4

CUMULATIVE ANALYSIS

4.1 Introduction

This chapter presents the requirements for cumulative impact analysis, as well as the actual analysis of the potential for the proposed Project, together with other past, present, and reasonably foreseeable future projects in each resource area's cumulative geographic scope, to have significant cumulative effects. Following the presentation of the requirements related to cumulative impact analyses and a description of the related projects (Sections 4.1.1 and 4.1.2, respectively), the analysis in Section 4.2 addresses each of the resource areas for which the proposed Project may make a cumulatively considerable contribution to cumulative impacts, when combined with other reasonable and foreseeable projects in the area. Section 4.3 addresses cumulative impacts associated with the No Federal Action/No Project Alternative and the Reduced Project Alternative. For purposes of this document, the terms non-native, invasive, or exotic species are considered the same as the term nonindigenous species (NIS) and are used interchangeably.

4.2 Cumulative Impact Analysis for the Proposed Project

4.2.3 Biological Resources

4.2.3.2 Cumulative Impact BIO-1: Cumulative Impacts to Special Status Species – Cumulatively Considerable and Unavoidable

Cumulative Impact BIO-1 represents the potential of the proposed Project along with other cumulative projects to adversely affect state- and federally-listed endangered, threatened, or Species of Special Concern, or to result in the loss of

critical habitat. No critical habitat for any federally-listed species is present in the Harbor, and thus, no cumulative impacts to critical habitat would occur.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Construction of past landfill projects in the Harbor has reduced the amount of marine surface water present and thus foraging and resting areas for special status bird species, but these projects have also added more land and structures that can be used for perching near the water. Construction of Terminal Island, Pier 300, and then Pier 400 provided new nesting sites for the California least tern, and the Pier 400 site is still being used. Shallow water areas to provide foraging habitat for the California least tern and other bird species have been constructed on the east side of Pier 300 and inside the San Pedro breakwater (Cabrillo Shallow Water Habitat) as mitigation for loss of such habitat from past projects, and more shallow water habitat is to be constructed as part of the Channel Deepening Project. Cumulative impacts of marine habitat loss on special status species would be less than significant.

The past projects that have increased vessel traffic have also increased underwater sound in the Harbor and in the ocean from the vessel traffic lanes to Angels Gate and Queens Gate. Ongoing and future terminal upgrade and expansion projects (e.g., Berths 136-147 Marine Terminal [#2], San Pedro Waterfront [#3], Channel Deepening [#4], Berths 226-236 Improvements [#7], Ultramar [#12], Berths 97-109 [#15], Berths 302-305 APL Improvements [#23], Berths 212-214 YTI [#28], Berths 121-131 [#29], Middle Harbor [#69], Piers G & J [#70], Pier T TTI [#73], Pier S [#74], and if eventually approved, Sound Energy Solutions [#76]) would increase vessel traffic and its associated underwater sound. The frequency of vessel sound events would increase and contribute a small increment to the average underwater sound level within the Harbor that would not be expected to affect the hearing or behavior of marine mammals. While the number of vessels would increase in the Port over the life of the Project, the number of vessels transiting the main channel at any given time would not increase. Individual marine mammals would likely respond to noise from vessels that pass near them by moving away. Cumulative impacts of underwater sound from vessels on marine mammals would be less than significant.

Past, present, and future projects will increase offshore vessel traffic. Ship strikes involving marine mammals and sea turtles, although uncommon, have been documented for the following listed species in the eastern North Pacific: blue whale, fin whale, humpback whale, sperm whale, southern sea otter, loggerhead sea turtle, green sea turtle, olive ridley sea turtle, and leatherback sea turtle (NOAA Fisheries and USFWS 1998a, 1998b, 1998c, 1998d; Stinson 1984; Carretta et al. 2001). Ship strikes have also been documented involving gray, minke, and killer whales. The blue whale, fin whale, humpback whale, sperm whale, gray whale, and killer whale are all listed as endangered under the ESA, although the Eastern Pacific grey whale population was delisted in 1994. In southern California, potential strikes to blue whales are of the most concern due to the migration patterns of blue whales relative to the established shipping channels. Blue whales normally pass through the Santa Barbara Channel en route from breeding grounds in Mexico to feeding grounds further north. Blue whales were a target of commercial whaling activities worldwide. In the North Pacific, the pre-whaling population was estimated at approximately

4,900 blue whales, and the current population estimate is approximately 3,300 blue whales with 1,700 in the eastern North Pacific (NMFS 2008). Along the California coast, blue whale abundance has increased over the past two decades (Calambokidis et al. 1990, Barlow 1995, Calambokidis 1995). However, the increase is too large to be accounted for by population growth alone and is more likely attributed to a shift in distribution. Incidental ship strikes and fisheries interactions are listed by NMFS as the primary threats to the California population. 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. As the number of vessels increases, the number of incidents are also expected to increase. Cumulative impacts of vessel strikes with blue whales could be significant and unavoidable due to their low population size relative to historic levels and the potential for strikes as vessels cross their migration path to enter the Harbor.

Construction of the Cabrillo Shallow Water Habitat Expansion ~~and Eelgrass Habitat Area~~ as part of the Channel Deepening Project (#4) and the Berths 302-305 APL Improvements (#23) have the potential to adversely affect California least tern foraging during construction activities by causing a decline in forage fish availability or ability of least terns to find forage fish during the nesting season. Impacts to the California least tern could be significant but would be feasibly mitigated through timing of construction activities in or near areas used for foraging to avoid work when the least terns are present, or through control of turbidity. Construction of the Cabrillo Shallow Water Habitat would create more shallow water suitable for California least tern foraging, a long-term benefit. Cumulative impacts to the California least tern from these activities would be less than significant.

Nearly all of the projects listed in Table 4-1 involve construction activities on land. With respect to special status species, it is not expected that any nesting, foraging habitat, or individuals would be lost as a result of developments on land. In addition, due to the distance from the related projects to the least tern nesting area, noise from none of the related projects would affect the least tern nesting area. Cumulative impacts would be less than significant.

In-water construction activities (e.g., Berths 136-147 Marine Terminal [#2], San Pedro Waterfront [#3], Channel Deepening [#4], Cabrillo Way Marina [#5], Berths 226-236 Improvements [#7], Berths 97-109 [#15], Berths 302-305 APL Improvements [#23], Berths 212-214 YTI [#28], Berths 121-131 [#29], Middle Harbor [#69], Piers G & J Redevelopment [#70], Pier T TTI [#73], Pier S [#74], Sound Energy Solutions [#76] (if eventually approved), West Basin Installation Restoration Site 7 Dredging Project (#80), and Schuyler F. Heim Bridge (#81) could disturb or cause special status birds, other than the California least tern addressed above, to avoid the construction areas for the duration of the activities. Because these projects would occur at different locations throughout the Harbor and only some are likely to overlap in time, the birds could use other undisturbed areas in the Harbor, and few individuals would be affected at any one time. Construction of the Schuyler F. Heim Bridge (#81), however, would have the potential to adversely affect the peregrine falcon if any are nesting at the time of construction. If nesting were to be affected, impacts could be significant but feasibly mitigated by scheduling the work to begin after the nesting season is complete. Because no other related project would affect the peregrine falcon, significant cumulative impacts to the peregrine falcon would not occur. Cumulative impacts to other special status species would be less than significant.

In-water construction activities, and particularly pile driving, would result in underwater sound pressure waves that could affect marine mammals and fish species. The locations of these activities (e.g., pile and sheetpile driving) are in areas where few marine mammals occur, projects in close proximity are not expected to occur concurrently, and the marine mammals would avoid the disturbance area by moving to other areas within the Harbor. For fish species, results from a study in Canada indicated that driving closed-end steel piles had peak sound pressures approaching 150 kPa and resulted in mortality of several species of fish "around the pile" (Vagle 2003). Hastings and Popper (2005) reported no statistically significant mortality (i.e., different than control groups) for sound exposure levels (SELs) as high as 181 dB (re 1 µPa2-s) for surfperch and SELs as high as 182 dB (re 1 µPa2-s) for steelhead. Since sound pressure levels generated by various projects in the Harbor would be lower than described above and would not be expected to cause fish mortality, ~~C~~cumulative impacts of underwater sound from pile driving on marine mammals and fish species would be less than significant.

Oil spills from tankers in transit through the Harbor or during offloading at liquid bulk terminals that enter Harbor waters could adversely affect special status birds that forage or rest on the water surface, such as the California least tern, California brown pelican, and black skimmer. The potential for impacts to these species would depend primarily on the location and size of the spill. Small spills would likely be contained and rapidly cleaned up with little or no impact to these birds. However, a small spill into the Cabrillo Shallow Water Habitat during the least tern nesting season could have significant impacts to the population. A moderate to large spill could also have significant impacts to the least tern if it occurred during their nesting season and reached any of their primary foraging areas. Such a spill would also have the potential to have significant impacts to the California brown pelican all year. Cumulative impacts to the least tern and brown pelican would be unlikely but significant and unavoidable if they occurred. Cumulative impacts of oil spills to other special status species, including seals and sea lions in the Harbor, would be less than significant because the number of individuals affected would be small relative to their regional population size.

Contribution of the Proposed Project (Prior to Mitigation)

As discussed in Section 3.3.4.3.1 (**Impact BIO-1.1**), construction activities for the proposed Project would have significant impacts, prior to mitigation, on the California least tern at their nesting site on Pier 400 (SEA), burrowing owl (if nesting), and black skimmer (if nesting) and less than significant impacts on other special status species under CEQA and NEPA. Construction activities at Tank Farm Site 1 could result in a loss of individuals or nesting habitat for the burrowing owl and black skimmer, and these effects would result in a cumulatively significant impact. Operation of proposed Project facilities (**Impact BIO-1.2**), excluding oil spills that are discussed below, would have less than significant impacts to special status species, with the exception of the least tern. Construction and operation of Tank Farm Site 1 could have significant impacts, prior to mitigation, on the California least tern at their nesting site (SEA). At least a portion of the disturbance to the nesting area would be associated with noise from construction of the proposed Project, but impacts would be less than significant; however, no noise impacts from other related projects were identified that would contribute to any cumulative noise

impact on the least tern at the nesting area and, therefore, the proposed Project would have a less than cumulatively considerable contribution to noise that would affect the least terns at their SEA. With the other impacts noted above, however, the proposed Project would have a cumulatively considerable contribution (prior to mitigation) to a cumulatively significant impact for the California least tern at their SEA, under CEQA and NEPA

While the proposed Project would not result in significant impacts to marine mammals through vessel strikes, the increase in vessel traffic compared to the CEQA Baseline would increase the potential for a project-related whale strike, including to blue whales. Therefore, the proposed Project would have the potential to result in a cumulatively considerable contribution to the significant cumulative impact to the blue whale under CEQA, since overall increases in vessel traffic along the southern California coast has contributed to marine mammal mortalities. Therefore, with the contribution of the proposed Project to **Impact BIO-1** in regards to marine mammals, the potential contribution to whale mortality from vessel strikes would be cumulatively considerable under CEQA. Under NEPA, however, Project-related vessel traffic would be 66 fewer vessels per year relative to the NEPA Baseline, and therefore, under NEPA, the proposed Project would not result in a considerable contribution to cumulative impacts of vessel strikes to marine mammals.

In addition, a small (e.g., up to 238 barrel [bbl]) or larger oil spill within the Harbor, even though associated with a low probability of occurrence, could result in significant and unavoidable impacts to the California least tern and the California brown pelican. Therefore, impacts of the proposed Project would make a cumulatively considerable contribution to the significant and unavoidable cumulative impacts of oil spills for the least tern and brown pelican.

Effects of oil spills on other special status species would be less than significant and would not result in a considerable contribution to cumulative impacts.

Mitigation Measures

Implementation of Project mitigation measures (**MM BIO-1.1a** through **MM BIO-1.1j** for construction impacts and **MM BIO-1.2a** through **MM BIO-1.2e** for operations impacts) would reduce most Project impacts (including all construction phase impacts) on special status species to less than significant. However, **MM BIO-1.2c** would not eliminate the potential for impacts of oil spills on the least tern and brown pelican. There are no additional feasible mitigation measures that would reduce the potential for accidental oil spills to significantly affect the least terns when they are present and foraging in the area (e.g., during April through August) or to affect the brown pelicans all year. **MM BIO-1.2f** would reduce but not eliminate the potential for project-related vessel strikes of blue whales. No additional feasible mitigation measures are available to eliminate such vessel strikes.

Residual Cumulative Impacts

Residual cumulative impacts on the least tern and brown pelican, related to the potential for oil spills, would be cumulatively considerable and unavoidable under

CEQA and NEPA. Residual cumulative impacts of vessel strikes to blue whales would be cumulatively considerable and unavoidable under CEQA, but less than cumulatively considerable under NEPA (as they are also less than cumulatively considerable prior to mitigation). Under both CEQA and NEPA, residual cumulative impacts to other special status species would not occur.

4.2.3.5 Cumulative Impact BIO-4: Cumulative Disruption of Local Biological Communities – Cumulatively Considerable and Unavoidable

Cumulative Impact BIO-4 represents the potential of the proposed Project along with other projects to cause a cumulatively substantial disruption of local biological communities (e.g., from the introduction of noise, light, or invasive species).

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Wharf Work. Construction of past projects in the Harbor has involved in-water disturbances such as wharf construction that temporarily removed or permanently added hard substrate habitat (e.g., piles). These disturbances altered the benthic habitats present at the location of the specific projects, but effects on benthic communities were localized and of short duration as invertebrates colonized the new hard surfaces. Because these activities affected a small portion of the Harbor at a time and colonization has occurred or is in progress, biological communities in the Harbor have not been degraded. Similar construction activities (e.g., wharf construction/reconstruction) would occur for some of the cumulative projects that are currently under way and for some of those that would be constructed in the future: Berths 136-147 Improvements (#2), Channel Deepening (#4), Cabrillo Way Marina (#5), Berths 236-336 Improvements (#7), Berths 97-109 (#15), Berths 212-214 (#25), Berths 121-131 (#29), Middle Harbor Terminal Redevelopment (#69), Piers G & J (#70), Pier T (#73), Pier S (#74), and Sound Energy Solutions (#76). Because colonization of new piles begins immediately and the attached biota provide a food source for other species, such as fish, within a short time, multiple projects spread over time and space within the Harbor would not substantially disrupt benthic communities. Construction disturbances at specific locations in the water and at different times that are caused by the cumulative projects, such as sound pressure waves from pile driving, can cause damage to fish and marine mammals or cause them to avoid the work area. These temporary disturbances are not expected to substantially alter the distribution and abundance of these organisms in the Harbor and thus would not substantially disrupt biological communities. Turbidity that results from in-water construction activities occurs in the immediate vicinity of the work and lasts just during the activities that disturb bottom sediments. Effects on marine biota are thus localized to relatively small areas of the harbor and of limited duration for each project. Those projects that are occurring at the same time but which are not in close proximity would thus not have additive effects. Cumulative impacts would be less than significant.

Furthermore, based on biological baseline studies described in Section 3.3 of the SEIS/SEIR, the benthic marine resources of the Harbor have not declined during Port

development activities occurring since the late 1970s. The biological baseline conducted by MEC and Associates (2002) identified healthy benthic communities in the Outer Harbor despite major dredging and filling activities associated with the Port's Deep Draft Navigation Project (USACE and LAHD 1992).

Backland Construction and Operations. Runoff from construction activities on land has reached Harbor waters at some locations during past project construction, particularly for projects implemented prior to the 1970s when environmental regulations were promulgated. The past projects included Pier 300, Pier J, Pier 400, and the remaining terminal land areas within the Los Angeles-Long Beach Harbor. Runoff also has the potential to occur during present and future projects (all projects in Table 4-1 because all drainage in the area containing the cumulative projects listed is ultimately to the Harbor). Construction runoff would occur only during construction activities, so projects that are not concurrent would not have cumulative effects. Construction runoff would add to ongoing runoff from operation of existing projects in the Harbor at specific project locations and only during construction activities. For past, present, and future projects, the duration and location of such runoff would vary over time. Measures such as berms, silt curtains, and sedimentation basins are used to prevent or minimize runoff from construction, and this keeps the concentration of pollutants below thresholds that could measurably affect marine biota. Runoff from past construction projects (e.g., turbidity and any pollutants) has either dissipated shortly after construction was completed or settled to the bottom sediments. For projects more than 20 years in the past, subsequent settling of suspended sediments has covered the pollutants, or the pollutants have been removed by dredging projects. Runoff from operation of these past projects continues but is regulated. Biological baseline surveys in the Harbor (MEC 1988, MEC and Associates 2002) have not shown any disruption of biological communities resulting from runoff. Effects of runoff from construction activities and operations would not substantially disrupt local biological communities in the Harbor, and as a consequence, past, present, and reasonably foreseeable future projects would not result in significant cumulative local biological community impacts related to runoff. Much of the development in the Harbor has occurred and continues to occur on landfills that were constructed for that purpose. As a result, those developments did not affect terrestrial biota. Redevelopment of existing landfills to upgrade or change backland operations temporarily affected the terrestrial biota (e.g., landscape plants, weeds, rodents, and common birds) that had come to inhabit or use these industrial areas. Future cumulative developments such as hotels and other commercial developments on lands adjacent to the Harbor would be in areas that do not support natural terrestrial communities or are outside the region of analysis. Projects in Table 4-1 that are within the geographical region of analysis and could affect terrestrial biological resources are: Berths 136-147 Improvements (#2, Berths 226-236 Expansion (#7), SSA Outer Harbor Fruit Facility Relocation (#9), Crescent Warehouse Company Relocation (#10), Ultramar (#12), Westway Decommissioning (#13), Berths 97-109 (#15), Berths 171-181 (#16), Berths 206-209 (#17), LAXT Demolition (#18), Pan-Pacific Demolition (#10), San Pedro Waterfront Enhancement (#21), Joint Container Facility (#22), Berth 302-305 APL (#23), South Wilmington Grade Separation (#24), Avalon Boulevard Corridor Project (#25), "C" Street/Figueroa Street Interchange (#26), Berths 212-224 (#28), Berths 121-131 (#29), Southwest Marine Demolition (#30), Marine Research Center (#33), Banning Elementary School #1 (#57), East Wilmington Greenbelt Community Center (#58), Dana Strand Redevelopment (#60), Pier A West Remediation (#71), Pier A East

(#72), Pier T TTI (#73), Pier S (#74), and Schuyler Heim Bridge Replacement (#81). Construction and operation of these projects would not substantially disrupt terrestrial biological communities because no well-developed communities are present and no bird nesting is expected at any of the cumulative project sites. Based on this, past, present, and reasonably foreseeable future projects would not result in significant cumulative local biological community impacts related to upland development within the geographical scope.

Vessel Traffic. Cumulative marine terminal/berth upgrade projects (e.g., San Pedro Waterfront, Channel Deepening, Berths 226-236 Improvements, Pier 400 Oil Marine Terminal, Ultramar, China Shipping, LAXT Crude Oil, YTI, Yang Ming, Middle Harbor, Piers G & J, Pier T TTI, and Pier S) that involve vessel transport of cargo into and out of the Harbor have increased vessel traffic in the past and would continue to do so in the future. These vessels have introduced nonindigenous species (~~invasive exotic species~~NIS) into the Harbor through ballast water discharges and via their hulls. Ballast water discharges are ~~now~~ regulated and recent California legislation (e.g., Assembly Bill 740 and Senate Bill 1781) address requirements regarding vessel hull husbandry practices and performance standards for the discharge of ballast water. Although for the potential for introduction ~~so that the potential for introduction~~ of ~~invasive exotic species~~NIS has been ~~by this route has been greatly~~ reduced, the risk is not been eliminated. ~~The potential for introduction of exotic species via vessel hulls has remained about the same, and use of antifouling paints and periodic cleaning of hulls to minimize frictional drag from growth of organisms keeps this source low.~~

While ~~exotic species~~NIS are present in the Harbor, there is no evidence that these species have disrupted the biological communities in the Harbor. Biological baseline studies conducted in the Harbor continue to show the existence of diverse and abundant biological communities. Similarly, Ranasinghe et al. (2005) reported existing NIS to be associated with higher native cryptogenic diversity and abundance and likely did not have a negative impact on native species. However, absent the ability to eliminate the introduction of new species through ballast water or on vessel hulls, it is possible that additional invasive exotic species could become established in the Harbor over time, even with these control measures. As a consequence, past, present, and reasonably foreseeable future projects would result in significant cumulative local biological community impacts related to the introduction of invasive species.

The amount of chemicals released to Harbor waters from leaching of antifouling paints on vessel hulls would increase in proportion to the number of vessels resulting from cumulative projects. As described below for Water Quality (Section 4.2.14), cumulative impacts would be significant because waters in parts of the Harbor are impaired for some of these chemicals. Data in Section 3.14 show that the concentration of toxic chemicals that could come from vessel hull paints, however, did not exceed the Criteria Maximum Concentration (CMC) level at any of the 27 locations sampled within the Los Angeles Harbor from May 2005 through March 2006, but copper (one location on one date) and tributyltin (four locations on three dates but only one or two locations per date) equaled or exceeded the Criteria Continuous Concentration (CCC). ~~However~~Thus, the concentration of chemicals toxic to marine biota would not be increased to a level that would substantially

disrupt local communities, and cumulative impacts to local biological communities would be less than significant.

A long-term increase in the transport of crude oil and/or petroleum products through the Los Angeles-Long Beach Harbor area would result from projects Ultramar (#12), Sound Energy Solutions (#76), and Chemoil (#79) (assuming that petroleum product throughput and number of vessels would increase) as well as the proposed Project. This would increase the potential for accidental spills of these products into Harbor waters in proportion to the number of vessels and product transfers. A spill from the existing pipelines over Dominguez Channel is unlikely to occur but could release oil into Inner Harbor waters at that location. Accidents during tanker transit through the Harbor to existing berths could also release oil to Harbor waters. Small spills of less than 238 bbl are expected to have less than significant impacts on local biological communities because the area affected would be localized, no sensitive species are likely to be affected, and containment and cleanup procedures would reduce the severity of impacts. In the worst case, however, a moderate to large spill that affects large numbers of water-associated birds such as gulls or large amounts of intertidal invertebrate communities could have significant cumulative impacts.

Oil spills on land would likely be at tank farms within containment berms where few to no biological resources are present and would be cleaned up immediately. Spills from pipelines would likely be underground or in containment areas at oil facilities. Cumulative impacts to local terrestrial biological communities would be less than significant.

Contribution of the Proposed Project (Prior to Mitigation)

Wharf Work. Driving piles for construction of Berth 408 would temporarily disturb benthic habitat in a small portion of the Outer Harbor adjacent to Pier 400 and would cause sound pressure waves at intervals as each pile is driven. Placement of rock at the base of the piles would convert a small amount (0.1 acre, 0.04 ha) of soft bottom to hard substrate habitat. Recolonization of disturbed marine environments and colonization of new rock and piles begins rapidly. Effects of sound pressure waves would be of short duration and would not be additive to effects of other cumulative projects due to the distance and intervening land masses between the proposed Project and other cumulative projects with pile driving that could occur at the same time. The minor proposed Project effects would not result in a cumulatively considerable contribution to a significant cumulative impact under CEQA and NEPA.

Backland Construction and Operations. Runoff from temporary disturbances on land during construction of the proposed Project Marine Terminal, tank farms, and pipelines would add to the cumulative amount of construction runoff from all other projects in the Harbor that are being constructed concurrently with the proposed Project. Construction activities are closely regulated, and runoff of pollutants in quantities that could adversely affect marine biota is not likely to occur. Furthermore, runoff from the proposed Project and most of the cumulative projects would not occur simultaneously but rather would be events scattered over time so that total runoff to harbor waters would be dispersed, both in frequency and location. Construction of the proposed Project would result in less than significant impacts on local marine biological communities through runoff under CEQA and NEPA because

runoff control measures, as specified in a SWPPP, would be implemented and maintained as required in project permits, and the small amounts of pollutants that could pass the BMPs would not substantially affect marine organisms in Harbor waters and on hard substrate due to expected low concentrations, relative to ambient conditions. The minor proposed Project effects would not result in a cumulatively considerable contribution to a significant cumulative impact.

Construction and operation of the proposed Project would have minimal effects on terrestrial habitats in an existing industrial area that would not disrupt local biological communities. At Tank Farm Site 1, however, Caspian and elegant terns have nested in the past and could nest there again prior to proposed Project construction if conditions were suitable and the terns were present in the area. In a worst case, if these or other birds were nesting as construction begins, impacts to nesting birds would be significant but feasibly mitigated. Construction activities at Tank Farm Site 1 could result in disruption of bird nesting, but these effects would not contribute to cumulative impacts as none were identified for the cumulative projects. Construction and operation of the proposed Project would have less than significant impacts on other terrestrial biological communities under CEQA and NEPA because the species present are predominantly non-native and/or are adapted to the industrial area. The minor proposed Project effects would not result in a cumulatively considerable contribution to a significant cumulative impact.

Vessel Traffic. The small increase in vessel traffic in the Harbor (less than 7 percent compared to the CEQA Baseline) caused by the proposed Project would add to the cumulative potential for introduction of exotic species, under CEQA. Many exotic species have already been introduced into the Harbor, and many of these introductions occurred prior to implementation of ballast water regulations. These regulations would reduce the potential for introduction of non-native species, including from project-related vessels. Furthermore, oil tankers unloading at Berth 408 would be taking on ballast water and not discharging it. However, exotic species from vessel hulls could still be introduced into the Harbor. Proposed Project impacts relative to the introduction of non-native species have the potential to be significant prior to mitigation, and effects of the proposed Project could make a cumulatively considerable contribution to the significant cumulative impact under CEQA.

Compared to the NEPA Baseline, the proposed Project would have fewer vessel calls to the Harbor. Although project-related vessels could still introduce exotic species, the potential for such introductions would be less than under baseline conditions. Because the proposed Project would not increase the potential for introduction of exotic species it would not, under NEPA, result in a cumulatively considerable contribution to a significant cumulative impact.

The amount of chemicals in Harbor waters from leaching of antifouling paints on proposed Project vessel hulls would not increase the concentration of chemicals toxic to marine biota to a level that would substantially disrupt local communities. The minor proposed Project effects would not result in a cumulatively considerable contribution to a significant cumulative impact on local biological communities.

Oil Spills. The small increase in vessel traffic in the Harbor (less than 7 percent compared to the CEQA Baseline) caused by the proposed Project would add to the cumulative potential for oil spills, under CEQA. The frequency of oil spills from

proposed Project tankers in offshore waters while approaching the Port, inside the Port while in transit to Berth 408, or while offloading oil at Berth 408 would be low to remote. Spills from MGO barges could occur during transit from existing terminals in the Harbor to Berth 408 and while unloading at Berth 408. The only pipeline spills likely to reach Harbor waters would be from the pipelines over Dominguez Channel and over the Pier 400 causeway gap. The proposed Project would have the potential for significant impacts, prior to mitigation, to marine birds, such as gulls, and intertidal invertebrate communities from accidental oil spills directly into Harbor waters and to marine birds in offshore waters. Therefore, effects of the proposed Project would make a cumulatively considerable contribution to the significant cumulative impact.

Oil spills at the tank farm facilities would be within bermed containment areas that have little to no biological resources present, and spills from most of the pipelines would be under ground with no impacts to terrestrial biological resources. The negligible proposed Project effects, under CEQA, would not result in a cumulatively considerable contribution to a significant cumulative impact.

Compared to the NEPA Baseline, the proposed Project would have fewer vessel calls to the Harbor. However, there will be more ships coming specifically to Pier 400 as a result of the proposed Project and, due to the proximity to the least tern nesting site, the proposed Project would have the potential for significant impacts, prior to mitigation, to marine birds, such as gulls, and intertidal invertebrate communities from accidental oil spills directly into Harbor waters and to marine birds in offshore waters. Therefore, effects of the proposed Project would make a cumulatively considerable contribution to the significant cumulative impact under NEPA.

Oil spills at the tank farm facilities would be within bermed containment areas that have little to no biological resources present, and spills from most of the pipelines would be under ground with no impacts to terrestrial biological resources. The negligible proposed Project effects, under NEPA, would not result in a cumulatively considerable contribution to a significant cumulative impact.

Mitigation Measures and Residual Cumulative Impacts

No mitigation measures are required for the proposed Project's less than cumulatively considerable contribution to impacts on marine communities from wharf construction and from site runoff during construction and operations, or on terrestrial communities from construction and operation of the proposed Project. **MM BIO-1.1g** and **MM BIO-1.1h** would reduce impacts to nesting birds at Tank Farm Site 1 to less than significant.

Although ballast water regulations reduce the potential for introduction of invasive species, no mitigation measures are currently available to prevent introduction of these species. Therefore, the proposed Project's contribution to the significant cumulative impacts of oil spills and introduction of invasive species would be considered cumulatively considerable and unavoidable under CEQA. Under NEPA, because the proposed Project would not increase the potential for introduction of exotic species it would not result in a cumulatively considerable contribution to a significant cumulative impact.

Standard spill prevention plans and measures already required for such facilities, as well as **MM RISK-2.1a** and **MM RISK-2.1b**, would reduce the potential for oil spills to the extent feasible, and no mitigation measures are available to reduce impacts further. **MM BIO-1.2c** would reduce but not eliminate the potential for impacts of oil spills in the Harbor to marine birds. Under CEQA and NEPA, the proposed Project would have the potential to make a cumulatively considerable contribution to cumulatively significant impacts to marine birds, such as gulls, and intertidal invertebrate communities from accidental oil spills directly into Harbor waters and to marine birds in offshore waters.

4.2.14 Water Quality, Sediments, and Oceanography

4.2.14.2 Cumulative Impact WQ-1: Cumulative Discharge Effects to Water and Sediment Quality – Cumulatively Considerable and Unavoidable

Cumulative Impact WQ-1 represents the potential of the proposed Project, along with other cumulative projects, to create pollution, cause nuisances, or violate applicable standards.

Impacts of Past, Present, and Reasonably Foreseeable Future Projects

Water and sediment quality within the geographic scope are affected by present and past activities within the Harbor (e.g., shipping and wastewater discharges from the Terminal Island Treatment Plant [TITP]), inputs from the watershed including runoff and aerial deposition of particulate pollutants, and effects from historical (legacy) inputs. As discussed in Section 3.14, portions of the Los Angeles/Long Beach harbor complex are identified on the current Section 303(d) list as impaired for a variety of chemical and bacteriological stressors and effects to biological communities. For those stressors causing water quality impairments, TMDLs will be developed that will specify load allocations from the individual input sources, such that the cumulative loadings to the Harbor would be below levels expected to adversely affect water quality and beneficial uses of the water body. However, these TMDL studies are not planned until the year 2019 (see Section 3.14.2.1). Thus, in the absence of restricted load allocations and/or removal or remediation of contaminated sediments, the impairments would be expected to persist.

Present and reasonably foreseeable future projects with in-water construction components, such as dredging and pier upgrades, would result in temporary and localized effects to water quality that would be individually comparable to those associated with the proposed Project. Changes to water quality associated with in-water construction for the other cumulative projects would not persist for the same reasons discussed in Section 3.14. Therefore, cumulative impacts would occur only if the spatial influences of concurrent projects overlapped. Of the cumulative projects listed in Table 4-1, only the Channel Deepening Project (#4), China Shipping Terminal Development (#15) and

Berths 121-131 Development (#29) are located in the vicinity of the proposed Project and involve in-water construction activities. Dredging for the Channel Deepening Project (#4) and Phase I construction for the China Shipping Terminal Development (#15) has been completed, whereas the Berths 121-131 Development (#29) is still in the planning phase. The Consolidated Slip Sediment Restoration project, as well as a number of projects within the Port of Long Beach, including the Middle Harbor Terminal Redevelopment (#69), Piers G and J Redevelopment (#70), Pier T Marine Terminal (#73), and Pier S Marine Terminal (#74), would involve dredging and/or in-water construction. However, water quality effects from in-water construction activities associated with these cumulative projects would be limited to the immediate dredging or construction area and would not overlap with those associated with construction of the proposed Project. The Artificial Reef (#6) and Inner Cabrillo Beach Water Quality Improvement (#32) projects would also involve minor in-water construction, but effects from these projects would not overlap with those of the proposed Project.

Wastewater discharges associated with project operations and runoff from project sites would be regulated by stormwater permits. The permits would specify constituent limits and/or mass emission rates that are intended to protect water quality and beneficial uses of receiving waters from cumulative effects associated with multiple, concurrent stormwater discharges. In addition, related projects in the Ports of Los Angeles and Long Beach would be operated in accordance with industrial SWPPPs that require monitoring and compliance with permit conditions. SUSMP requirements would also be implemented via the planning, design, and building permit processes. Although standard regulatory compliance measures would apply to the related projects, which would minimize their pollutant contributions to the Harbor, the Harbor is still listed on the Section 303(d) list as being impaired, and would likely remain so until TMDLs can be fully implemented throughout the entire watershed. Consequently, a significant cumulative impact to water quality related to its Section 303(d) listing would remain.

Development of port facilities associated with the cumulative projects, including Pier 400 Container Terminal (#1), Evergreen Container Terminal Improvements (#7), Berths 97-109 Development (#15), Berths 302-305 APL Container Terminal Improvements (#23), Berths 212-224 Container Terminal Improvements (#28), Berths 121-131 Container Terminal Improvements (#29), Middle Harbor Terminal Redevelopment (#69), Piers G & J Terminal Redevelopment (#70), Pier T Terminal (#73), and Pier S Marine Terminal (#74), is expected to contribute to a greater number of ship visits to the Ports of Los Angeles and Long Beach. Assuming that the potential for accidental spills, illegal vessel discharges, and ~~chemical releases from vessel hull anti-fouling paints~~ incidental discharges from normal vessel operations would increase in proportion to the increased vessel traffic, contaminant loadings to the Harbor also would be expected to increase. The significance of this increased loading would depend in part on the volumes and composition of the releases, as well as the timing and effectiveness of spill response actions. As noted for the proposed Project (Section 3.14.4.3.1), there is no evidence that illegal discharges for ships are causing widespread impacts to water quality in the Harbor. Also, incidental vessel discharges would be governed by the Vessel General Permit (VGP) that specifies effluent limitations to prevent violations of water quality standards (USEPA 2008). However, as Harbor waters are considered impaired and because these related projects would contribute to pollutant loadings through spills

and ~~illegal~~ vessel discharges~~, or pollutant leaching from vessel hull coatings~~, these related projects would result in significant cumulative water quality impacts.

A long-term increase in the transport of crude oil and petroleum products through the Ports would result from the Ultramar Lease Renewal Project (#12) and Chemoil Marine Terminal (#79). These projects have the potential for accidental spills of oil or products into Harbor waters in proportion to the number of vessels and transfers. Small spills of less than 10 bbl are expected to have limited effects on marine water quality because the area affected would be localized, and containment and cleanup procedures would reduce the potential for spreading. Larger spills (10 to 238 bbl) are considered rare (see Chapter 3.12) and unlikely to occur at any of the proposed facilities. However, if a large spill did occur, the magnitude and extent of impacts would depend on the amount of water affected. In either case, the presence of any amount of spilled oil would exceed the threshold for oil and grease as defined in the Basin Plan. Therefore, cumulative impacts to water quality would be significant.

Contribution of the Proposed Project (Prior to Mitigation)

The proposed Project would not result in any direct discharges of wastes or wastewaters to the Harbor, other than. ~~However,~~ stormwater runoff from the onshore portions of the proposed Project area and incidental discharges from normal vessel operations. ~~would flow into the Harbor, along with runoff from adjacent areas of the primarily industrialized watershed.~~ Stormwater runoff from the proposed Project site would be governed by a permit, similar to those required for the other cumulative projects, that specifies constituent limits and/or mass emission rates that are intended to protect water quality and beneficial uses of receiving waters. Relative to both CEQA and NEPA baseline conditions, the proposed Project operations would contribute only slightly higher volumes of runoff (due to the increased surface area associated with the impervious ground cover) and no substantial differences in the chemical composition because the land uses would be essentially the same. While the inputs from the proposed Project would be negligible compared with those from the entire watershed, the runoff could contain contaminants (e.g., metals) that have been identified as stressors for portions of the Los Angeles/Long Beach Harbor complex. Thus, the proposed Project without mitigation would contribute to a cumulatively considerable impact relative to both the CEQA and NEPA Baselines.

~~In-water construction activities, such as piling and rock installation associated with the berth construction, would suspend bottom sediments. While this would not constitute a discharge, disturbances of bottom sediments would alter some water quality parameters such as dissolved oxygen (DO), nutrients, and turbidity. These changes are generally of short duration and localized to the mixing zone associated with the construction activity. As discussed in Section 3.14, changes to water quality associated from in-water construction are not expected to exceed applicable standards. Because the effects are not expected to overlap in time and space with those from other projects, the impacts of such disturbances would not be cumulatively considerable relative to both the CEQA and NEPA Baselines. Once the construction phase of the proposed Project is completed, operations would not be expected to cause further disturbances to bottom sediments or contribute to cumulative impacts.~~

The proposed Project would result in an increased number of tanker vessel visits to the Ports of Los Angeles and Long Beach as compared to the CEQA baseline, which could contribute to ~~contaminant (e.g., copper) leaching from vessel hull paints as well as~~ a proportionally higher potential for accidental spills~~, and illegal vessel discharges,~~ within the Harbor. In addition, the proposed Project would exacerbate a potential, cumulatively significant impact related to oil spill risk due to the increased use of existing pipelines, although those pipelines are currently used for petroleum products (Section 4.2.12.3). ~~While contaminant leaching from hull paints would not cause water quality standards to be exceeded at Berth 408, dispersion by currents of contaminants from Berth 408 could exacerbate water quality conditions in other portions of the Harbor.~~ The terminal operator will be required to implement SPCC and OSCP Plans that ensure that facilities include containment and other countermeasures that would reduce but not eliminate the potential for oil spills to reach Harbor waters. While contaminant loadings from normal vessel discharges would not cause water quality standards to be exceeded at Berth 408, dispersion by currents of contaminants from Berth 408 could exacerbate water quality conditions in other portions of the Harbor. For example, copper in hull paint leachate from vessels at Berth 408 could contribute, via normal circulation patterns, to copper concentrations in other portions of the Harbor that presently are impaired by copper. The VGP specifies that when vessels spend a considerable time (generally more than 30 days per year) at a location impaired by copper, the vessel owner/operator shall consider use of anti-fouling coatings that use a rapidly biodegradable biocide or other alternatives rather than copper-based coatings. However, it is unlikely that individual vessels would be home-ported or berthed at the proposed Project facilities for more than 30 days per year. ~~Spills or waste discharges directly to the Harbor would result in significant impacts to water quality.~~ Because the proposed Project would result in an increase~~d~~ in vessel traffic, ~~number of ship visits,~~ the proposed Project would contribute to cumulative impacts to water quality. Therefore, the proposed Project would make a cumulatively considerable contribution to a significant cumulative impact~~, related to contaminant leaching from hull paints and water quality impacts from potential oil spills,~~ under CEQA ~~and NEPA~~.

There would be fewer vessels calls to the Port of Los Angeles compared to the NEPA baseline. However, there will be more ships coming specifically to Pier 400 as a result of the proposed Project and, due to the proximity to the least tern nesting site, the proposed Project would exacerbate a potential, cumulatively significant impact related to illegal discharges or oil spills. Therefore, the proposed Project would make a cumulatively considerable contribution to a significant cumulative impact under NEPA.

In-water construction activities, such as piling and rock installation associated with construction of Berth 408, would suspend bottom sediments. While this would not constitute a discharge, disturbances of bottom sediments would alter some water quality parameters such as dissolved oxygen (DO), nutrients, and turbidity. These changes are generally of short duration and localized to the mixing zone associated with the construction activity. As discussed in Section 3.14, changes to water quality associated from in-water construction are not expected to exceed applicable standards. Because the effects are not expected to overlap in time and space with those from other projects, the impacts of such disturbances would not be cumulatively considerable relative to both the CEQA and NEPA Baselines. Once the construction phase of the proposed Project is completed, operations would not be

expected to cause further disturbances to bottom sediments or contribute to cumulative impacts.

Mitigation Measures and Residual Cumulative Impacts

Best management practices to prevent or minimize contaminant loadings to the Harbor via stormwater runoff from past, present, and future projects, including the proposed Project, are required by the Standard Urban Stormwater Mitigation Plan (SUSMP), which is incorporated into the Los Angeles County Urban Runoff and Stormwater NPDES Permit issued by the LARWQCB. SUSMP requirements must be incorporated into the project plan and approved prior to issuance of building and grading permits. Specifically, the SUSMP requires that each project incorporate BMPs designed to minimize stormwater pollutant discharges. While adopted BMPs vary by project, all BMPs must meet specific design standards to mitigate stormwater runoff and control peak flow discharges. The SUSMP also requires implementation of a monitoring and reporting program to ensure compliance with the constituent limitations in the permit. These BMPs and compliance monitoring would reduce the proposed Project's contribution to cumulative impacts from runoff to less than cumulatively considerable relative to both the CEQA Baseline and the NEPA Baseline.

As discussed in Section 3.12, safety measures specified in the LAHD Risk Management Plan and in project-specific SPCC plans minimize the risks of a large, accidental spill from impacting the harbor. However, these plans cannot completely eliminate the risk of a spill. Similarly, there are no feasible mitigation measures that would completely eliminate the potential for ~~illegal discharges or~~ oil spills from vessels to violate applicable water quality standards. Consequently, significant impacts would remain, and the proposed Project would make a cumulatively considerable contribution to cumulatively significant impacts relative to the potential for ~~illegal discharges,~~ oil spills~~,~~ and vessel discharges ~~and contaminant leaching from hull paints,~~ under CEQA and NEPA.

4.3 Cumulative Impact Analysis for Alternatives