section describes regulations, permits, and agreements that may be applicable under associated natural resource laws and regulations.

3.3.3.1 Marine Protection, Research and Sanctuaries Act of 1972 (33 USC 1413)

Section 103 of the Marine Protection, Research and Sanctuaries Act authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearing, for the transportation of dredged material for the purpose of disposal in the ocean where it is determined that the disposal will not unreasonably degrade or endanger human health, welfare, or amenities, of the marine environment, ecological systems, or economic potentialities. The USEPA can prevent the issuance of a permit under this authority if it finds that the disposal of the material will result in an unacceptable adverse impact on municipal water supplies, shellfish beds, wildlife, fisheries, or recreational areas.

3.3.3.2 Federal Endangered Species Act (ESA)

The Federal Endangered Species Act (ESA) (16 U.S.C. 1531-1543) protects threatened and endangered species, and their designated critical habitat, from unauthorized take. Section 9 prohibits such take, and defines 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 Sections 7 when there is federal involvement and under Section 10 when there is no federal involvement. The USFWS and the NOAA Fisheries (the Services) share responsibilities for administering the ESA.

Whenever actions authorized, funded, or carried out by federal agencies could affect listed species, the lead agency must consult under Section 7 of the ESA with the appropriate Service. If formal consultation is required, the Biological Opinion to be issued at the conclusion of that process, depending on the outcome of the consultation, will include a statement authorizing any take that may occur incidental to an otherwise legal activity. Initially, federal action agencies make a determination as to whether the action will have “no effect” or “may affect” a listed species or designated critical habitat. If a “may effect” determination is made, the action agency consults informally with the Services to determine if the effect will be adverse or not, and the Services then provide a concurrence letter to the action agency if the action is not likely to

adversely affect the species. If the Services determines the action is likely to adversely affect the species, formal consultation is required.

3.3.3.3 Magnuson-Stevens Fishery Conservation and Management Act

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

3.3.3.4 Migratory Bird Treaty Act

This Act (16 U.S.C. §703 *et seq*.), as amended, provides for the protection of migratory birds by making it illegal to possess, pursue, hunt, take, or kill any migratory bird species, unless specifically authorized by a regulation implemented by the Secretary of the Interior, such as designated seasonal hunting. The Act also applies to removal of nests occupied by migratory birds during the breeding season. Under certain circumstances, a depredation permit can be issued to allow limited and specified take of migratory birds.

3.3.3.5 Fish and Wildlife Coordination Act of 1958 (Public Law 85-624).

Under the Fish and Wildlife Coordination Act, any federal agency that proposes to control or modify any body of water must first consult with the USFWS or NOAA Fisheries, as appropriate, and with the head of the appropriate state agency exercising administration over wildlife resources of the affected state.

3.3.3.6 Executive Order 11990, Protection of Wetlands, May 24, 1977.

Section 2 of the Order states that each agency shall avoid undertaking new construction in wetlands unless there is no practicable alternative, and that the Proposed Action include all practicable measures to minimize harm to wetlands.

3.3.3.7 Marine Mammal Protection Act

The MMPA (16 U.S.C. §1361 *et seq*.) prohibits the taking (including harassment, disturbance, capture, and death) of any marine mammals, except as set forth in the Act. NOAA Fisheries and the USFWS administer the MMPA. Marine mammal species found in the Harbor are under the jurisdiction of NOAA Fisheries.

3.3.3.8 California Endangered Species Act

The California Endangered Species Act (California Fish and Game Code Section 2050 et seq.) provides for the protection of rare, threatened, and endangered plants and animals, as recognized by CDFG, and prohibits the taking of such species without authorization by CDFG under Section 2081 of the Fish and Game Code. State lead agencies must consult with CDFG during the CEQA process if state-listed threatened or endangered species are present and could be affected by the Proposed Action.

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

3.3.3.9 California Fish and Game Code, Section 1600

Section 1600 *et seq.* of the Fish and Game 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 (SAA/LAA). The SAA/LAA specifies conditions and mitigation measures that will minimize impacts to riparian or aquatic resources from proposed actions.

3.3.4 Methodology

Impacts to biota were assessed by using literature and information related to responses of organisms to pollutants, the results of analyses presented in Sections 2.3.3 (Description of Proposed Action and Alternatives) and 3.13 (Water Quality and Oceanography), and preparer expertise and judgment in evaluating existing information on the species and habitats present and how the Proposed Action components interact with the environment. The assessment of impacts is based on the assumption that the Proposed Action will include the following:

- A Section 404 permit for dredging and disposal of material in the identified disposal sites that includes 401 WQC.
- Monitoring would be conducted to ensure that return water flow from disposal of dredge material behind the fill dikes meets the RWQCB requirements for settleable solids and toxic pollutants.

- Dredged contaminated sediments would be placed and confined in the in-Harbor disposal sites that are engineered and constructed in such a manner that the contaminants cannot enter Harbor waters after the fill is complete, or be taken to an approved upland disposal site.

Baseline for Biological Resources

The CEQA and NEPA Baseline for the Proposed Action comprises a total of approximately 115 acres (47 ha) of water areas at Berths 243-245, the Northwest Slip, the CSWH, and LA-2, as well as approximately 31 acres (13 ha) at the ARSSS. For some biological resources, such as local nesting populations of special status birds, considerable variability can occur from year to year for a variety of reasons. Thus, using only one year, such as the year the NOP was issued, as the baseline may not be representative of conditions expected to be present when the project is implemented. Consequently, for birds such as the California least tern, more than one year should be considered in determining representative baseline conditions. Therefore, this analysis considers available data from 1976 through 2008 for evaluating impacts related to implementation of the Proposed Action.

3.3.5 Thresholds of Significance

Significance criteria were developed using the *L.A. CEQA Thresholds Guide* (City of Los Angeles, 2006) as modified to better assess impacts of the Proposed Action. Consequently, criterion BIO-2 has been modified to delete locally-designated species since none are present and to include state and federally designated habitats (e.g., EFH, mudflats, and wetlands); criterion BIO-3 was modified to cover species other than sensitive species; and criterion BIO-4 was modified to only address disruption of local biological communities; and a new criterion, BIO-5, has been added for permanent loss of marine habitat. Consequently, the Proposed Action would have a significant impact on biological resources if it would result in any of the following:

BIO-1 The loss of individuals, or the substantial reduction of existing habitat, of a state- or federally-listed endangered, threatened, rare, protected, or candidate species, or a Species of Special Concern or the loss of federally listed critical habitat.

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

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

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

BIO-5 A permanent loss of marine habitat.

3.3.6 Impact Analysis and Mitigation Measures

3.3.6.1 Alternative 1: Port Development and Environmental Enhancement

Alternative 1, Port Development and Environmental Enhancement, would consist of disposing dredged material at the following disposal sites: Berths 243-245; Northwest Slip; CSWH Expansion Area; Eelgrass Habitat Area; and LA-2.

Potential environmental impacts of future development of the new 5-acre (2-ha) land area at the Northwest Slip have been addressed in the approved Berth 136-147 Container Terminal Project EIS/EIR, which is summarized in Section 3.14.

Impact BIO-1 Alternative 1 could affect individuals of or habitat for the California least tern and other special status species.

California Least Tern

Berths 243-245. Existing structures in the water (i.e., wharves) would need to be demolished prior to placement of fill at this disposal site, resulting in disturbances for approximately 90 days. Following structure removal, dredging for the containment dike foundations would occur (estimated at less than 17 days). Constructing the containment dike and placement of fill for the CDF at the Berths 243-245 disposal site would permanently remove approximately 8-acres (3.2-ha) of inner harbor habitat. This area provides no breeding or important resting or foraging habitat for the California least tern, and no California least terns would be affected.

Northwest Slip. As described for the Berths 243-245 disposal site, existing structures would be removed prior to constructing 5 acres (2 ha) of new landfill at the Northwest Slip site. Dredging would be required for the containment dike foundation, and this would be followed by dike construction and fill placement. The Northwest Slip is not an important foraging area for the California least tern, no breeding occurs there, and few if any individuals would be present. Thus, construction activities would not affect this species.

CSWH Expansion Area. Expanding the existing CSWH by up to 50 acres (20.2 ha) would cause temporary disturbances along the north side of the existing CSWH due to equipment and turbidity for nearly one year. The existing 326-acre CSWH provides foraging habitat for the California least tern (Keane Biological Consulting and Aspen Environmental Group 2004), and construction activities would overlap with their entire nesting season (April through August) in one year or parts of the nesting season in two years. These disturbances have the potential to adversely affect least tern foraging by causing a decline in availability of forage fish in and adjacent to the active work area or ability of the least terns to find forage fish during the nesting season. However, some of the fish in and adjacent to the active work area would move away

from the disturbance area and into nearby areas, thus, remaining available for consumption by the California least tern. Furthermore, the equipment disturbance and change in fish distribution would affect a small proportion of the total foraging area available in the harbor. For example, based on past disposal operations, the extent of the turbidity plume to be expected during construction of the shallow disposal sites would be no greater than several hundred feet. Assuming a circular area of disturbance with a diameter of 600 feet, the turbidity plume would be expected to affect a maximum of 6.5 acres of the existing 326-acre CSWH. Therefore approximately 319 acres of the existing adjacent 326-acre CSWH would provide foraging areas away from construction activities. Additionally, the approximately 193-acre Pier 300 Shallow Water Habitat that is used by the least tern would not be substantially affected by construction of the Proposed Action. Therefore, approximately 512 acres of the existing 519 acres of shallow water foraging habitat, or 99.2 percent, of existing shallow water least tern foraging area within the harbor would remain available for least tern foraging during construction. Deep water areas inside and outside the harbor (including eelgrass beds and additional shallow water habitat at Cabrillo Beach) that are used by the least terns for foraging would also remain available during construction.

Upon completion of construction, the expanded shallow water area would provide habitat for fish and invertebrates typical of shallow waters. Shallow waters tend to support a higher biomass of benthic invertebrates (see Table 3.3-1) than deeper waters and provide more food for fish. The fish, in turn, would help support the California least tern.

Eelgrass Habitat Area. Construction would involve installation of a containment dike and placement of the fill material to form a 40-acre (16-ha) shallow area for eelgrass. This area would be located within an approximately 24-acre (9.7-ha) portion of the existing CSWH and within an approximately 16-acre (6.5-ha) portion of the proposed CSWH Expansion described above. Construction activities would occur over a 10-month period that is partially concurrent with the CSWH Expansion Area construction and would overlap with part to all of the California least tern nesting season. As noted above, the CSWH is a foraging area for the least tern. Construction activities would result in the presence of equipment, human activity, and turbidity in the fill area during containment dike construction and placement of fill material. As for construction of the CSWH Expansion Area, these disturbances could interfere with foraging by the least tern in at least part of the existing CSWH due to noise, equipment presence, turbidity (reduce visibility of fish), or movement of forage fish away from the work area. Turbidity from disposal activities at the proposed Eelgrass Habitat Area would affect an area of approximately 6.5 acres of the existing 326-acre CSWH. However, since construction of the CSWH Expansion area and the Eelgrass Habitat Area would be concurrent for a portion of the 10-month construction schedule, this analysis assumes a total disturbance area of 13 acres. Therefore

approximately 313 acres of the existing adjacent 326-acre CSWH would provide foraging areas away from construction activities. Additionally, the approximately 193-acre Pier 300 Shallow Water Habitat that is used by the least tern would not be substantially affected by construction of the Proposed Action. Therefore, approximately 512 acres of the existing 519 acres of shallow water foraging habitat, or 99.2 percent, of existing shallow water least tern foraging area within the harbor would remain available for least tern foraging during construction. Deep water areas inside and outside the harbor (including eelgrass beds and additional shallow water habitat at Cabrillo Beach) that are used by the least terns for foraging would also remain available during construction.

Proposed construction activities would have a low potential to affect the least terns because adequate foraging would remain near the work or at other locations in the Harbor. For example, least terns were observed foraging near the existing Pier 300 Expansion site while it was being constructed (Keane Biological Consulting and Aspen Environmental Group, 2004), indicating that the birds will likely adapt to the disturbance and that forage fish will remain available in the area.

Once the eelgrass beds have become established on the submerged fill, the area could provide nursery habitat for fish that are used by the California least tern. This would be a benefit to these species.

LA-2. Disposal of 0.004 mcy of material at LA-ocean disposal site, which is located approximately 5.8 miles offshore southwest of the breakwater at San Pedro and approximately 20 miles northwest of the Newport Harbor entrance, would not adversely affect the California least tern because none would be present at this location.

California Brown Pelican

Demolition of the existing in-water structures, dredging for the containment dike foundation, and construction of the CDF at Berths 243-245 would not remove any important foraging, roosting, or resting areas for the California brown pelican. Few, if any, individuals use this area, and any present would avoid the disturbance by moving to other locations within the Harbor. Similar activities would occur at the Northwest Sip fill disposal site with little or no effect on this species for the same reasons.

Construction activities for the CSWH Expansion Area and Eelgrass Habitat Area would affect a small amount of foraging area in the Outer Harbor at a time over a period of more than one year. As described for the California least tern, some of the fish in the work area would move to adjacent areas and be available to foraging brown pelicans while some fish would remain within

the turbidity plume with reduced availability. California brown pelicans forage over both shallow and deep water inside and outside the Harbor, and the small area affected by construction at these two disposal sites would not limit their foraging. Roosting areas on the breakwaters would not be affected by construction activities due to distance (more than 1.0 mi [1.6 km]) from the Middle Breakwater. This species appears to have adapted to harbor activities because there has been no decline in abundance as harbor activity has increased. Disposal of 0.004 mcy of material at the LA-2 ocean site would not adversely affect the brown pelican because few, if any, individuals would be present at this location, which is located approximately 5.8 miles offshore. Any pelicans that are present could avoid the small area of disturbance during each disposal event (approximately three barges per day).

Once construction is complete, California brown pelicans would be able to forage in the area and could use the dike around the Eelgrass Habitat Area for resting and roosting. No critical habitat has been designated for the California brown pelican, so none would be affected by the Proposed Action.

Western Snowy Plover

Western snowy plovers are not known to nest in the Harbor, so no nesting would be affected by the Proposed Action. A few individuals stop at the California least tern nesting during migration and some use Cabrillo Beach during the winter. Neither of the locations would be directly or indirectly affected by construction activities associated with the Proposed Action therefore there would be no effects to the western snowy plover. This species does not use open ocean habitats such as at the LA-2 disposal site, and disposal of dredged material at this site would not affect the species. No designated critical habitat for the species is located within the Harbor, and thus, none would be affected by the Proposed Action.

Other Special Status Species

Proposed Action construction activities at the Berths 243-245, Northwest Slip, and LA-2 disposal sites would not adversely affect any other special status species. These areas are not important foraging or breeding areas for special status species and few if any individuals of these species would be present.

The black skimmer, California sea lion, and harbor seal may forage within the proposed CSWH Expansion Area and Eelgrass Habitat area although none are likely to use these sites during active construction activities. The black skimmer breeds during the summer and forages near their nesting areas. Although some individuals nested on Pier 400 from 1998 to 2005, none have nested there since then (Keane, 2006; Keane, 2007), and no nesting is expected in the future due

to unfavorable conditions at the former nesting site. Non-nesting black skimmers are not Species of Special Concern and are considered common wildlife addressed in Impact BIO-5.

Construction activities would be unlikely to affect marine mammals because few, if any, would be present within the disposal areas, they are agile and able to avoid injury by equipment, and other suitable foraging areas are present in the Harbor.

The peregrine falcon is a terrestrial species that forages on birds, and construction activities associated with the Proposed Action would not affect the availability of prey for this species. Project activities would not occur near any known nesting sites.

Construction activities would have little or no effect on other special status species (e.g., sea turtles and other marine mammals) because the few individuals of those species that could be present at or near the Proposed Action disposal sites would be expected to avoid the construction activities.

Impact Determination

Impacts from the construction of landfills at Berths 243-245 and the Northwest Slip would be less than significant because no individuals or habitat for the California least tern or other special status species would be adversely affected. Dredging for the CSWH Expansion Area dike would also have less than significant impacts on these species because the disturbance would be localized, be of short duration, and affect few, if any individuals.

Construction in the immediate vicinity of the CSWH for construction of the CSWH Expansion Area and Eelgrass Habitat Area has the potential to adversely affect California least tern foraging by causing a decline in the availability of forage fish or the ability of least terns to find forage fish during the nesting season due to construction-related turbidity within the adjacent CSWH and surrounding areas. Construction would affect approximately 13 acres (2.5 percent) of the 512 acres of existing shallow water California least tern foraging habitat available within the Harbor at any time during concurrent construction of the CSWH Expansion Area and Eelgrass Habitat Area. Thus, impacts would be less than significant. Nevertheless, based on coordination with USFWS, to ensure that construction-related turbidity would not adversely affect California least tern, mitigation measures BIO-1 through BIO-3 are recommended. Based on this impact analysis it has been determined that the Proposed Action may affect, but is not likely to adversely affect, the California least tern. The USACE will initiate informal consultation with USFWS pursuant to ESA Section 7.

Impacts to the California brown pelican would be less than significant because foraging would not be adversely affected as described above.

Western snowy plovers are not known to nest in the Harbor, and no designated critical habitat for the species is located within the Harbor. Therefore there would be no impact to western snowy plover.

Mitigation Measures

Although the Proposed Action would have less than significant impacts to California least tern individuals and foraging habitat, the following mitigation measure will be implemented to ensure protection of this species during project activities.

MM BIO-1 **Limit Turbidity Plume.** Unless specifically allowed by the USFWS, as appropriate, the LAHD/USACE shall not allow turbidity from the dredge and fill activities to extend over greater than 6.5-acres of shallow (i.e., less than 20 feet deep) Outer Harbor waters during the April-to-September nesting season of the California least tern. This requirement shall be monitored as provided for in measure BIO-2 below and shall be based on visually observed differences between ambient surface water conditions and any dredging turbidity plume.

MM BIO-2 **Least Tern Nesting Monitoring.** The LAHD/USACE shall provide a qualified least tern biologist, acceptable to the USFWS and CDFG, as appropriate, to monitor and manage known least tern colonies foraging in the immediate vicinity of the existing Cabrillo Shallow Water Habitat during the nesting season. This program shall be carried out for up to one year following construction of the last element of the Port of Los Angeles Channel Deepening Project. The biologist shall coordinate with CDFG and USFWS, pursuant to the existing least tern MOA (LAHD et al. 2006) and shall:

a) Monitor nesting and fledgling success of the least tern colony and provide an annual report in the format provided in previous years.

b) Provide an education program for construction crews regarding the identity of the least tern and their nests, restricted areas and activities, actions to be taken if least tern nesting sites are found outside the designated least tern nesting sites (e.g. Southwest Slip surcharge area).

c) Assist the USFWS and CDFG in predator control, prior to and during the least tern nesting season during the construction period.

d) Visually monitor and report to USACE field representative and Environmental Resources Branch (ERB) biologist any turbidity from project

dredging which extends over greater than 6.5-acres of shallow Outer Harbor waters.

MM BIO-3 **Protect Least Tern Nesting Sites.** If California least tern nests are found outside of the known least tern colonies during construction, the biologist shall determine the affected area and notify the USACE field representative and Environmental Resources Branch (ERB) biologist, and USACE shall halt work as appropriate. The USACE shall notify the USFWS and CDFG immediately. The USACE will then determine any potential effect to the tern and consult with the USFWS pursuant to Section 7 of the ESA as appropriate.

Residual Impacts. Impacts to special status species, including California least tern, would be less than significant.

Impact BIO-2 Alternative 1 would not result in a substantial reduction or alteration of a state-, federally-, or locally-designated natural habitat, special aquatic site, or plant community.

Natural habitats, special aquatic sites, and plant communities such as wetlands that could be affected by the project are eelgrass beds, Essential Fish Habitat (EFH), SEAs, kelp beds, and mud flats. Impacts to these habitats from Alternative 1 are discussed separately below. No salt marshes or freshwater wetlands are present in areas that would be affected by Alternative 1.

Eelgrass Beds

Eelgrass beds are not present in or near the Northwest Slip, Berths 243-245, or the LA-2 ocean disposal site. Thus, these disposal sites are not discussed further in this section. Effects of the CSWH Expansion Area and the Eelgrass Habitat Area construction on eelgrass beds at Cabrillo Beach are discussed separately below.

CSWH Expansion Area. Expansion of the CSWH would not affect existing eelgrass beds at Cabrillo Beach, which is located over 800 feet (244 m) to the west of the proposed work area, by removal or burial. Turbidity caused by fill and containment dike placement as well as deposition of suspended sediment on the plant surfaces could affect eelgrass by reducing light penetration and photosynthesis by the plants. The extent and duration of such effects would depend on water currents at the time of the work. However, because turbidity is not expected to extend beyond 300 feet of the disposal location it would be unlikely to adversely affect productivity of the eelgrass. Deposition of sediment on the eelgrass would be low because much of the suspended sediment would settle out before reaching the eelgrass beds. These effects would occur only during construction with rapid recovery (a few months) of any plants damaged by the sediment.

Eelgrass Habitat Area. Construction of the 40-acre (16-ha) Eelgrass Habitat Area in the CSWH would not affect the eelgrass beds at Cabrillo Beach by removal or burial because these beds are over 2,800 feet (853 m) to the west.

Once the eelgrass beds have become established on the submerged fill, the area could provide nursery habitat for fish that are used by the California least tern. This would be a benefit to these species.

Essential Fish Habitat

Berths 243-245. Construction of a CDF at Berths 243-245 would include demolishing the existing structures (i.e., wharves) in the water, dredging for the containment dike foundation, and filling in the Berths 243-245 disposal area.

These activities would cause temporary (approximately 6 to 90 days) disturbances of EFH within the Main Channel in the vicinity of the work. Disturbances to EFH would be of short duration and in a small area. The fish would either remain in the work area or temporarily move to other areas of the Harbor.

A permanent loss of 7.6 acres (3.1 ha) of EFH would result from filling the Berths 243-245 disposal site. Using data from 2000 (MEC and Associates, 2002) collected in the Main Channel (closest sampling location), the FMP species that could be affected would be northern anchovy and possibly the California scorpionfish.

Northwest Slip. Construction of the landfill in Northwest Slip would include demolishing the existing structures (i.e., wharves) in the water, dredging for the containment dike foundation, and placing dredged material behind the dike. Temporary effects of these activities would be similar to those addressed above for Berths 243-245 Slip.

A permanent loss of 4.8 acres (1.9 ha) of EFH would result from filling activities at the Northwest Slip site. Data from the West Basin (closest sampling location) indicate that northern anchovy would be the FMP species most likely to be present. Because only one English sole was collected in the West Basin (MEC and Associates, 2002), this species is not expected to be present in the Northwest Slip area.

CSWH Expansion Area. Construction of the CSWH Expansion Area would include dredging for the containment dike foundation, installation of rock for the containment dike, and filling behind the dike to form shallow water habitat areas. Temporary effects of these activities on EFH would be similar to those addressed above for the Berths 243-245 Slip. Dredging for the containment dike foundation would cause temporary disturbances to EFH in the Outer Harbor,

and fish would either remain in the work area or temporarily move to other areas of the Harbor. This would be followed by placement of rock for the containment dike and placement of dredged material behind the dike.

Expansion of the CSWH by up to 50.0 acres (20.2 ha) would result in disturbances and turbidity for nearly a year. EFH in the Outer Harbor would be changed from deep water to shallow water less than -20 feet MLLW. The FMP species that use deep water in the Outer Harbor are primarily northern anchovy and Pacific sardine. Shallow waters of the Outer Harbor are used by ten FMP species with northern anchovy being the most common. Thus, the northern anchovy would continue to use the new shallow water. Some water column habitat would be lost, but the new shallow water would provide higher value habitat for many species.

Eelgrass Habitat Area. Placement of fill in the existing CSWH and the proposed CSWH Expansion Area to create the 40-acre (16-ha) Eelgrass Habitat Area would result in temporary disturbance and turbidity over about 250 days that would partially overlap the CSWH Expansion Area construction. The FMP species that could be affected include northern anchovy plus nine other species. Construction of the containment dike would result in the loss of 1.7 acres (0.7 ha) of EFH but would add shallow rocky habitat on the dike faces below the high water level.

LA-2. Disposal of sediments at LA-2 would have minimal effects on EFH due to the water depth and the temporary disturbance (approximately three barges in one day) in a small amount of water column as the material is dropped from barges at this site.

SEAs and Other Natural Habitats

The only SEA in the project area is the California least tern nesting site on Pier 400. This habitat would not be affected by the Proposed Action.

Other natural habitats in the Harbor include kelp beds. Small amounts of kelp were present along the northwestern edge of the CSWH in 2000 (MEC and Associates, 2002). Some of this kelp could be removed during construction of the CSWH Expansion Area. Turbidity during fill placement in this area also could affect the remaining kelp plants by reducing light penetration in the water column and settling of fine particulates on the kelp blades. Turbidity and settling effects would be of short duration as the filling activity moved away from the remaining existing kelp. The new containment dike for the fill at the CSWH Expansion Area would provide habitat for colonization by the kelp. The amount of kelp affected would be small, and these plants do not form dense beds that provide important habitat for other marine organisms. Colonization of the new dike at the CSWH Expansion Area would replace the plants lost. Construction of the

Eelgrass Habitat Area in the CSWH would not remove any kelp, but it would temporarily increase turbidity in this area.

One mudflat is present in the Main Channel of Los Angeles Harbor at Berth 78. Construction activities for the CDF at Berths 243-245, approximately 2,100 feet (640 m) from the mudflat, would result in temporary increases in turbidity in the Main Channel that would not adversely affect this mudflat.

Disposal of dredged material at the LA-2 site would not affect any SEAs or other natural habitats because none are present at that location.

Impact Determination

Eelgrass Beds. Construction of Alternative 1 would have no effects on existing eelgrass beds and would therefore have no impact.

EFH. Construction of Alternative 1 would result in the permanent loss of 4.8 acres (1.9 ha), 7.6 acres (3.1 ha), and 1.7 acres (0.7 ha) of EFH at the Northwest Slip, Berths 243-245, and Eelgrass Habitat Area disposal sites, respectively, for a total loss of 14.1 acres (5.7 ha). This loss of EFH does not represent a substantial portion of the EFH in the Harbor, and the Northwest Slip and Berths 243-245 areas provide only low quality habitat for FMP species. However, impacts to EFH are still considered significant, but the loss of marine habitat from these areas would be mitigated through the use of existing mitigation credits as outlined below in MM BIO-4 discussed under Impact BIO-5, and this would also mitigate impacts to EFH. Although these impacts would be fully mitigated to a less than significant level, because EFH may be adversely affect EFH, USACE and LAHD would initiate consultation with the NOAA Fisheries for placement fill at these locations.

SEAs and Other Natural Habitats. The California least tern SEA on Pier 400 does not occur within the Proposed Action area and thus no impacts would occur. Although kelp beds in the harbor would be temporarily affected by construction of the CSWH Expansion Area, these small beds would recover and impacts would be less than significant. Impacts to mudflats would be minor and less than significant, particularly due to turbidity control required by existing Port WDRs.

Mitigation Measures. Mitigation for the permanent loss of marine habitat that would be implemented under MM BIO-4 discussed below under Impact BIO-5 would also offset impacts to EFH.

Residual Impacts. Impacts to state-, federally-, or locally-designated natural habitats, special aquatic sites, or plant communities from Alternative 1 would be less than significant.

Impact BIO-3 Alternative 1 would not interfere with any wildlife migration/movement corridors.

No known terrestrial wildlife or aquatic species migration corridors are present in the Proposed Action area. The California least tern is a migratory bird species that nests on Pier 400. Dredging and filling activities and surcharge removal from the Southwest Slip landfill would not interfere with the aerial migration of this or other migratory bird species. The birds would fly over or around the new fill sites for migration to and from the Harbor. Movement to and from foraging areas in the Harbor also would not be impeded by any of the Proposed Action construction activities. Effects of construction activities on habitat for the least tern and other special status species breeding on Pier 400 are discussed above in Impact BIO-1. The western snowy plover is also a migratory species, and a few migrating individuals have been observed at the least tern nesting site in recent years. Breeding individuals of the California brown pelican move to breeding sites in Mexico and at offshore islands for part of the year. Construction activities in the waters of Los Angeles Harbor would not interfere with migration or movement of either species. Fill placed to expand the CSWH and create eelgrass habitat in the CSWH also would not interfere with marine animal movement because no barriers that would prevent movement of either species would be constructed.

Impact Determination

Alternative 1 would not interfere with migration and movement of any of the species discussed above, therefore no impacts would occur.

Mitigation Measures. Under Alternative 1, no impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No impacts would result from implementation of Alternative 1. Therefore, no residual impacts would occur.

Impact BIO-4 Alternative 1 would not substantially disrupt local biological communities.

***Berths 243-245 and Northwest Slip*.** Construction of the Northwest Slip and Berths 243-245 landfills would include demolishing the existing structures (i.e., wharves) in the water, dredging for the containment dike foundation, and filling of these disposal sites. These activities would permanently remove hard substrate habitat (e.g., piles) in the water column, and the organisms attached to the substrates removed would be lost; however, the loss of these organisms would not

substantially disrupt local biological communities due to the small amount of piling habitat removed relative to the amount present in the Harbor. In the Northwest Slip, the existing shoreline hard substrate habitat would be replaced by the proposed fill containment dike. At Berths 243-245, a portion of the hard substrate habitat lost would be replaced by the new fill containment dike. Invertebrates would colonize the dike riprap at both locations. These changes would not substantially disrupt local biological communities due to the small area affected and the rapid colonization of the new substrate.

Dike construction and filling would permanently remove biological communities currently existing in soft bottom habitats within the Berths 243-245 and Northwest Slip disposal sites. Fish and birds within these habitats would likely move to other suitable areas within the Harbor. The narrow strip of soft bottom dredged for the dike foundation and not covered by the dike at both of these sites would be rapidly re-colonized by soft bottom invertebrates from adjacent areas and larvae from the water column after dredge and fill activities have been completed. A community similar to that currently present would develop within 2 to 5 years (Soule and Oguri, 1976; MEC, 1988).

Turbidity, noise and vibration, and equipment presence during construction of the CDF at Berths 243-245 and the new land area in the Northwest Slip would temporarily affect plankton, fish, and marine birds adjacent to the work area but not to a level that would adversely affect their populations. Fish and birds would likely avoid the work area during construction activities. Turbidity would cause temporary disturbance to benthic and water column organisms adjacent to the work area. For benthic organisms, effects could include direct mortality, arrested development, reduced growth, reduced ingestion, depressed filtration rate, and increased mucous secretion. Some benthic organisms could be buried by sediments settling on them while others would be able to move upward as the sediments accumulate. These effects would be of short duration over a small area with rapid recovery because mortality would be low, and local benthic communities would not be substantially disrupted. Turbidity would temporarily affect planktonic organisms through lowering the light available for phytoplankton photosynthesis and by clogging the filter feeding mechanisms of zooplankton. These effects would be short term and limited to the immediate vicinity of fill activities because these organisms move with the currents, making the duration of their exposure to turbidity plumes short. Planktonic organisms have a naturally occurring high mortality rate, and their reproductive rates are correspondingly high (Dawson and Pieper, 1993) which allows for rapid recovery from small, localized effects. Thus, local planktonic communities would not be substantially disrupted.

Once completed, runoff from the surface of the surcharge on the CDF and the new land at the Northwest Slip would have the potential to carry soil into the Harbor through storm drains or

sheet flow. The material on the surface of these sites would be clean sediments that would not further degrade water quality and would not affect local biological communities. Furthermore, implementation of BMPs required by the POLA and applicable project permits (e.g., NPDES General Permit for Discharges of Storm Water Associated with Construction Activities) during construction to control pollutant and sediment runoff would also reduce the potential for, and amount of, such runoff to levels below thresholds that could substantially affect marine organisms. As discussed in Section 2.3.3, the CDF at Berths 243-245 would be designed to prevent contaminants from entering Harbor waters.

Potential short-term construction-related erosion and sedimentation impacts from sediment disposal at the Berths 243-245 and Northwest Slip areas would be minimized by implementing existing regulatory requirements, including preparation and implementation of a SWPPP and implementation of applicable erosion/sedimentation control BMPs. Long-term erosion-related water quality impacts would also have the potential to occur at the Berths 243-245 disposal site resulting from the placement of clean dredge material placed as surcharge over the sediment disposal area. Potential erosion-related impacts that may be caused by the surcharge material would be minimized by implementing appropriate SWPPP and BMP measures.

Containment of contaminated sediments within the CDF would prevent marine biota from coming in contact with the contaminants, thereby reducing the exposure of marine organisms in the Harbor to such materials. This would be a benefit of Alternative 1.

CSWH Expansion Area. Turbidity, noise and vibration, and equipment disturbances would affect biological communities within the fill area as well as adjacent areas during construction activities, including plankton, benthos, fish, and birds. As described above for Berths 243-245 and the Northwest Slip, fish and birds would likely avoid the immediate work area, and turbidity would have minor effects on benthos and plankton. Approximately 50.0 acres (20.2 ha) of deep water column habitat (below -20 feet MLLW) would be converted to shallow water habitat and deep soft bottom would be converted to shallow soft bottom as a result of this fill. However, surface water area would remain the same. These changes would reduce habitat for fish species that prefer deep water while increasing habitat for those that prefer shallow water. These changes in habitat would not disrupt local biological communities. Fill placed to create shallow water from deep water would reduce the depth of the water column habitat and result in a loss of soft bottom invertebrates (11.7 metric tons) over an area of 50.0 acres (20.2 ha). A soft bottom benthic community similar to that currently present in adjacent areas of the existing CSWH would be expected to develop within five years based on surveys in 1987 of areas dredged in 1982 (MEC, 1988), thereby replacing the invertebrates lost.

Approximately 7.0 acres (2.8 ha) of subtidal hard substrate habitat associated with the dike located along the northern edge of the existing shallow water habitat would be permanently lost (covered with fill) as the shallow water habitat is extended. An estimated 104 metric tons of invertebrates (using subtidal invertebrate biomass from Berth 48) associated with this habitat would be lost. However, the loss would be temporary as the rocky habitat lost would be replaced by the new containment dike for the habitat expansion. Kelp and invertebrates would colonize the new containment dike, thereby replacing the hard bottom community lost. Thus, local biological communities would not be substantially disrupted.

Eelgrass Habitat Area. Placement of fill would result in turbidity, noise and vibration, and equipment disturbances that would affect the fill area as well as adjacent areas during construction activities. This would affect plankton, benthos, fish, and birds that use the area. As described above for Berths 243-245 and the Northwest Slip, fish and birds would likely avoid the immediate work area, and turbidity would have minor effects on benthos and plankton. Effects of these disturbances would be of short duration. Placing fill to create eelgrass habitat over 24.0 acres (9.7 ha) of existing CSWH and 16.0 acres (6.5 ha) of the proposed CSWH Expansion Area would reduce the depth of the water column habitat over the 40-acre (16-ha) site. In addition, approximately 6.0 acres (2.4 ha) of soft bottom would be converted to 5.0 acres (2.0 ha) of hard substrate habitat along the containment dike face. The containment dike would extend above the water, thereby eliminating approximately 1.7 acres (0.7 ha) of shallow and deep water habitat at +4.8 feet MLLW. This habitat loss is discussed in Impact BIO-5. Invertebrate infauna in the portion of the existing CSWH covered would be lost as a result of the fill, but organisms would colonize the new soft and rocky bottom. At a biomass of 127.7 g/m^2 in the existing CSWH, the invertebrate loss in the 24.0 acres (9.7 ha) of that habitat covered by the fill would be 12.4 metric tons (MEC and Associates, 2002). The remaining 16.0 acres (6.5 ha) of the new eelgrass habitat would be constructed over the new shallow water habitat that is part of the Proposed Action.

A benthic invertebrate community similar to that currently present in the eelgrass beds at Cabrillo Beach would be expected to develop as eelgrass is planted and expands in this area. Areas that are not planted in eelgrass immediately following construction of the area would be colonized by benthic invertebrates typical of such shallow areas in the Harbor. The development of an eelgrass bed over the fill would enhance the habitat value of this area for a number of fish species, and the long-term change would be beneficial.

Covering soft bottom under the dike to hard substrate habitat would not substantially disrupt local biological communities because the area of habitat conversion would be small and the rocky habitat would create more habitat structure than the soft bottom it replaced.

LA-2. Disposal 0.004 mcy of sediments in this existing deep water site would alter the bottom by changing sediment characteristics; however, this is an approved dredge material disposal site with an allowed annual disposal volume of 1.4 mcy of material (USACE and USEPA, 2004).

The Proposed Action would not be expected to introduce invasive species into the Harbor because the only imported material would be quarry-run rock for the fill containment dikes. The rock would come from quarry sources at Santa Catalina Island in southern California and be shipped to the Harbor using local vessels and barges.

Impact Determination

Impacts of temporary disturbances related to noise, turbidity, and equipment operation would be less than significant because local biological communities would not be substantially disrupted as described above. Although disposal of dredge material at the Northwest Slip, Berths 243-245, CSWH Expansion Area and Eelgrass Habitat Area would result in short-term as well as permanent habitat changes as described above, impacts of these activities would be less than significant because they would not substantially degrade local biological communities. In the long term, the habitat change at the CSWH Expansion Area and Eelgrass Habitat Area would be beneficial because it would provide foraging habitat for special status birds and other species. Any runoff from the surface of the CDF at Berths 243-245 and the new land area at the Northwest Slip would have less than significant impacts to local biological communities due to their small size, clean material used for the fill surface, and BMPs to control runoff such as the Storm Water Pollution Prevention Plan (SWPPP) for the site that would be regulated by the Regional Water Quality Control Board. The Proposed action would be unlikely to introduce invasive species, a less than significant impact.

Mitigation Measures. No mitigation is required, as impacts would be less than significant.

Residual Impacts. Residual impacts would be less than significant.

Impact BIO-5 Alternative 1 would result in the permanent loss of marine habitat.

Berths 243-245. Placement of fill at Berths 243-245 to create a CDF would result in a permanent loss of approximately 7.6 acres (3.1 ha) of Inner Harbor habitat (at +4.8 feet MLLW) over 6.6 acres (2.7 ha) of soft bottom and 1.6 acres (0.6 ha) of rocky dike habitat. Another 1.0 acre (0.4 ha) of rocky dike habitat would be covered by the fill but replaced by the new containment dike along the Main Channel. The permanent habitat loss would remove 2.3 metric tons of infaunal invertebrates and 21 metric tons of riprap invertebrates. (Data from the Main Channel infaunal and East Basin riprap 2000 samples were used for these calculations since no data are available from the Berths 243-245 site.).

Northwest Slip. Constructing five acres (2 ha) of new land at the Northwest Slip would permanently remove 4.8 acres (1.9 ha) of Inner Harbor habitat (at +4.8 feet MLLW). Approximately 1.8 acres (0.7 ha) of rocky dike habitat would be removed and replaced during the construction activities. The amount of infaunal invertebrates permanently lost would be approximately 0.4 metric ton, while about 19 metric tons of hard substrate organisms would be temporarily lost.

CSWH Expansion Area. Construction of this shallow water habitat area would result in a modification to, but no permanent loss of marine habitat. Placement of fill at this location would reduce the depth of the water column habitat to -15 feet MLLW, creating 50-acres (20 ha) of shallow Outer Harbor habitat at the site.

Eelgrass Habitat Area. The containment dike around the Eelgrass Habitat Area which would be constructed to +9 MLLW to protect eelgrass from storm waves would extend above the water, thereby eliminating approximately 1.7 acres (0.7 ha) of shallow and deep water habitat. Placing fill to create eelgrass habitat over approximately 24 acres (9.7 ha) of the existing CSWH and 16 acres (6.5 ha) of the proposed CSWH Expansion area, as discussed above, would further reduce the depth of the water column habitat over the 40-acre (16-ha) site, but would not result in any loss of shallow Outer Harbor habitat.

Impact Determination

Loss of marine habitat due to construction of the CDF at Berths 243-245, new land area at the Northwest Slip, and the containment dike for the Eelgrass Habitat Area would be a significant impact prior to mitigation. No net loss of marine habitat (as measured by surface water area) would result from conversion of deep water habitat to shallow water habitat within the Eelgrass Habitat Area and CSWH Expansion Area. Additionally, although some water column habitat would be lost, long-term impacts would be less than significant because the new shallow water would support more FMP species than the existing deep water. Thus, these impacts would be less than significant.

Mitigation Measures

Mitigation for impacts to marine biological resources has been developed by the Port in coordination with the National Marine Fisheries Service, USFWS, and CDFG through agreed-upon mitigation policy (USACE and LAHD 1992, Appendix B). This policy defines the value of different habitats within the Harbor relative to a system of mitigation credits accrued by creating or enhancing habitat in the Harbor and at off-site locations.

The loss of marine habitat would be mitigated through use of credits available from one of POLA's three mitigation banks (Table 3.3-4). The use of these banks is governed by Memoranda of Agreement among POLA, USFWS, NOAA Fisheries, CDFG, and, in the case of the Bolsa Chica Bank, POLB, California Resources Agency, California State Lands Commission, California Coastal Conservancy, U.S. EPA, and USACE. Credits in the Inner Harbor Bank may only be used to mitigate for loss of Inner Harbor marine habitat at a ratio of 1 credit per 1 acre of habitat loss. Credits in the Outer Harbor and Bolsa Chica Banks may be used to mitigate for loss of any marine habitat in the POLA at the following ratios: 1 acre Inner Harbor habitat:0.5 mitigation credit; 1 acre deep Outer Harbor habitat: 1 mitigation credit; 1 acre shallow Outer Harbor habitat: 1.5 mitigation credits. Loss of habitat is calculated at the +4.8 feet MLLW level and is inclusive of all substrate types (soft, rocky, etc.).

Mitigation credits from past habitat restoration projects that are available to offset impacts of the Channel Deepening Project and other projects in the Harbor are listed in Table 3.3-4. The Port has approximately 6 Inner Harbor credits in its mitigation banks and 155 credits in the Bolsa Chica and Outer Harbor banks. The latter banks would supply 310 Inner Harbor credits (212 + 98 in last column of Table 3.3-4). Table 3.3-5 shows the mitigation credits that have been committed for projects and those that would be required for upcoming projects, including Alternative 1, for a total of 62.45 credits. Alternative 1 of the Proposed Action would require approximately 6.2 acres (2.5 ha) of mitigation in Inner Harbor credits. Alternative 1 would also require no more than 2.6 acres (1.05 ha) of mitigation in Outer Harbor Bank credits (calculated at 1.5 credits for each acre of shallow habitat lost). Tables 3.3-4 and 3.3-5 show that more than enough credits would be available to cover those needed for Alternative 1.

Table 3.3-4 Mitigation Available for Channel Deepening Project

Mitigation Bank	Approximate Credits Available[1]	Value in Deep Outer Harbor[2]	Value in Shallow Outer Harbor[2]	Value in Inner Harbor Slips[2]
Bolsa Chica Bank	106	106	71	212
Outer Harbor Bank	49	49	33	98
Inner Harbor Bank[3]	6	NA	NA	6
TOTAL	161	155	103	316

Notes:
1. Approximately 67 credits, to be confirmed from as-built drawings, need to be debited for completed projects leaving about 88 available for new projects.
2. Value of credits is 1/1 for Outer Harbor deep habitat, 1/1.5 for Outer Harbor shallow habitat, and 1/0.5 for Inner Harbor
3. NA = not applicable; Inner Harbor Bank credits not available.

Table 3.3-5. Estimated Credits for Committed and Upcoming Port Projects

Projects		Credits [1]
Committed Mitigation Credits [2]		
Channel Deepening, 2000		
Berths 100-109 (China Shipping)		-21.5
Pier 300 A		-71.5
Cabrillo SWH Expansion A		27.0
Cabrillo Phase II [3]		1.7
	Subtotal	-64.3
Upcoming Projects [1, 4]		
Channel Deepening Additional Disposal, Alt 1		
Cabrillo SWH Expansion B		25
Eelgrass Habitat Area		-2.6
Berth 243-245 (Southwest Marine)		-3.8
Northwest Slip Sliver		-2.4
Berth 136-147 (TraPac)		-4.75
Berth 121-131 (Yang Ming)		-14.0
San Pedro Waterfront		4.4
	Subtotal	1.85
	Total Credits Required	-62.45

Notes
1 Estimated number of credits required, relative to Deep Outer Harbor credits.
2 Committed credits from approved environmental documents. Elements may have been completed but not yet added or debited from mitigation bank.
3 The original, approved project required a debit of 1.2 credits, however, an addendum to the project currently being assessed will change project such that a net 3.4 acres of open water will be created in the inner harbor, resulting in an additional 1.7 credits to mitigation banks.
4 Projects with cuts or fills that are expected to be assessed in the next 1-2 years, including elements in the Channel Deepening Proposed Action Alternative 1.

MM BIO-4. Apply Mitigation Credits. The POLA shall offset the loss of marine habitat from the Eelgrass Habitat Area above-water portion of the containment dike, Berths 243-245 disposal site, and Northwest Slip site by using existing mitigation credits from the Bolsa Chica Mitigation Bank, in accordance with provisions of the Memorandum of Agreement (MOA) governing its use. The loss of 12.4 acres (5.0 ha) of Inner Harbor habitat from Berths 243-245 and the Northwest Slip would require 6.2 credits (acres) (calculated at 0.5 credits per acre of Inner Harbor habitat lost). The loss of 1.7 acres (0.7 ha) of Outer Harbor habitat from the Eelgrass Habitat Area above-water portion of the containment dike would require no more than 2.6 Outer Harbor Bank credits (calculated at 1.5 credits for each acre of shallow habitat lost; this conservatively assumes that all of the dike would be on shallow Outer Harbor habitat (1.5:1), but a portion is on deep (1:1) and will be debited from available credits in the Bolsa Chica Mitigation Bank (as of June 2008, approximately 106 credits are available in this bank).

Residual Impacts. With implementation of MM BIO-4 impacts of marine habitat loss would be less than significant.

3.3.6.2 Alternative 2: Environmental Enhancement and Ocean Disposal

Alternative 2, Environmental Enhancement and Ocean Disposal, consists of placing dredge material at the following locations: CSWH Expansion Area, Eelgrass Habitat Area, Anchorage Road Soil Storage Site (ARSSS), and LA-2. No new land area would be created as result of this alternative.

Implementation of Alternative 2 would result in the same type and extent of development at the CSWH Expansion Area and the Eelgrass Habitat Area disposal locations as described for Alternative 1.

Impact BIO-1 Alternative 2 could affect individuals of or habitat for the California least tern and other special status species.

Eelgrass Habitat Area and CSWH Expansion. Dredging for construction of the CSWH Expansion Area dike would be the same as described for Alternative 1. No special status species, including the California least tern and California brown pelican, would be adversely affected by dredging for the dike at this location because few, if any, individuals of these species are expected to be present and because the disturbance would be localized and of short duration.

Placement of fill for these two habitat areas would result in construction activities and turbidity adjacent to and in the existing CSWH that is used as a foraging area for several special status species as described for Alternative 1.

LA-2. Disposal of sediments in this offshore location would cause temporary disturbances during the disposal activity that could disperse fish. This would not adversely affect special status bird species because few if any individuals would be present and no foraging areas would be precluded. Marine mammals in the area would avoid the disturbance.

ARSSS. Placement of contaminated sediments in the ARSSS would not affect special status bird species because few if any individuals of those species would be present and they could avoid the disturbance caused by transfer of the material to the site.

Impact Determination

Impacts of constructing Alternative 2 would have less than significant impacts to the least tern and other special status species. Based on this impact analysis it has been determined that the Proposed Action may affect but is not likely to adversely affect the California least tern. The USACE will initiate informal consultation with USFWS pursuant to ESA Section 7.

Mitigation Measures. Although Alternative 2 would have less than significant impacts to California least tern individuals and foraging habitat, based on coordination with USFWS, to ensure that construction-related turbidity would not adversely affect California least tern, mitigation measures BIO-1 through BIO-3 (as described above under Impact BIO-1 for Alternative 1) would be implemented to ensure protection of this species during project activities. No mitigation is required for the other disposal sites under Alternative 2.

Residual Impacts. Impacts to special status species from Alternative 2 would be less than significant.

Impact BIO-2 Alternative 2 would not result in a substantial reduction or alteration of a state-, federally-, or locally-designated natural habitat, special aquatic site, or plant community.

Eelgrass Beds. Construction of the CSWH Expansion Area and Eelgrass Habitat Area would have a very low potential to indirectly affect existing eelgrass beds at Cabrillo Beach due to turbidity and sediment deposition as described for Alternative 1. No eelgrass beds are located at or near the ARSSS or LA-2 disposal sites.

EFH. Construction of the Eelgrass Habitat Area and CSWH Expansion Area would have the same temporary impacts to FMP species as described for Alternative 1. Construction of the CSWH Expansion Area would alter EFH by making the water shallower, while construction of the Eelgrass Habitat Area above-water portion of the containment dike would result in a permanent loss of 1.7 acres (0.7 ha) of EFH. Disposal of material at LA-2 would not adversely affect EFH due to water depth and the temporary nature of the disturbance. Disposal of sediments that are unsuitable for open water disposal at the upland ARSSS would have the potential to enter EFH as a result of erosion and/or sedimentation at the site. However, as discussed in Section 3.13 (Water Quality and Oceanography) potential short-term erosion and sedimentation impacts from sediment disposal at the ARSSS would be minimized by adherence to existing regulatory requirements, including continued implementation of the project site's SWPPP, and implementation of applicable erosion/sedimentation control BMPs. Implementation of existing operating requirements at the ARSSS would reduce the potential for sediments to leave the site to a less than significant level.

SEAs and Other Natural Habitats. The California least tern SEA on Pier 400 would not be affected by construction activities associated with the Eelgrass Habitat Area and CSWH Expansion Area as discussed in the Proposed Action. Alternative 2 would have the same type of less than significant effects on kelp beds those discussed above for Alternative 1. One mudflat is present in the Main Channel of Los Angeles Harbor at Berth 78; however, this area would not be

affected by construction of Alternative 2. Disposal of material at LA-2 or the ARSSS would not affect any SEAs or other natural habitats because none are present at those locations.

Impact Determination

Impacts to eelgrass beds, mudflats, or kelp beds would be less than significant because no reduction in these natural communities would result from construction of Alternative 2. No impacts to the California least tern SEA would result from Alternative 2. This loss of EFH (1.7 acres) does not represent a substantial portion of the EFH in the Harbor, however, impacts to EFH are still considered significant, but the loss of marine habitat from this area would be mitigated through the use of existing mitigation credits as outlined below in MM BIO-4 discussed under Impact BIO-5, and this would also mitigate impacts to EFH. Although these impacts would be fully mitigated to a less than significant level, because EFH may be adversely affect EFH, USACE and LAHD would initiate consultation with the NOAA Fisheries for placement fill at these locations.

Mitigation Measures. Under Alternative 2, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. Residual impacts would be less than significant.

Impact BIO-3 Alternative 2 would not interfere with any wildlife migration/movement corridors.

No terrestrial or marine migration corridors or routes are present in the Los Angeles Outer Harbor. Construction of the Eelgrass Habitat Area and CSWH Expansion Area would not result in any barriers to movement of fish or wildlife. Disposal of dredged material at LA-2 and contaminated sediments at the ARSSS would not interfere with any migration corridors or routes.

Impact Determination

No impacts would occur because Alternative 2 would not interfere with any wildlife migration/movement corridors.

Mitigation Measures. Under Alternative 2, no impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No impacts would occur with implementation of Alternative 2. Therefore, no residual impacts would occur.

Impact BIO-4 Alternative 2 would not substantially disrupt local biological communities.

Constructing the Eelgrass Habitat Area and CSWH Expansion Area would cause the same temporary and less than significant impacts to local biological communities as described for Alternative 1. Disposal of 0.420 mcy of sediments at LA-2 would alter the bottom by changing sediment characteristics. However, this is an approved disposal site with an allowed annual disposal volume of 1.0 mcy of material; therefore, impacts would be less than significant. Placement of contaminated sediments in the ARSSS would not substantially disrupt any local biological communities because this is an already disturbed site in an industrial area. Additionally, disposal of contaminated sediments at the ARSSS would prevent marine biota from coming in contact with the contaminants, thereby reducing the exposure of marine organisms in the Harbor to such materials. This would be a benefit of Alternative 2.

Under this alternative, the existing contaminants within Berths 243-245 would remain in place. As discussed in Section 2.3.3, concentrations of the following compounds have been detected in surface and subsurface sediments within Berths 243-245 at concentrations frequently associated with adverse biological affects: mercury, lead, zinc, polychlorinated biphenyls (PCBs), tributyltin (TBT) and polynuclear aromatic hydrocarbons (PAHs) (Weston 2005). These materials would not be capped under this alternative and therefore the potential for their exposure to surrounding benthic infaunal organisms would persist.

Contaminated sediments can have both direct and indirect effects on marine organisms, including mortality from ingestion or external exposure as well as bio-accumulation and bio-magnification of toxins in benthic organisms or their predators, which could result in reproductive failure or mortality of individuals. For example, contaminants in sediments from southern California have been correlated with toxicity observed in sediment-dwelling invertebrates (Swartz et al. 1985, Bay 1995) and bioaccumulation in flatfish (Schiff and Allen 1997, Young et al. 1991). Sediment-associated containments have also been linked to impacts on upper trophic levels by way of food web transfers often in the form of bio-magnification (Burton and Landrum 2003). This has been shown to occur with mercury and some organochlorines, such as PCBs and DDT (Gamble 1996).

The existing concentrations of contaminants within sediments at Berths 243-245 are not high enough to be considered hazardous waste but are high enough to result in adverse biological effects for some species. Therefore, it is reasonable to assume that leaving these contaminated sediments in place (i.e., not removing or capping them) would likely continue to result in adverse effects to benthic infaunal organisms and their predators. However, local biological communities would not be substantially disrupted because the surface area of soft bottom habitat in Berths

243-245 is small (less than 8 acres) relative to the amount of soft bottom throughout the Harbor, or even within the Main Channel, and because the contaminants present apparently have not resulted in adverse effects based on the 2000 Baseline Surveys (MEC and Associates 2002).

Impact Determination

Although leaving the existing contaminants in place within Berths 243-245 would likely result in adverse effects to benthic organisms and their predators, impacts would be less than significant because Alternative 2 would not substantially disrupt local biological communities.

Mitigation Measures. Under Alternative 2, no significant impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. Residual impacts would be less than significant.

Impact BIO-5 Alternative 2 would result in permanent losses of marine habitat.

No demolition, dredging, or creation of new land would occur under Alternative 2. Disposal of sediments at the CSWH Expansion Area and Eelgrass Habitat Area would alter the marine habitat by making it shallower, and the only habitat lost would be the 1.7 acres (0.7 ha) of deep and shallow water habitat displaced by the containment dike for the Eelgrass Habitat Area that extends above the water surface. Disposal of sediments at LA-2 and disposal of contaminated sediments at the ARSSS would cause no loss of marine habitat.

Impact Determination

Creation of shallow water habitat from deep water habitat in the Outer harbor would result in a net increase of habitat value, which would result in additional credits for the mitigation bank. Therefore, the impact of habitat alteration would be less than significant because the shallow water habitat created would be of higher value (as discussed above in Section 3.3.2.2) than the deep water filled. The small loss of marine habitat due to the above-water portion of the containment dike would be a significant impact.

Mitigation Measures. MM BIO-4 would apply to the impact of habitat loss. The number of credits required to offset the impact would be no more than 2.6 deep Outer Harbor credits. No mitigation is required for the less than significant impact of habitat alteration.

Residual Impacts. Implementation of MM BIO-4 would decrease impacts to less than significant.

3.3.6.3 Alternative 3: No Action

Under the No Action Alternative, no construction activities related to the Proposed Action would occur. No new landfills or new shallow water areas would be created. Since all approved disposal sites have been completed, no further dredging would take place and the Channel Deepening Project would not be completed. Existing environmental conditions at the Proposed Action disposal sites would continue to exist. Approximately 1.025 mcy of material within the federally-authorized channel and 0.675 mcy of berth dredging would remain to be dredged and disposed. In addition, the 0.815 mcy of surcharge on the Southwest Slip Area would remain to be removed and disposed, and the 0.080 mcy of contaminated dredge material would remain within the Main Channel of the Port.

Impact BIO-1 Alternative 3 would not affect individuals of or habitat for the California least tern and other special status species.

Under Alternative 3, no construction activities related to the Proposed Action would occur and individuals of or habitat for the California least tern and other special status species would not be affected.

Impact Determination

No construction activities related to the Proposed Action would occur; therefore, no impacts to the California least tern or other special status species would occur.

Mitigation Measures. Under Alternative 3, no significant impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No impacts would occur for implementation of Alternative 3. Therefore, no residual impacts would occur.

Impact BIO-2 Alternative 3 would not result in a substantial reduction or alteration of a state-, federally-, or locally-designated natural habitat, special aquatic site, or plant community.

No existing eelgrass beds would be affected, and no new eelgrass beds would be created under the No Action Alternative. No demolition, dredging, or filling activities that have not already been approved would occur in EFH under the No Action Alternative. SEAs, mudflats, and other natural areas in the Los Angeles Harbor would not be affected under the No Action Alternative because no construction activities would occur.

Impact Determination

No construction activities related to the Proposed Action would occur; therefore, no impacts to natural habitats, special aquatic sites, or plant communities would occur.

Mitigation Measures. Under Alternative 3, no impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No impacts would occur for implementation of Alternative 3. Therefore, no residual impacts would occur.

Impact BIO-3 Alternative 3 would not interfere with any wildlife migration/movement corridors.

No construction activities related to the Proposed Action would occur; and wildlife movement corridors would not be affected.

Impact Determination

No construction activities related to the Proposed Action would occur; therefore, no impacts to wildlife migration/movement corridors would occur.

Mitigation Measures. Under Alternative 3, no impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No impacts would occur for implementation of Alternative 3. Therefore, no residual impacts would occur.

Impact BIO-4 Alternative 3 would not substantially disrupt local biological communities.

No construction activities related to the Proposed Action would occur; therefore, local biological communities would not be affected by construction activities. Under this alternative, however, approximately 0.080 mcy of contaminated sediments would remain in the harbor with the continued potential for marine biota to come in contact with the contaminants. Additionally, the existing contaminants within Berths 243-245 would remain in place. As discussed in Section 2.3.3, concentrations of the following compounds have been detected in surface and subsurface sediments within the harbor and within Berths 243-245 at concentrations frequently associated with adverse biological affects: mercury, lead, zinc, PCBs, TBT and PAHs (Weston 2005). These materials would not be capped under this alternative and therefore the potential for their exposure to surrounding benthic infaunal organisms would persist.

As discussed above for Impact BIO-4 for Alternative 2, leaving these contaminants in place would likely continue to result in adverse effects to benthic infaunal organisms and their predators. However, local biological communities would not be substantially disrupted because the surface area of soft bottom habitat with contaminated sediments is small relative to the amount of soft bottom throughout the Harbor, or even within the Main Channel, and because the contaminants present apparently have not resulted in adverse effects based on the 2000 Baseline Surveys (MEC and Associates 2002).

Impact Determination

No construction activities related to the Proposed Action would occur; therefore, local biological communities would not be affected by construction activities. However, the contaminated sediments that would remain within the harbor and within Berths 243-245 would likely continue to adversely affect some individuals in local biological communities, but not such that any communities would be substantially disrupted. Impacts would be less than significant.

Mitigation Measures. Under Alternative 3, no impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No impacts would occur for implementation of Alternative 3. Therefore, no residual impacts would occur.

Impact BIO-5 Alternative 3 would not result in permanent losses of marine habitat.

No demolition, dredging, or filling activities that have not already been approved would occur under the No Action Alternative, and no marine habitat would be lost.

Impact Determination

No construction activities related to the Proposed Action would occur; therefore, no impacts to marine habitat would occur.

Mitigation Measures. Under Alternative 3, no impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No impacts would occur for implementation of Alternative 3. Therefore, no residual impacts would occur.

3.3.7 Impact Summary

This section summarizes the conclusions of the impact analysis presented above in Section 3.3.6. Table 3.3-6 lists each impact identified for each alternative of the Proposed Action, along with the significance of each impact.

Table 3.3-6 Impact Summary

Impact	Alternative 1	Alternative 2	Alternative 3
BIO-1. Individuals of or habitat for the California least tern and other special status species could be affected.	LTS	LTS	NI
BIO-2. A substantial reduction or alteration of a state-, federally-, or locally-designated natural habitat, special aquatic site, or plant community would occur.	SM	SM	NI
BIO-3. No wildlife migration/ movement corridors would be interfered with.	NI	NI	NI
BIO-4. Local biological communities would not be substantially disrupted.	LTS	LTS	LTS
BIO-5. Permanent losses of marine habitat would not occur.	SM	SM	NI

S&U = Significant and Unavoidable **SM** = Significant but Mitigated
LTS = Less than Significant **NI** = No Impact

For Alternative 1, construction of the CSWH Expansion Area and Eelgrass Habitat Area would have the potential to affect California least tern foraging (Impact BIO-1), but impacts would be less than significant because the foraging area impacted by turbidity at any one time would represent a very small proportion (approximately four percent) of total foraging habitat available within the harbor that would be available to least tern. Additionally, construction activities would be monitored to ensure that turbidity would not adversely affect least tern foraging. Fill at Berths 243-245 and the Northwest Slip would cause a permanent loss of marine habitat (Impact BIO-5). All of the habitat loss impacts would be significant but mitigable to a less than significant level. Impacts to natural habitats, special aquatic sites, and plant communities (Impact BIO-2) and to local biological communities (Impact BIO-4) would be less than significant with implementation of MM BIO-4. No wildlife migration/movement corridors would be affected (Impact BIO-3). Additionally, containment of contaminated sediments within the CDF would prevent marine biota from coming in contact with the contaminants, thereby reducing the exposure of marine organisms in the Harbor to such materials. This would be a benefit of the Proposed Action.

Alternative 2 would have the same less than significant impacts on California least tern foraging as Alternative 1. The permanent loss of marine habitat, however, would be reduced to 1.7 acres (0.7 ha) (from 14.1 acres [5.7 ha] for Alternative 1) of shallow Outer Harbor water due to construction of the Eelgrass Habitat Area dike, but would still require mitigation. The significant but mitigable impacts of constructing the CSWH Expansion Area and Eelgrass Habitat Area on

natural habitats, special aquatic sites, plant communities, local biological communities, and wildlife migration/movement corridors would be the same as Alternative 1. Under Alternative 2, the existing contaminants within Berths 243-245 would remain in place, which would likely result in adverse effects to benthic infaunal organisms and their predators; however, the potential to substantially disrupt local biological communities would be less than significant.

Alternative 3 would involve no new in-water construction of landfills or habitat enhancements and, thus, would have no impacts on biological resources. Under Alternative 3, the 0.08 mcy of existing contaminants in the harbor and the existing contaminants within Berths 243-245 would remain in place, which would likely result in adverse effects to benthic infaunal organisms and their predators; however, the potential to substantially disrupt local biological communities would be less than significant.

3.3.8 Mitigation Measures

MM BIO-1 **Limit Turbidity Plume.** Unless specifically allowed by the USFWS, as appropriate, the LAHD/USACE shall not allow turbidity from the dredge and fill activities to extend over greater than 6.5-acres of shallow (i.e., less than 20 feet deep) Outer Harbor waters during the April-to-September nesting season of the California least tern. This requirement shall be monitored as provided for in measure BIO-2 below and shall be based on visually observed differences between ambient surface water conditions and any dredging turbidity plume.

MM BIO-2 **Least Tern Nesting Monitoring.** The LAHD/USACE shall provide a qualified least tern biologist, acceptable to the USFWS and CDFG, as appropriate, to monitor and manage known least tern colonies foraging in the immediate vicinity of the existing Cabrillo Shallow Water Habitat during the nesting season. This program shall be carried out for up to one year following construction of the last element of the Port of Los Angeles Channel Deepening Project. The biologist shall coordinate with CDFG and USFWS, pursuant to the existing least tern MOA (LAHD et al. 2006) and shall:

a) Monitor nesting and fledgling success of the least tern colony and provide an annual report in the format provided in previous years.

b) Provide an education program for construction crews regarding the identity of the least tern and their nests, restricted areas and activities, actions to be taken if least tern nesting sites are found outside the designated least tern nesting sites (e.g. Southwest Slip surcharge area).

c) Assist the USFWS and CDFG in predator control, prior to and during the least tern nesting season during the construction period.

d) Visually monitor and report to USACE field representative and Environmental Resources Branch (ERB) biologist any turbidity from project dredging which extends over greater than 6.5-acres of shallow Outer Harbor waters.

MM BIO-3 **Protect Least Tern Nesting Sites.** If California least tern nests are found outside of the known least tern colonies during construction, the biologist shall determine the affected area and notify the USACE field representative and Environmental Resources Branch (ERB) biologist, and USACE shall halt work as appropriate. The USACE shall notify the USFWS and CDFG immediately. The USACE will then determine any potential effect to the tern and consult with the USFWS pursuant to Section 7 of the ESA as appropriate.

MM BIO-4 **Apply Mitigation Credits.** The POLA shall offset the loss of marine habitat from the Eelgrass Habitat Area above-water portion of the containment dike, Berths 243-245 disposal site, and Northwest Slip site by using existing mitigation credits from the Bolsa Chica Mitigation Bank, in accordance with provisions of the Memorandum of Agreement (MOA) governing its use. The loss of 12.4 acres (5.0 ha) of Inner Harbor habitat from Berths 243-245 and the Northwest Slip would require 6.2 credits (acres) (calculated at 0.5 credits per acre of Inner Harbor habitat lost). The loss of 1.7 acres (0.7 ha) of shallow water from the Eelgrass Habitat Area above-water portion of the containment dike would require no more than 2.6 Outer Harbor Bank credits (calculated at 1.5 credits for each acre of shallow habitat lost; this conservatively assumes that all of the dike would be on shallow Outer Harbor habitat (1.5:1), but a portion is on deep (1:1) and will be debited from available credits in the Bolsa Chica Mitigation Bank (as of June 2008, approximately 106 credits are available in this bank).

3.3.9 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts have been identified in any of the alternatives for biological resources.

3.3.10 Mitigation Monitoring Plan

Resource	Description of Impact	Environmental Commitment/Mitigation	Start Date or Event	Responsible Party	Duration	Frequency	Level of Significance after Mitigation
California least tern	BIO-1. Construction of the CSWH Expansion Area and Eelgrass Habitat Area could adversely affect least tern foraging.	MM BIO-1: Limit Turbidity Plume. Unless specifically allowed by the USFWS, as appropriate, the LAHD/USACE shall not allow turbidity from the dredge and fill activities to extend over greater than 6.5-acres of shallow (i.e., less than 20 feet deep) Outer Harbor waters during the April-to-September nesting season of the California least tern. This requirement shall be monitored as provided for in measure BIO-2 below and shall be based on visually observed differences between ambient surface water conditions and any dredging turbidity plume. MM BIO-2: Least Tern Nesting Monitoring. The LAHD/USACE shall provide a qualified least tern biologist, acceptable to the USFWS and CDFG, as appropriate, to monitor and manage known least tern colonies foraging in the immediate vicinity of the existing Cabrillo Shallow Water Habitat during the nesting season. This program shall be carried out for up to one year following construction of the last element of the Port of Los Angeles Channel Deepening Project. The biologist shall coordinate with CDFG and USFWS, pursuant to the existing least tern MOA (LAHD et al. 2006) and shall: a) Monitor nesting and fledgling success of the least tern colony and provide an annual report in the format provided in previous years. b) Provide an education program for construction crews regarding the identity of the least tern and their nests, restricted areas and activities, actions to be taken if least tern nesting sites are found outside the designated least tern nesting sites	During construction of the containment dikes and placement of fill while the California least terns are nesting on Pier 400 (approximately April through August).	Construction: Port.	Approx. 10 months or until construction is completed.	Monitoring shall be daily during work when the least terns are nesting or less frequently if determined appropriate by the least tern expert.	Mitigation expected to avoid impacts to least tern foraging due to CSWH Expansion Area and Eelgrass Habitat Area construction. *Less than significant*

Resource	Description of Impact	Environmental Commitment/Mitigation	Start Date or Event	Responsible Party	Duration	Frequency	Level of Significance after Mitigation
		(e.g. Southwest Slip surcharge area). c) Assist the USFWS and CDFG in predator control, prior to and during the least tern nesting season during the construction period. d) Visually monitor and report to the USACE field representative and Environmental Resources Branch (ERB) biologist any turbidity from project dredging which extends over greater than 6.5-acres of shallow Outer Harbor waters. MM BIO-3: Protect Least Tern Nesting Sites. If California least tern nests are found outside of the known least tern colonies during construction, the biologist shall determine the affected area and notify the USACE field representative and Environmental Resources Branch (ERB) biologist, and USACE shall halt work as appropriate. The USACE shall notify the USFWS and CDFG immediately. The USACE will then determine any potential effect to the tern and consult with the USFWS pursuant to Section 7 of the ESA as appropriate.					
Essential Fish Habitat	BIO-2. Substantial reduction or alteration of a state-, federally-, or locally-designated natural habitat, special aquatic site, or plant community.	MM-BIO-4 Apply Mitigation Credits. The POLA shall offset the loss of marine habitat from the Eelgrass Habitat Area above-water portion of the containment dike, Berths 243-245 disposal site, and Northwest Slip site by using existing mitigation credits from the Bolsa Chica Mitigation Bank, in accordance with provisions of the Memorandum of Agreement (MOA) governing its use. The loss of 12.4 acres (5.0 ha) of Inner Harbor habitat from Berths 243-245 and the Northwest Slip would require 6.2 credits (acres) (calculated at 0.5 credits per acre of Inner Harbor habitat lost). The loss of 1.7 acres (0.7 ha) of shallow water from the Eelgrass Habitat Area above-water portion of the containment dike would require no more than 2.6 Outer Harbor Bank credits (calculated at 1.5 credits for each acre of	Approximate number of credits shall be reserved and actual number of credits debited after as-built surveys are completed.	Port	NA	NA	Credits would completely offset impacts. *Less than significant*

Resource	Description of Impact	Environmental Commitment/Mitigation	Start Date or Event	Responsible Party	Duration	Frequency	Level of Significance after Mitigation
		shallow habitat lost; this conservatively assumes that all of the dike would be on shallow Outer Harbor habitat (1.5:1), but a portion is on deep (1:1) and will be debited from available credits in the Bolsa Chica Mitigation Bank (as of June 2008, approximately 106 credits are available in this bank).					
Marine habitat	BIO-5. Permanent loss of marine habitat from the Berths 243-245 and the Northwest Slip and Eelgrass Habitat Area dike	MM-BIO-4 Apply Mitigation Credits. Full description presented above for Impact BIO-2	Approximate number of credits shall be reserved and actual number of credits debited after as-built surveys are completed.	Port	NA	NA	Credits would completely offset impacts. *Less than significant*