APPENDIX K

Essential Fish Habitat Assessment

1.0 INTRODUCTION

2.0 ESSENTIAL FISH HABITAT ASSESSMENT

Essential Fish Habitat is managed under the Magnuson Fishery Conservation and Management Act (Magnuson Act). This act protects waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (Magnuson-Stevens Act, 16 U.S.C. 1801 et seq.). Substrates include sediment, hard bottom, structures underlying waters, and associated biological communities (NMFS 2005). For example, eelgrass is considered Essential Fish Habitat for some managed species.

Based on results from the 2000 Baseline Study, there are 19 managed fish species that have been observed within the Los Angeles Harbor including four managed coastal pelagic fish species (northern anchovy, Pacific sardine, Pacific (chub) mackerel, and jack mackerel) and fifteen managed Pacific coast groundfish species (Table 1). Of these species, the most abundant is the northern anchovy, while the Pacific sardine, Pacific mackerel, and jack mackerel were also found to be moderately abundant in 2000. While none of the Pacific coast groundfish species were abundant in the outer harbor, Pacific sanddab were only slightly less abundant than the mackerels.

The potential impacts resulting from construction of the new berth and associated structures are expected to be minimal and temporary to the five managed fish species demonstrating moderate to high abundance in the Los Angeles Harbor. During construction activities, should any individuals of these managed pelagic or groundfish species (northern anchovy, Pacific sardine, Pacific mackerel, jack mackerel, and Pacific sanddab) occur within the immediate vicinity of the project area they would relocate to another area of open water, to avoid disturbances caused by pile driving, or excessive noise or light. As indicated in Chapter 2 of the SEIS/SEIR, ~~at the current design stage it is not certain whether mooring dolphins for the proposed Project would require steel and/or pre-stressed concrete piles. However, present considerations are that both "Option 1" and " Option 2" would use steel and pre-stressed concrete piles, with more steel piles for Option 1 (110~~ 92 steel piles ~~+~~and ~~40~~ 44 concrete piles would be installed in the water for Berth 408 and the AMP plus AMECS platforms~~) compared to Option 2 (74 steel + 184 concrete)~~. ~~The increase in noise~~Underwater sound levels would be less ~~for~~ during driving of ~~pile driving associated with~~ concrete piles than for driving of steel piles. However, driving of both types of piles would result in ~~regardless of whether steel or concrete piles would be used~~ a brief relocation of individuals represented by these transient species that would not result in biologically significant impacts to their populations with regard to competition, predation, or spawning.

A moderate to large oil spill (greater than 238 bbl), while unlikely, could have an impact on the five managed fish species demonstrating moderate to high abundance in Los Angeles Harbor. Research on the life history and reproduction strategies of these species, discussed below, provided insight into the most susceptible managed fishery. Specifically, the northern anchovy is found along the Pacific coast; however, anchovies are well known to enter bays and inlets to feed on organisms such as copepods and sometimes to spawn, thus leaving their offspring to develop in these protected areas (Hunter and Goldberg 1980; Whitehead et al. 1988). Because a large number of adult and larval anchovies were found in Los Angeles Harbor (relative to other species present in the harbor) during the 2000 Baseline Study, of all of the managed species, individuals of this species would be the most likely to be affected by a large oil spill.

Table 1. Managed Fish Species Within Habitats of the Long Beach and Los Angeles Harbors

Common Name	*Scientific Name*	*Notes*
Coastal Pelagics Fishery Management Plan		
Northern anchovy	*Engraulis mordax*	Abundant throughout harbor in 2000[1]
Pacific sardine	*Sardinops sagax*	Common throughout in harbor in 2000[1]
Pacific (chub) mackerel	*Scomber japonicus*	Common throughout harbor in 2000[1]
Jack mackerel	*Trachurus symmetricus*	Common in inner to middle harbor and uncommon in Outer Harbor, primarily in deep water[1]
Pacific Coast Groundfish Fishery Management Plan		
English sole	*Parophrys vetulus*	Rare, 2 collected in Outer Harbor in 2000[1]
Pacific sanddab	*Citharichthys sordidus*	Common, primarily Outer Harbor deep water areas in 2000[1]
Leopard shark	*Triakis semifasciata*	Rare, 3 collected, all in shallow water[1]
California skate	*Raja inornata*	Uncommon, Outer Harbor in shallow water[1]
Big skate	*Raja binoculata*	Uncommon, primarily in shallow water[1]
Black rockfish	*Sebastes melanops*	Uncommon, primarily in Cabrillo Shallow Water Habitat[1]
Kelp rockfish	*Sebastes atrovirens*	Rare, in kelp along breakwater[2]
Calico rockfish	*Sebastes dalli*	Rare, 1 collected in Long Beach Harbor[4]
Vermillion rockfish	*Sebastes miniatus*	Rare, 4 collected in deep inner to middle harbor waters[1]
California scorpionfish	*Scorpena guttatta*	Common in rock dikes and breakwaters, also on soft bottom at night[1-4]
Grass rockfish	*Sebastes rastrelliger*	Rare, 2 collected in Pier 300 Shallow Water Habitat and 1 in Long Beach Harbor[1]
Olive rockfish	*Sebastes serranoides*	Common, juveniles in kelp around breakwater[2]
Bocaccio	*Sebastes paucispinis*	Uncommon, juveniles in kelp around breakwater[2]
Cabezon	*Scorpaenichthys marmoratus*	Rare, shallow water[1]
Lingcod	*Ophiodon elongatus*	Rare, shallow water[1]
Source 1. MEC 2002; 2. MEC 1999; 3. MEC 1988; 4. SAIC and MEC 1997		

Like the anchovy, Pacific sardine, Pacific mackerel, and jack mackerel are coastal fish species that feed on planktonic organisms (Froese and Pauly 2005). However, in contrast to the anchovy, these species spawn offshore, in the open water areas, and their larvae primarily develop as part of the pelagic plankton in the Pacific Ocean, using kelp forests and ocean piers as shelter from predators (Fitch 1974; Collette and Nauen 1983; Kailola et al. 1993). In addition, no larvae of sardine, Pacific mackerel, and jack mackerel were found in the Los Angeles or Long Beach Harbors in the 2000 Baseline Study and the abundances of adults were also substantially lower than that of the anchovy (less than 0.15% of the total fish caught) (MEC Analytical Systems Inc., 2002). Due to the ability of the adult Pacific sardine, Pacific mackerel, and jack mackerel to relocate from an oil-contaminated area, and the lack of their larvae and eggs within the harbors, it is unlikely that a large oil spill would impact these fisheries in the long-term; however, short-term effects of oil exposure may be experienced some individuals within the area of the spill.

The effects of an oil spill on the Pacific sanddab would likely be similar to that of the Pacific sardine, Pacific mackerel, and the jack mackerel, because of their low abundance in Los Angeles Harbor. Specifically, only five sanddab eggs were found in the 2000 Baseline Study and no larvae were detected. In addition, Pacific sanddab larvae are known to develop as part of the open water or pelagic plankton in the Pacific Ocean, and not within bays or inlets such as the Los Angeles Harbor (Materese et al. 1989). Finally, Pacific sanddab juveniles and adults prefer sandy sediment found along the coast over fine sediment, such as that found near Pier 400 (Froese and Pauly 2005). These findings indicate that while Pacific sanddabs may enter Los Angeles harbor, their presence is only transitory because of their preference for coastal habitats.

3.0 IMPACTS TO BIOLOGICAL RESOURCES

4.0 REFERENCES

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