3.5 BIOLOGICAL RESOURCES (MARINE)

Due to the onshore and offshore components of the Project, impacts to Biological Resources in this MND are assessed in two sections: Section 3.4, Biological Resources (Terrestrial), which discusses potential impacts from onshore activities including work proposed within the LFCPF tunnel; and Section 3.5, Biological Resources (Marine), which discusses potential impacts from activities to be conducted from Project vessels and platforms.

BIOLOGICAL RESOURCES (MARINE) - Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

3.5.1 Environmental Setting

3.5.1.1 Benthic Environment

The environmental setting for the Project includes both nearshore and offshore locations. As shown in Figure 3.5-1, the nearshore site is located on the Gaviota coast, near the mouth of Corral Creek, west of El Capitan SB. Figures 3.5-2 and 3.5-3 show the bathymetry, seafloor habitats, and eelgrass beds within the Project area and the boundaries of the State Marine Protected Areas (MPA) and Federal protected areas within the Project region. The nearshore marine habitats and biota are typical of those found in similar water depths along the Santa Barbara Channel coastline. The seafloor habitat inshore of the 35 foot (11 m) isobath includes armor rock covering existing pipelines and conduits, boulder fields, broken rock, and bedrock ridges interspersed with sand. A 20- to 50-foot-wide (6- to 15-m-wide) sand channel runs parallel to. and on the eastern side of. the conduits and west of the Pacific Offshore Pipeline Company (POPCO) pipeline into about 30 feet (9 m) of water. The sand channel was created during the 1983 installation of the POPCO pipeline (de Wit 2002). The seafloor in water depths of 35 feet (11 m) and deeper is predominantly sedimentary.

The nearshore rock and boulder fields are typical of areas influenced by coastal streams and the shale ridges, and are characteristic of the nearshore solid substrate found throughout the area (de Wit 2002). Within the nearshore pipeline corridor and adjacent areas, these habitats extend to approximately the 35 foot (11 m) isobath and generally support a mixed flora of brown algae (*Macrocystis* spp., *Desmarestia* spp, *Pterygophora californica*, and *Egregia menziesii*), patchy turf red algal complex comprising, among others, species of *Gracillaria* sp., *Rhodymenia* sp., *Gracilariopsis* sp., and various coralline algae. Red and purple urchins (*Strongylocentrotus franciscanus,* and *S. purpuratus*) are common to locally abundant (Padre Associates Inc. 2011a). Other common macroinvertebrates include sea cucumbers (*Parastichopus* spp.), bat stars (*Asterina [=Patria] miniata*), giant and sun stars (*Pisaster giganteus*, and *Pycnopodia helianthoides*, respectively), Kellet's whelk (*Kelletia kelletii*), the sea hare (*Aplysia californica*), and the giant keyhole limpet (*Megathura crenulata*). Spiney Lobsters (*Panulirus interruptus*) are present in the crevices between the individual rocks. Recruit and juvenile-size giant kelp plants are also present on the rock substrates and on the exposed portions of the existing pipelines. In the most recent survey (Padre Associates Inc. 2011a) juvenile *Macrocystis pyrifera*, were common to abundant in water depths deeper than 12 feet (4 m) and where urchins were not present; adult *Macrocystis* were only common on the armor rock at and around the conduits. Fish species reported in Padre Associates Inc. (2011a) include kelp bass (*Paralabrax clathratus*), barred sandbass (*P. nebulifer*), senorita (*Oxyjulis californica*), and surfperch, including the white, black, and pile perch (*Phanerodon furcatus, Embiotoca jacksoni,* and *Rachochilus toxotes*, respectively).

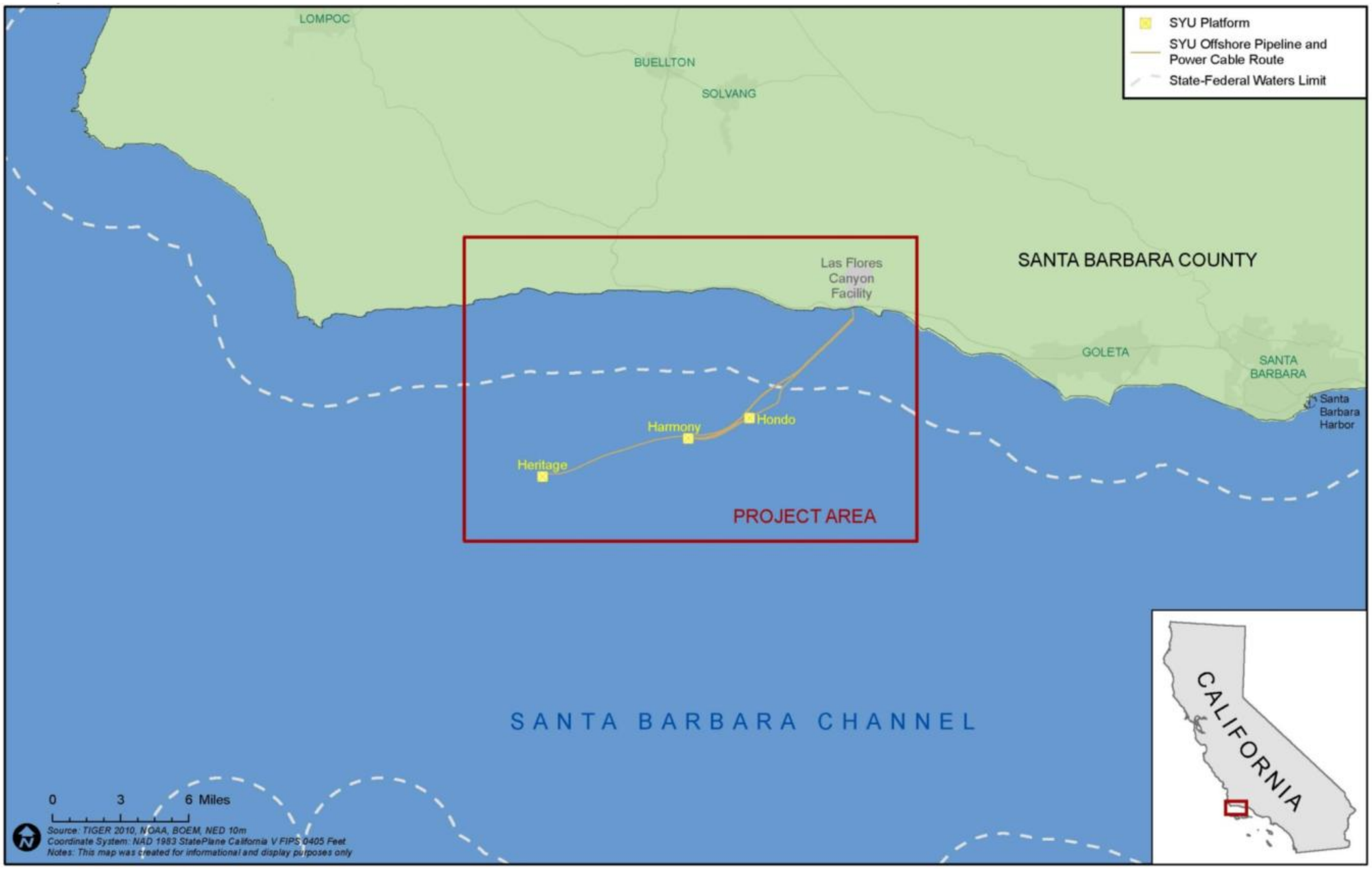

Figure 3.5-1. Project Site Location

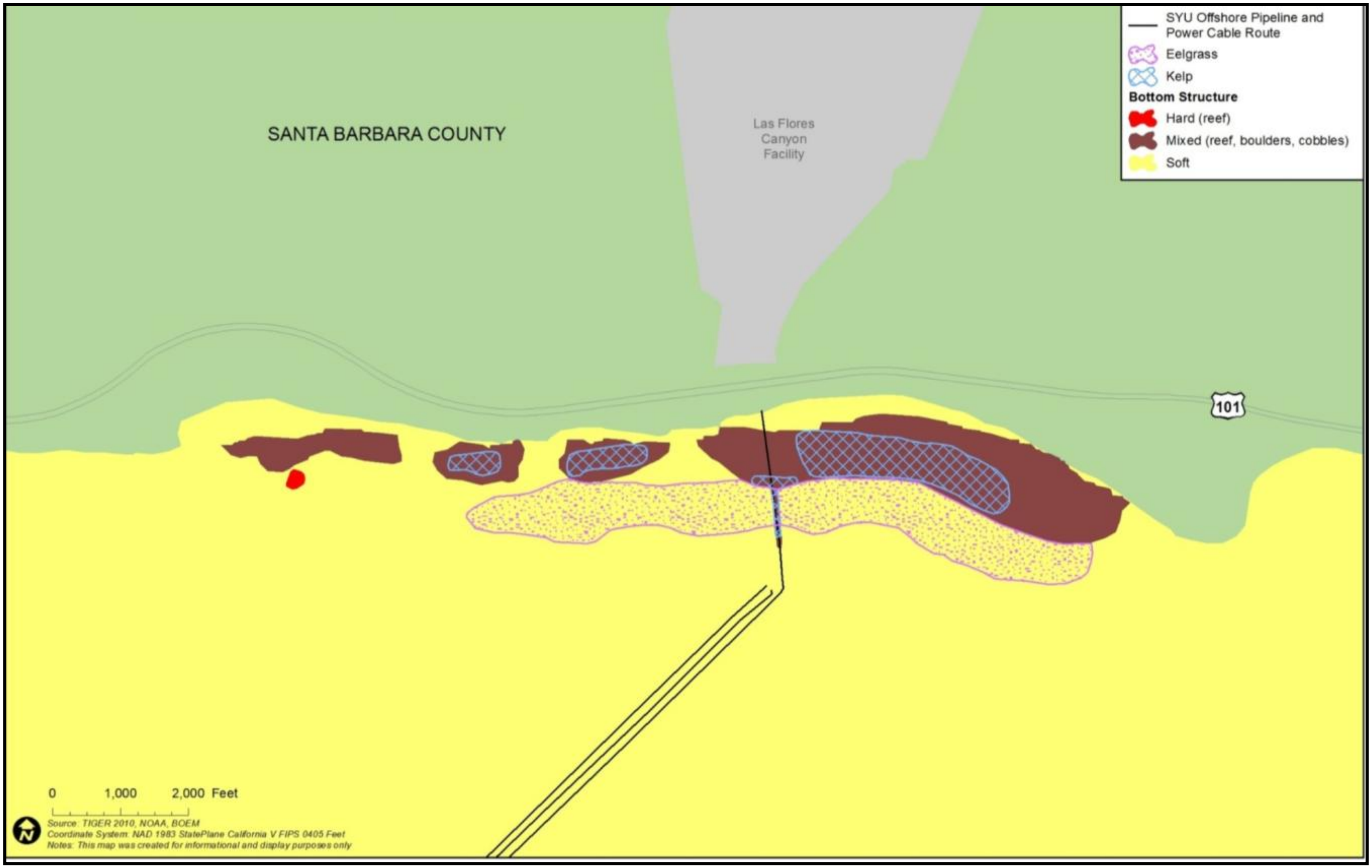

Figure 3.5-2. Hard Bottom, Eelgrass, and Kelp Resources within the Project Area

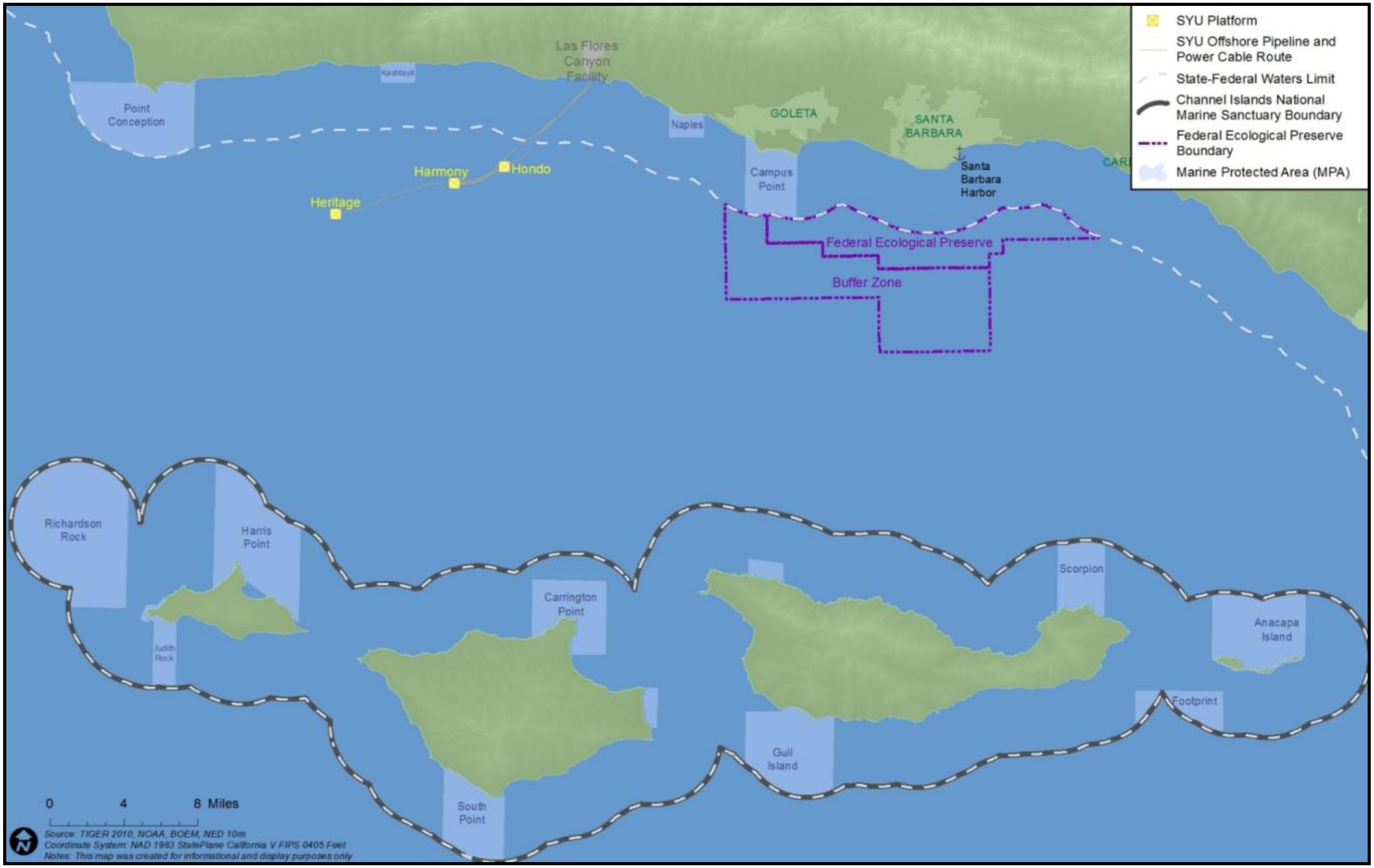

Figure 3.5-3. Marine Protected Areas in Proximity to the Project Area

The nearshore sedimentary habitat supports abundant polychaete worms (*Diopatra ornata*), sand stars (*Astropecten* sp.), and sand dollar (*Dendraster excentricus*) communities. Surf grass (*Phyllospadix torreyi*), which is attached to the underlying rock but is partially covered with sand, is common in water depths of from 10 to 15 feet (3 to 5 m). Further offshore within the Project area, sedimentary habitat dominates, and relatively large and scattered patches of eelgrass (*Zostera* sp.) are found in water depths from 30 to approximately 45 feet (9 to 14 m). Historically, eelgrass has not been found inshore of the 30 foot (9 m) isobath at the nearshore SYU site (de Wit 2002); however, it was found in 25 feet (<8 m) during the 2011 survey (Padre Associates Inc. 2011a). The eelgrass density varies by year, season, and water depth. Figure 3.5-2 shows the bathymetry, seafloor habitats, and eelgrass beds within the Project area to a depth of approximately 90 feet as recorded by Fugro during the 2011 pre-Project seafloor habitat survey (Padre Associates Inc. 2011a).

The seafloor habitat in water depths of 50 feet (15 m) to the Project platforms in 800 to 1,200 feet (244 to 366 m) of water is sedimentary, consisting of silts and clays. Silty sediments surround the offshore platforms and lay between Platforms Harmony and Hondo. Isolated rocky features have been recorded along the OCS break in 300 to 400 feet (91 to 122 m) of water and approximately one mile (<2 km) northeast of Platform Hondo (Science Applications, Inc. [SAI] 1984a). High resolution geophysical data (side-scan sonar) reported in ExxonMobil (2002a) indicate that the OCS break hardbottom habitat within the pipeline/cable corridor consists of a few low- to medium-relief (1 to 5 feet [< 1 to < 2 m]) features in water depths between 265 and 445 feet (80 and 135 m). SBC (2003) noted a number of species in this OCS-break rocky habitat including the solitary coral *Paracyathus stearnsi*; the anemones *Metridium senile* and *Corynactis californica*; the crinoid *Florometra serratissima*, the sea star *Mediaster aequalis*; and various species of hydroids, tube worms, bryozoans, and sponges. In addition, the rocky areas provide shelter/habitat for several species of rockfish (*Sebastes* spp.), as well as shelter for several crab species (e.g., *Cancer anthonyi*). The de Wit (2003) report discusses the results of a review of video recorded during the installation of Cable C-1 in water depths between 280 and 410 feet (85 and 137 m). That report supports observations noted in the 2003 Mitigated Negative Declaration/Environmental Assessment for the ExxonMobil Offshore Power System Repair Project (SBC 2003) which indicate that scattered rock along the C-1 Cable route is most common in water depths of 295 and 410 feet (90 and 125 m) and supports many of the same epibiota referenced in the earlier reports.

The deeper water sedimentary habitat-associated macroepibiota is characterized by two sea pen species, *Acanthoptilum gracile* and *Stylatula elongata*; sea cucumber *Parastichopus californicus*; and pink sea urchin *Allocentrotus fragile*. Evidence of superficially buried rocks was noted due to the presence of solitary coral (*Paracyathus* sp.) and anemones (*Metridium* sp.) protruding from an otherwise sedimentary seafloor.

Seapens, seastars, sea urchins, shrimp, and sea cucumbers dominate the soft bottom macroepibiota in the area (SBC 2003), whereas polychaete worms, clams, and amphipods characterize the infauna (SBC 2003).

The proposed route has been selected to minimize impacts to rocky habitat areas at the shelf-break. The OCS-break feature is located 4 to 5 miles (6.5 to 8.0 km) from shore, in water depths ranging from 340 to 450 feet (105 to 140 m), and is approximately 1,600 feet (490 m) long and between 25 and 50 feet (7.5 and 15.5 m) wide with between 1 and 3 feet (0.5 to 1.0 m) of vertical relief. C&C Technologies (2012) indicated that the OCS edge rock area transects reveals sparsely scattered outcrops. The replacement route for the cables lies across the OCS break area and is within the previously designated and approved pipeline/cable corridor which is within the State Lands Lease Right-of-Way.

Geophysical data (side-scan sonar) of the seafloor indicate an area of scattered higher-relief solid substrate from 800 to 1,000 feet (245 to 365 m) south of Platform Heritage (ExxonMobil 2002a). Video from an remotely operated vehicle (ROV) survey (ExxonMobil 2002b) of the proposed cable route reveals that this area is all low-relief (< 1 feet [< 0.5 m]) consolidated sediment or clay lumps with no observable epibiota. There are no hardbottom areas around the Project platforms in or near the path of the Project.

3.5.1.2 Marine Protected Areas and Sensitive Habitats

Activities associated with the Project will be restricted to a series of narrow corridors around the existing SYU pipelines and cables. The closest State MPA to the proposed activities is the Naples State Marine Conservation Area (SMCA), which extends approximately 1.8 statute miles (2.9 km) offshore and approximately 1.8 statute miles (2.9 km) east and west of Naples (see Figure 3.5-3). The western boundary of the Naples SMCA is 4.5 statute miles (7.2 km) southeast of the SYU activities. Based on the proposed mitigations no negative effects on that MPA, or any other environmentally-sensitive area, are expected. Figures 3.5-2 (above), 3.5-4, and 3.5-5 depict the various sensitive habitats within the Project region as obtained from the public domain references sited. Essential Fish Habitat for pelagic taxa would be considered the marine waters within the Project area, while other taxa would use various Habitats of Particular Concern (HAPC), which include kelp and eelgrass beds, and the rocky and sedimentary seafloor habitats shown in the aforementioned figures.

Information on the marine mammal haulout was provided by NMFS (2011a), while Weller and Brownell (2012) was the source for the gray whale migration corridors. Eelgrass and kelp areas were adapted from Fugro Consultants (2011).

3.5.1.3 Marine Mammals and Turtles

At least 29 species of marine mammals inhabit or visit Southern California (California/Mexico Border to Point Conception) waters. These include five species of pinnipeds (seals and sea lions) one species of fissiped (sea otter), 23 species of cetaceans (whales, porpoises, and dolphins), and the southern sea otter (Allen et al. 2011). In addition, four species of marine turtles could occur within the Project area.

In the U.S., two laws currently regulate human activities where marine mammals and turtles might be adversely affected. These include the Marine Mammal Protection Act of 1972 (MMPA), which prohibits the intentional taking, import, or export of any marine mammal without a permit, and the Endangered Species Act of 1973, which extends similar protection to species listed as threatened or endangered. The threatened or endangered species found in southern California waters include six whales (blue, humpback, fin, sei, northern right, and sperm whales), one pinniped (Guadalupe fur seal), the southern sea otter, and four marine turtles (Pacific Ridley, loggerhead, leatherback, and green turtles).

Cetaceans. As many as 21 species of Cetaceans (whales, dolphins, and porpoises), use area waters as year-round habitat and calving grounds, important seasonal foraging grounds, or annual migration pathways (Figure 3.5-4). This includes six species currently listed as Endangered (North Pacific Right whale, Humpback whale, sei Whale, fin whale, blue whale and sperm whale). All other cetacean species fall under the protection of the Marine Mammal Protection Act.

Two of the endangered whale species, the blue whale (*Balaenoptera musculus*) and humpback whale (*Megaptera novaeangliae*), usually feed on krill in the western Santa Barbara Channel and southern Santa Maria Basin during summer and fall (Forney et al. 2000; Carretta et al. 2013).

Although also present in the Channel year round, fin whales (*Balaenoptera physalus*) generally are distributed somewhat farther offshore and south of the northern Channel Island chain (Allen et al. 2011). The other two endangered baleen whales, sei (*Balaenoptera borealis*) and northern right whales (*Eubalaena japonica*), are rare in California waters (Carretta et al. 2013; Allen et al. 2011).

Sperm whales (*Physeter macrocephalus*), also an endangered species, are present offshore California year-round, with peak abundance from April to mid-June and again from late August through November (Allen et al. 2011). They are primarily a pelagic species and are generally found offshore in waters with depths of greater than 3,200 feet (1,000 m) (Allen et al. 2011).

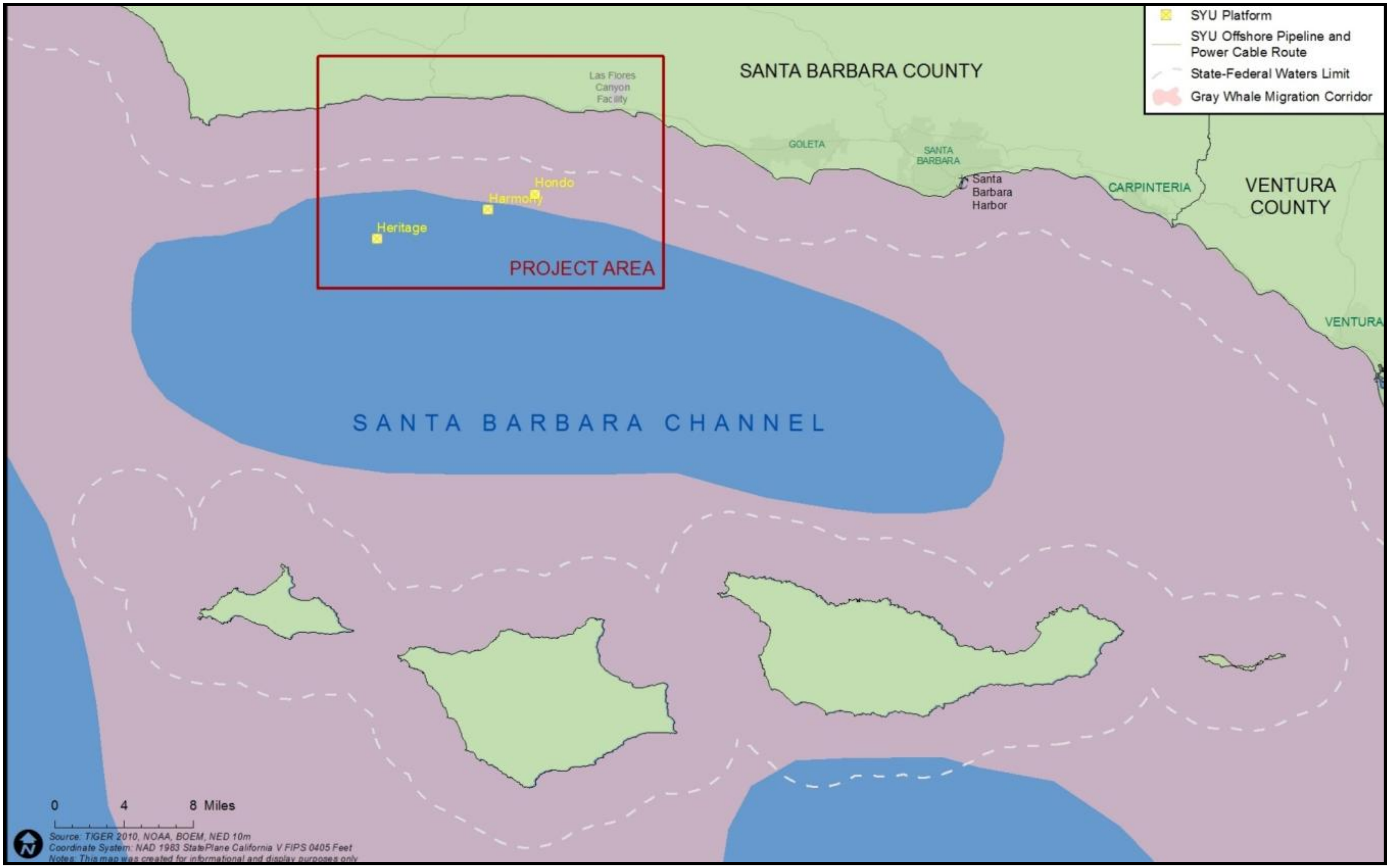

Figure 3.5-4. Gray Whale Migration Corridors

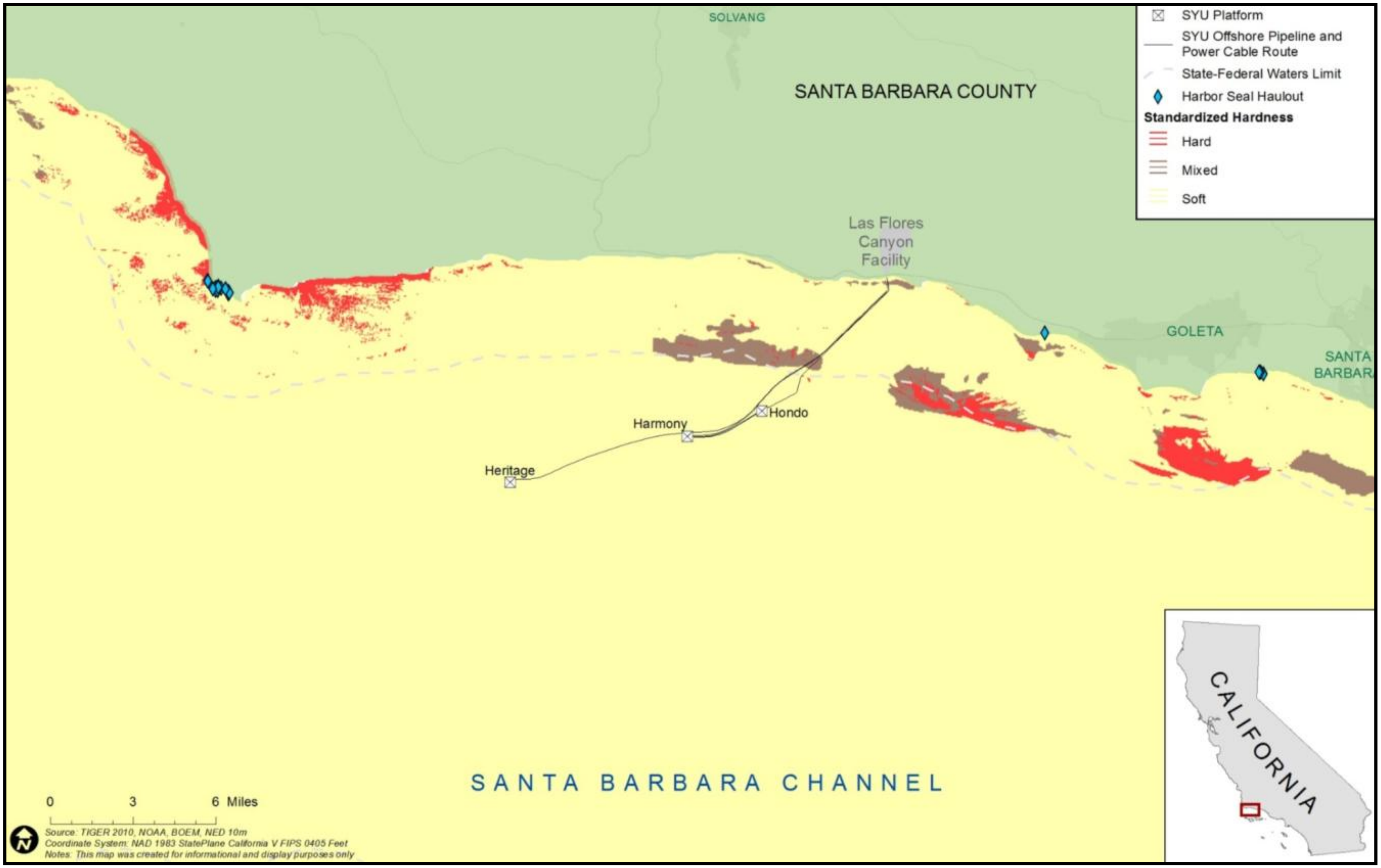

Figure 3.5-5. Marine Mammal Haulouts and Hard Bottom Habitat in Project Area

The California gray whale (*Eschrichtius robustus*) migrates through southern California waters twice a year on its way between Mexican breeding lagoons and feeding grounds in the Bering Sea. The southbound migration of gray whales through the Southern California Bight begins in December and lasts through February; the northbound migration is more prolonged, lasting from February through May with a peak in March (Allen et al. 2011). The northward migration occurs in two "waves" (Poole 1984, NMFS 2014a). The first, composed mainly of whales other than cows with calves, begins moving northward in February (NMFS 2014a). The second, cow/calf phase of the spring migration generally peaks seven to nine weeks after the peak of the first (Poole 1984; Allen et al. 2011; NMFS 2014a). Although individual animals may be sighted throughout the year, gray whales are generally absent from southern California waters from August through November. Padre Associates Inc. (2012b) reported observing two gray whales during the month of April while surveying the SYU cable corridor.

Minke whales (*Balaenoptera acutorostrata*), the smallest of the baleen whales, occur year-round in southern California waters (Forney et al. 2000; Allen et al. 2011), where they are often sighted near the northern Channel Islands (Leatherwood et al. 1987; Allen et al. 2011). One Minke whale was reported by the Marine Mammal Consulting Group (MMCG 2003)

The small odontocetes, or toothed whales, most often seen in the Project area are common dolphins (*Delphinus* spp.), Dall's porpoise, Risso's dolphin (*Grampus griseus*), Pacific white-sided dolphin, and bottlenose dolphin (Allen et al. 2011). Common dolphins, the most abundant cetaceans off California, move through area waters in groups of up to several thousand animals. Bottlenose dolphins are most commonly encountered along the shoreline. Common dolphins (all identified as the long-beaked species *C. capensis*) were most abundant species reported by MMCG (2003). Likewise, Padre Associates Inc. (2011b, 2012b) reported common dolphin as the most abundant (1,211 individuals), but did not separate the two species. Dall's porpoise (22 individuals) and Pacific white-sided dolphins (310 individuals) were also recorded by MMCG (2003). Six bottlenose dolphins and five killer whales were reported by Padre Associates, Inc. (2011b).

Marine mammal observers onboard the Cable Vessel *Giulio Verne* during the 15-day October-November 2003 installation of the C-1 Cable, recorded a total of 3,069 individuals including four cetacean species. These included: long-beaked common dolphin, Pacific white-sided dolphin, Dall's porpoise, and Minke whale. Two sightings of unidentified whales were also recorded during that period (MMCG 2003).

Similar marine mammal observations were recorded during geophysical surveys along the SYU pipeline/cable corridors (Padre Associates Inc. 2011b, 2012b). During the April and September observation periods, 1,712 individuals representing were recorded:

common dolphin (*Delphinus* spp.), California gray whale, bottlenose dolphin, and killer whale. Twenty-five unidentified dolphins were also recorded (Padre Associates Inc. 2011b, 2012b).

Pinnipeds. Five species of pinnipeds (seals and sea lions) are known to occur within Southern California. These include California sea lions (*Zalophus californianus*), Guadalupe fur seals *(Arctocephalus townsendi*), Pacific harbor seals (*Phoca vitulina richardsi)*, Northern elephant seals (*Mirounga angustirostris*) and northern fur seals *(Callorhinus ursinus).* One of these species, the Guadalupe fur seal is listed as threatened.

Most pinnipeds common to the Project area breed on the Channel Islands and on offshore rocks and isolated beaches along the mainland coast (Figure 3.5-5 depicts the location of haul-outs and rookeries near the Project area); thousands also move through the area during their annual migrations. However, Guadalupe fur seals do not breed in the area and presently are uncommon in southern California waters (DeLong and Melin 2000; Allen et al. 2011).

California sea lions and harbor seals, commonly occur in the Santa Barbara Channel and nearshore waters of the Santa Maria Basin. Sea lions haul out on the lower decks and structures of OCS platforms and on associated mooring buoys. MMCG (2003) reported 424 sea lions, but no harbor seals during the C-1 Cable Project observation period. Padre Associates Inc. (2011b, 2012b) recorded 458 sea lions and four harbor seals during the September 2011 and April 2012 observations.

Harbor seals haul out on nearshore rocks and beaches along the mainland coast and on the northern Channel Islands; major mainland haul-out sites near the Project area are located near the Carpinteria Pier, Dos Pueblos, Ellwood Pier, Point Conception, and Rocky Point (Figure 3.5-5) (NMFS 2011).

Northern elephant seals and northern fur seals also breed on San Miguel Island, but are uncommon in Project area waters (SBC 2003; Allen et al. 2011). Elephant seals range widely at sea and spend much of their time underwater (Allen et al. 2011). Fur seals forage in deeper waters beyond the continental shelf, generally 20 nautical miles (nm) (40 km) or more from shore (Allen et al. 2011).

Marine mammal observers onboard the Cable Vessel (CV) *Giulio Verne* during the 15 day October-November 2003 installation of the C-1 Cable recorded one species of pinniped (California sea lion) in the Project area. Similar marine mammal observations were recorded during geophysical surveys along the SYU pipeline/ cable corridors (Padre Associates Inc. 2011b, 2012b).

Fissipeds. Only one species of fissiped occurs in the Project region, the southern sea otter. The southern sea otter is listed as threatened under the FESA, “depleted” under the MMPA, and “fully protected” under California Fish and Game Code. The southern sea otter is a year-round resident of the mainland coast north of Point Conception, is appearing in increasing numbers in the western Channel and around the northern Channel Islands (USFWS 2003). Specifically, southern sea otters now range in nearshore waters from San Mateo County in the north to SBC in the south (USFWS 2014). Since 1998, 100 to 150 sea otters have moved south and east of Point Conception along the Channel in the early spring, with most returning to waters north of the Point by mid-summer (USFWS 2003). One individual was recorded in the nearshore segment of the SYU during the 2011 geophysical survey (Padre Associates Inc. 2011b).

Marine Turtles. Four species of marine turtles could occur within the Project area: Pacific Ridley turtle (*Lepidochelys olivacea*), loggerhead turtle (*Caretta caretta*), leatherback turtle (*Dermochelys coriacea*), and green turtle (*Chelonia mydas*). All four turtles are listed as endangered under the U.S. Endangered Species Act.

In the eastern Pacific, most of the turtles nest along the coasts of Mexico and Central America. The nesting season or cycle varies greatly between species, but is generally from May to September. Sea turtles breed at sea; and the females return to their natal beaches to lay their eggs. Female turtles can nest several times in a season but at two to three-year intervals. The eggs, after being laid in the sand, hatch in about two months; and the young instinctively head for the sea (MFS Globenet Corp./WorldCom Network Services [MFS/WCNS] 2000). General distribution and species specific information is provided in the following paragraphs.

Green sea turtles generally occur worldwide in waters with temperatures above 20° Celsius (MFS/WCNS 2000). Green sea turtles have been reported as far north as Redwood Creek in Humboldt County and off the coasts of Washington, Oregon, and British Columbia (MFS/WCNS 2000; National Oceanic and Atmospheric Administration [NOAA] 2008). The green sea turtle is thought to nest on the Pacific coasts of Mexico, Central America, South America, and the Galapagos Islands. There are no known nesting sites along the west coast of the U.S., and the only known nesting location in the continental U.S. is on the east coast of Florida (MFS/WCNS 2000;). Green sea turtles are sighted year-round in marine waters off the southern California coast, with the highest concentrations occurring during July through September.

The olive Ridley sea turtle is distributed circumglobally and is regarded as the most abundant sea turtle in the world (Eguchi 2007). Within the east Pacific, the normal range of Pacific Ridley sea turtles is from Southern California to Peru (NOAA 2008). However, they have been reported as far north as Washington, Oregon, and are a rare visitor to the California coast (MFS/WCNS 2000). Major nesting beaches are located on the Pacific coasts of Mexico and Costa Rica (MFS/WCNS 2000; Eguchi 2007).

Leatherback sea turtles are the most common sea turtle off the west coast of the U.S. (NOAA 2008). Leatherback sea turtles have been sighted as far north as Alaska and as far south as Chile (MFS/WCNS 2000; NOAA 2008). Their extensive latitudinal range is due to their ability to maintain warmer body temperatures in colder waters (MFS/WCNS 2000). Off the U.S. west coast, leatherback turtles are most abundant from July to September. It has been noticed that their appearance off the U.S. west coast is "two pronged" with sightings occurring in northern California, Oregon, Washington, and southern California, with few sighting occurring along the intermediate coastline. In southern California waters, leatherback turtles are most common during the months of July through September, and in years when water temperatures are above normal.

3.5.1.4 Essential Fish Habitat

Under Section 305 (b) (2) of the Magnuson Fishery Conservation and Management Act (16 USC 1801 et seq.) as amended by the Sustainable Fisheries Act in 1996, Federal agencies must consult with the Secretary of Commerce on any actions that may adversely affect Essential Fish Habitat (EFH). The Department of Commerce published a final rule (50 CFR Part 600) in the Federal Register (January 17, 2002, Vol. 67, No. 12) that detailed the procedures under which Federal agencies would fulfill their consultation requirements. Congress defined EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (16 USC 1802(10)). The EFH regulations further interpret the EFH definition as follows. “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate. “Substrate” includes sediment, hardbottom, structures underlying the waters, and associated biological communities. “Necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem. “Spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle.

Section 600.920 (e)(1) of the final rule states that Federal agencies may incorporate an EFH Assessment into documents prepared for other purposes such as NEPA documents. Section 600.920 (h) describes the abbreviated consultation process that the Bureau of Safety and Environmental Enforcement (BSEE) and SBC is following for the Project proposed by ExxonMobil. The purpose of the abbreviated consultation process is to address specific Federal actions that may adversely affect EFH, but do not have the potential to cause substantial adverse impacts. Sections of this document are intended to serve as an assessment for EFH consultation. As set forth in the regulations, EFH Assessments must include: 1) a description of the action; 2) an analysis of the potential adverse effects of the action on the managed species and EFH; 3) the Federal agency’s conclusions regarding the effects of the action on managed species and EFH; and 4) proposed mitigations if applicable.

NOAA (2014) identifies four HAPC within the southern California area: estuaries, rocky reefs, seagrass beds, and kelp beds. HAPCs are defined as discrete subsets of EFH that provide important ecological functions and/or are especially vulnerable to degradation. The HAPC designation does not necessarily confer additional protection or restrictions upon an area, but it helps prioritize and focus conservation efforts. Although these habitats are particularly important for healthy fish populations, other EFH areas that provide suitable habitat functions are also necessary to support and maintain sustainable fisheries and a healthy ecosystem (NOAA 2014).

Species Managed under Fishery Management Plans (FMP). The environmental setting for the Project includes both nearshore and offshore locations. The Pacific Fishery Management Council (PFMC) manages 90 species of fish under three Fishery Management Plans: 1) Coastal Pelagics Fishery Management Plan (CPFMP); 2) Pacific Salmon Fishery Management Plan; and 3) Pacific Groundfish Fishery Management Plan (PGFMP). Many, but not all, of the managed species could be found during all or part their life cycle within the areas where the Project would take place.

The nearshore site is located on the Gaviota coastline in the northwestern Santa Barbara Channel. At least 15 species listed under the PGFMP and two species listed under the CPFMP frequent kelp beds and reefs in less than 120 feet (40 m) of water off the coast of Santa Barbara, California, and could be present during some life stages in the nearshore Project area (Table 3.5-1) (SBC 2003; Leet et al. 2001). The pelagic species could be present for short-time periods as schooling adults whereas many of the groundfish species could be present for longer time periods as both adults and juveniles. The juveniles of many rockfish species use the shallow-water algae and kelp canopies during early development before settling over deeper water or to the bottom. Benthic rockfish juveniles could be found in *Sargassum* and eelgrass beds. Cabezon, lingcod, and greenlings could be present as adults, in egg masses (nests) on substrate, and as settled juveniles in *Sargassum*, kelp or eelgrass beds (Leet et al. 2001; Love 1996).

Table 3.5-1. Fish Species Managed Under Pacific Fishery Management Plans

Management Plan	Common Name	Scientific Name	Location in Project Area		
			Near-shore	Cable Corridor	Under platforms
Managed under CPFMP	Northern anchovy	*Engraulis mordax*	x	x	x
	Market squid	*Loligo opalescens*		x	
	Pacific sardine	*Sardinops sagax*		x	x
	Pacific mackerel	*Scomber japonicas*		x	
	Jack mackerel	*Trachurus symmetricus*	x	x	x
		Total	**2**	**5**	**3**
Managed under PGFMP	Sablefish	*Anoplopoma fimbria*		x	
	Pacific sanddab	*Citharichthys sordidus*		x	x
	Petrale sole	*Eopsetta jordani*		x	
	Soupfin shark	*Galeorhinus galeus*		x	

Management Plan	Common Name	Scientific Name	Location in Project Area		
			Near-shore	Cable Corridor	Under platforms
	Kelp greenling	*Hexagrammos decagrammus*	x		x
	Ratfish	*Hydrolagus colliei*		x	
	Pacific whiting	*Merluccius productus*			x
	Dover sole	*Microstomus pacificus*		x	
	Lingcod	*Ophiodon elongates*	x	x	x
	English sole	*Parophrys vetulus*		x	
	Curlfin sole	*Pleuronichthys decurrens*		x	
	California skate	*Raja inornata*		x	
	California scorpionfish	*Scorpaena guttata*	x	x	x
	Cabezon	*Scorpaenichthys marmoratus*	x		x
	Kelp rockfish	*Sebastes atrovirens*	x		x
	Brown rockfish	*Sebastes auriculatus*			x
	Aurora rockfish	*Sebastes aurora*		x	
	Gopher rockfish	*Sebastes carnatus*	x	x	x
	Copper rockfish	*Sebastes caurinus*	x	x	x
	Greenspotted rockfish	*Sebastes chlorostictus*		x	x
	Black-and-yellow rockfish	*Sebastes chrysomelas*	x		x
	Starry rockfish	*Sebastes constellatus*		x	x
	Darkblotched rockfish	*Sebastes crameri*			x
	Calico rockfish	*Sebastes dalli*	x	x	x
	Greenstriped rockfish	*Sebastes elongates*		x	x
	Widow rockfish	*Sebastes entomelas*		x	x
	Yellowtail rockfish	*Sebastes flavidus*			x
	Chilipepper	*Sebastes goodie*		x	x
	Squarespot rockfish	*Sebastes hopkinsi*			x
	Cowcod rockfish	*Sebastes levis*		x	x
	Black rockfish	*Sebastes melanops*			x
	Blackgill rockfish	*Sebastes melanostomus*		x	
	Vermilion rockfish	*Sebastes miniatus*			
	Blue rockfish	*Sebastes mystinus*	x		x
	China rockfish	*Sebastes nebulosus*	x		
	Speckled rockfish	*Sebastes ovalis*		x	
	Bocaccio	*Sebastes paucispinis*		x	x
	Canary rockfish	*Sebastes pinniger*			x
	Grass rockfish	*Sebastes rastrelliger*	x		x
	Rosy rockfish	*Sebastes rosaceus*			x
	Greenblotched rockfish	*Sebastes rosenblatti*			x
	Yelloweye rockfish	*Sebastes ruberrimus*			x
	Flag rockfish	*Sebastes rubrivinctus*		x	x
	Bank rockfish	*Sebastes rufus*		x	x
	Stripetail rockfish	*Sebastes saxicola*		x	x
	Olive rockfish	*Sebastes serranoides*	x		x
	Treefish rockfish	*Sebastes serriceps*	x		x
	Honeycomb rockfish	*Sebastes umbrosus*		x	x
	Sharpchin rockfish	*Sebastes zacentrus*			x
	Thornyhead	*Sebastolobus sp.*		x	x
	Spiny dogfish	*Squalus acanthias*		x	x
	Leopard shark	*Triakis semifasciata*	x	x	
		Total	**15**	**31**	**39**

Species sorted by scientific name.

Seafloor habitat within the cable corridor is predominantly sedimentary and extends southwesterly for about 16 miles (25 km) to Platform Heritage. Some rocky habitat exists along the OCS break and eelgrass and kelp have been documented within the nearshore (to water depths of approximately 45 feet [14 m]) portion of the corridor (Padre Associates Inc. 2011a). At least 31 species listed under the PGFMP and all five species listed under the CPFMP could be found in this region between the SYU nearshore area and around the Project platforms and could be present during some life stages in the Project area (Table 3.5-1) (Orr et al. 1998; Leet et al. 2001; Pacific Fishery Management Council 2001a; b).

The three Project platforms are located from about 15 to 18 miles (24 to 29 km) to the southwest of the nearshore site. At least 39 species listed under the PGFMP and three species listed under the CPFMP frequent platforms within the Santa Barbara Channel and could be present during some life stages in the offshore Project area (Table 3.5-1) (Love et al. 1999; Schroeder 1999b). The pelagic species could be present for short-time periods as schooling adults whereas many of the groundfish species could be present for much longer time periods as both adults and juveniles. Adult rockfish, cabezon, lingcod, and greenlings may become semi- to permanent residents and young-of-the-year rockfish may use mid-water depths under platforms as a nursery area before settling at the platforms or elsewhere (Leet et al. 2001; Love et al. 1999). The planktonic eggs and larvae of many managed species could be present within the water column and therefore pass through the platform structure (Love 1996).

3.5.1.5 Endangered Abalone Species

Although all abalone along the California coastline are considered depleted and no commercial or recreational harvesting of abalone is allowed south of San Francisco, two species, the white and black, are listed as endangered. Unlike more mobile animals, abalone are slow-moving and are confined to a small area for their entire life. They reproduce by broadcasting their eggs and sperm into the seawater. For fertilization to occur, the spawners need to be within 3 feet (1 m) of a member of the opposite sex.

In the 1990s, less than one white abalone (*Haliotis sorenseni)* per acre could be found in surveys conducted by agency biologists. The rarity of this species within its historical center of abundance prompted the NMFS to list it as a candidate species under the FESA in 1997. In 2001, the white abalone became the first marine invertebrate to receive Federal protection as an endangered species. The white abalone is a marine, rocky benthic, herbivorous, broadcast spawning gastropod. The shell is oval-shaped, very thin and deep. They can be up to 10 inches (25 centimeters [cm]), but are usually 5 to 8 inches (13 to 20 cm). This species usually dwells in deep waters from 80 to over 200 feet (24 to 60 m) from Point Conception (southern California) southward to Baja California. White abalone were reported to be more common along the mainland coast at the northern end of the range, while in the mid-portion of the California range it was more common on the islands (especially San Clemente and Santa Catalina Islands) (Cox 1960; Leighton 1972; NMFS 2014b).

This species has occurred in shallower depths near its northernmost limit (Hobday and Tegner 2000). Specifically, localized mainland areas in the Coal Oil Point region, west of Santa Barbara, have supported white abalone in water depths less than 60 feet (20 m) (SBC 2003). Speculation concerning reasons for its presence in shallow water includes competition with red abalone (*H. rufescens*) and/or a localized decrease in predation from sea otters (as reported in Hobday and Tegner 2000). The vertical distribution limits may also be controlled by water temperature. White abalone are found in open low relief rock or boulder habitat surrounded by sand (with a variety of algal/invertebrate cover), usually near the rock-sand interface (Tegner 2000; Lafferty 2001; NMFS 2014b). Sand may be important in forming channels for the movement and concentration of algal drift, although white abalone are reported to feed less on drift material than congeneric species (Hobday and Tegner 2000). Common algae in the white abalone habitat include the kelps (*Laminaria farlowii, Agarum fimbriatum*, *Macrocystis pyrifera*), and a variety of red algae. White abalone may live dozens of years and attain a length of about 10 inches (25 cm). The designation of critical habitat for the white abalone was determined to not be prudent as it could increase the likelihood of poaching (NMFS 2014b).

In January 2009, the black abalone (*H. cracherodii*) was listed as endangered under the FESA. In October 2011, NMFS published the critical habitat for that species (NMFS 2011b). As a result of disease, most black abalone populations in Southern California have declined by 90 to 99 percent since the late 1980s and have fallen below estimated population densities necessary for recruitment success. The black abalone is a shallow-living marine gastropod with a smooth, circular, and black to slate blue colored univalve shell and a muscular foot that allows the animal to clamp tightly to rocky surfaces without being dislodged by wave action. Black abalone generally inhabit coastal and offshore island intertidal habitats on exposed rocky shores from Crescent City, California to southern Baja California, Mexico. Today the species' constricted range occurs from Point Arena, California, to Bahia Tortugas, Mexico, and it is rare north of San Francisco. Black abalone range vertically from the high intertidal zone to a depth of 20 feet (6 m) and are typically found in middle intertidal zones. The Project is not within any of the 12 critical habitat zones for this species designated by NMFS (2011b).

In August 2001, deWit (2001) completed a pre-construction marine biological survey in the nearshore area for the OPSR-A project. The underwater survey centered on a corridor that has armor rock over pipelines and conduits housing existing cables including the failed Cable C1. During the initial survey, a single abalone, assumed to be a white, was observed on the armor rock in 22 feet (7 m) of water approximately 50 feet (15 m) shoreward (north) of the cable conduit terminus. The specimen was not removed, but the white peripodium and highly convex shell with three elevated respiratory pores were characteristic of *H. sorenseni*.

In April 2002, de Wit (2002) completed an Expanded Marine Biological Survey specifically to 1) characterize the habitats and dominant macroepibiota of the nearshore OPSR-A project area and to 2) locate and identify any abalone within two areas. The areas were east and west of the conduit corridor, approximately 825 feet long by 800 feet wide (200 m by 240 m), respectively, and centered on the terminus. The second survey did not find the initial white abalone; however, an empty shell that matched the characteristics of the shell of the single individual was found near its original location. Matching external characteristics of the shell with video taken during the August 2001 survey strongly suggested it was the same animal. The shell was retrieved and it has been confirmed that the individual was a white (hybrid) abalone (SBC 2003). A single mature sea otter was also observed at the site and it is possible that the sea otter had eaten the abalone individual during the period between the two surveys.

The second survey located 21 additional abalone, one of which was thought to be a *H. sorenseni*. This white abalone was located in about 25 feet (8 m) of water about 600 feet (180 m) east and slightly north of the conduit terminus near the base of an isolated boulder (de Wit 2002). In 2011, two pre-Project marine biological surveys were completed for the Project. The first was a nearshore (to water depths of approximately 100 feet [33 m]) diver and towed camera survey of the existing cable corridors, proposed anchoring locations, cable/POPCO pipeline crossing locations, and unidentified targets recorded during an earlier geophysical survey (Padre Associates Inc. 2011a). The second was a deeper-water diver survey at the three cable/POPCO pipeline crossing locations that focused on identifying mollusks that were observed during the earlier survey (Padre Associates Inc. 2012a). An objective of both surveys was to observe, note, and locate abalone that were within the Project area. No abalone were observed during either of the aforementioned surveys.

3.5.1.6 Marine Birds

The Pacific Flyway is a major migratory route for all bird species that travel from the northwestern U.S., Canada, and Alaska to southern California and Central America. This Flyway consists of at least two relatively distinct pathways: the mainland route, which is primary route that parallels the coast approximately 50 to 100 miles (80 to 161 km) inland, and the oceanic route, which is used predominantly by seabirds during their transequatorial migration between the North and South Pacific. A portion of the Pacific Flyway is located off the coast of California, but the exact location can vary depending on weather. Marine birds tend to fly at elevations between 100 and 200 feet (30 to 61 m) above the ocean (Aspen 2008). However, weather conditions, such as wind and fog, can greatly influence flight altitude. Table 3.5-2 provides the seasonal distribution and status of the marine bird taxa which are expected within the Project region.

Table 3.5-2. Marine/Coastal Bird Species Seasonality and Abundance Within or Near the Project Area

FAMILY Common Name	Scientific Name	Status*	Season[4]				Activity		
			Winter	Spring	Summer	Fall	Wintering	Breeding	Migrant
ANATIDAE (Swans, Geese, and Ducks)									
Brant	*Branta bernicla*	M, CSC	x			x	x		x
Surf Scoter	*Melanitta perspicillata*	M	**X**	x		x	x		x
White-winged Scoter	*Melanitta fusca*	M	x			x	x		
Black Scoter	*Melanitta americana*	M	x	x		x	x		
Red-breasted Merganser	*Mergus serrator*	M	**X**	x		x	x		
GAVIIDAE (Loons)									
Red-throated Loon	*Gavia stellata*	M	**X**	x		x	x		x
Common Loon	*Gavia immer*	M	**X**	x		x	x		x
Pacific Loon	*Gavia pacifica*	M	**X**	x		x	x		x
PODICIPEDIDAE (Grebes)									
Horned Grebe	*Podiceps auritus*	M	x	x		x	x		x
Clark's/western Grebe	*Aechmophorus clarkii/ occidentalis*	M	x	x	x	x	x		x
DIOMEDEIDAE (Albatrosses)									
Laysan Albatross	*Phoebastria immutabilis*	M	x	x					x
Black-footed Albatross	*Phoebastria nigripes*	M,BCC		x	x				x
Short-tailed Albatross	*Phoebastria albatrus*	M,FE	x			x			x
PROCELLARIIDAE (Shearwaters and Fulmars)									
Northern Fulmar	*Fulmarus glacialis*	M	**X**	x		x	x		
Cook's Petrel	*Pterodroma cookii*	M		x	x				x
Pink-footed Shearwater	*Puffinus creatopus*	M,BCC	x		**X**	x	x		x
Flesh-footed Shearwater	*Puffinus carneipes*	M		x		x			x
Buller's Shearwater	*Puffinus bulleri*	M			x	x			x
Sooty Shearwater	*Puffinus griseus*	M		**X**	**X**	**X**			x
Short-tailed Shearwater	*Puffinus tenuirostris*	M	x			**X**	x		x
Black-vented Shearwater	*Puffinus opisthomelas*	M,BCC	**X**		x	x	x		
HYDROBATIDAE (Storm Petrels)									
Fork-tailed Storm-Petrel	*Oceanodroma furcata*	M,CSC	x	x		x	x		x
Leach's Storm-Petrel	*Oceanodroma leucorrhoea*	M		x	**X**	x		x	
Ashy Storm-Petrel	*Oceanodroma homochroa*	M,CSC,BCC	x	x	x	**X**		x	
Black Storm-Petrel	*Oceanodroma melania*	M,CSC	x	x	**X**	x		x	

[4] An "x" in the table indicates when the species could be observed within or near the Project area. A **bold** "**X**" indicates the season the species is most abundant within or near the Project area (Aspen 2008; Briggs et al. 1987; Mason et al. 2007, McGrath and Feenstra 2007; Sibley 2003).

FAMILY Common Name	Scientific Name	Status*	Season[4]				Activity		
			Winter	Spring	Summer	Fall	Wintering	Breeding	Migrant
Least Storm-Petrel	*Oceanodroma microsoma*	M			x	x			x
PHAETHONTIDAE (Tropicbirds)									
Red-billed Tropicbird	*Phaethon aethereus*	M		x	**X**	x			x
FREGATIDAE (Frigate birds)									
Magnificent Frigate bird	*Fregata magnificens*	M			x	x			x
SULIDAE (Boobies and Gannets)									
Brown Booby	*Sula leucogaster*	M			x	x			x
PHALACROCORACIDAE (Cormorants)									
Brandt's Cormorant	*Phalacrocorax penicillatus*	M	**X**	**X**	x	x	x	x	x
Double-crested Cormorant	*Phalacrocorax auritus*	M,TW	x	**X**	x	x	x	x	x
Pelagic Cormorant	*Phalacrocorax pelagicus*	M	x	x	x	x	x	x	x
PELECANIDAE (Pelicans)									
American White Pelican	*Pelecanus erythrorhynchos*	M,CSC		**X**		**X**	x		x
Brown Pelican	*Pelecanus occidentalis*	M,FDL,CP	x	**X**	x	**X**	x	x	x
SCOLOPACIDAE (Sandpipers and Relatives)									
Red-necked Phalarope	*Phalaropus lobatus*	M		x	x	x			x
Red Phalarope	*Phalaropus fulicarius*	M	x	x	x	x	x		x
LARIDAE (Gulls and Terns)									
Black-legged Kittiwake	*Rissa tridactyla*	M	**X**	x		x	x		x
Sabine's Gull	*Xema sabini*	M		x	x	x			x
Bonaparte's Gull	*Chroicocephalus philadelphia*	M	x	x		x	x		x
Heermann's Gull	*Larus heermanni*	M	x		x	**1**	x		x
Mew Gull	*Larus canus*	M	x	x		x	x		x
Ring-billed Gull	*Larus delawarensis*	M	**X**	x	x	x	x		x
Western Gull	*Larus occidentalis*	M	**X**	x	x	x	x	x	
California Gull	*Larus californicus*	M,TW	**X**	x	x	x	x		x
Herring Gull	*Larus argentatus*	M	**X**	x		x	x		x
Thayer's Gull	*Larus thayeri*	M	**X**	x		x	x		x
Glaucous-winged Gull	*Larus glaucescens*	M	**X**	x		x	x		x
California Least Tern	*Sternula antillarum*	M,FP,FE,SE		x	x			x	
Caspian Tern	*Hydroprogne caspia*	M	**X**	x	x	x	x	x	x
Black Tern	*Chlidonias niger*	M, CSC		x	x	x			x
Common Tern	*Sterna hirundo*	M		x	x	x			x
Arctic Tern	*Sterna paradisaea*	M		x	x	x			x
Forster's Tern	*Sterna forsteri*	M	**X**	x	x	x	x	x	x
Royal Tern	*Thalasseus maximus*	M	**X**	x		x	x		x

FAMILY Common Name	Scientific Name	Status*	Season[4]				Activity		
			Winter	Spring	Summer	Fall	Wintering	Breeding	Migrant
Elegant Tern	*Thalasseus elegans*	M,TW, BCC		x	x	x		x	x
Black Skimmer	*Rynchops niger*	M,CSC,BCC	**X**	x	x	x	x		x
STERCORARIIDAE (Skuas and Jaegers)									
South Polar Skua	*Stercorarius maccormicki*	M		x	x	x			x
Pomarine Jaeger	*Stercorarius pomarinus*	M	x	x	**X**	x	x		x
Parasitic Jaeger	*Stercorarius parasiticus*	M	x	x		x	x		x
Long-tailed Jaeger	*Stercorarius longicaudus*	M		x	x	**X**			x
ALCIDAE (Auks, Murres, and Puffins)									
Common Murre	*Uria aalge*	M	x	x	x	x	x	x	x
Pigeon Guillemot	*Cepphus columba*	M		**X**	**X**	x		x	
Marbled Murrelet	*Brachyramphus marmoratus*	M,SE,FT	x			x	x		
Xantus's Murrelet	*Synthliboramphus hypoleucus*	M,FC,ST, BCC	x	**X**	x	x		x	
Craveri's Murrelet	*Synthliboramphus craveri*	M			x	x			x
Cassin's Auklet	*Ptychoramphus aleuticus*	M,BCC,CSC	**X**	**X**	x	x	x	x	x
Rhinoceros Auklet	*Cerorhinca monocerata*	M,TW	**X**	x	x	x	x	x	x
Tufted Puffin	*Fratercula cirrhata*	M,CSC			x	x		x	x

*** Status**

BCC = USFWS Birds of Conservation Concern
CSC = California Species of Special Concern
FDL = Federally Delisted
FE = Federally Endangered
FP = California Fully Protected Species
FT = Federally Threatened
M = Protected under the Federal Migratory Bird Treaty Act (MBTA)
SE = California State Endangered
ST = California State Threatened
TW = California Designated Taxa to Watch

Because of species diversity in central and southern California, the timing of seasonal migrations can vary; however, the majority of southward migration to wintering areas occurs from late September to late December. The fall migration generally occurs over a longer period of time compared to the spring migration presumably because of the variability in the length of time of species egg incubation, and nesting and fledging times of birds that breed in the region. Spring migration normally occurs from February through the beginning of June, and the fall migration route of coastal seabirds is usually further offshore than that used by the spring migrants (Aspen 2008). According to Spear and Ainley (1999), the variation in the number of migrants is directly correlated to the sea-surface temperature.

Generally, marine bird densities north of Point Conception are highest in May and are highest in January from Point Conception south. These densities are, however, based on the springtime seabird breeding populations on the Northern Channel Islands and on the abundance of overwintering birds within that area. Generally, birds that are the most common in the winter months within the Project region are: California gull (*Larus californicus*), western gull (*L. occidentalis*), western grebe (*Aechmophorus occidentalis*), Cassin's auklet (*Ptychoramphus aleuticus*), and surf scoter (*Melanitta perspicillata*). Sooty shearwaters (*Puffinus griseus*), Short-tailed shearwaters (*Puffinus tenuirostris*), western gulls, pigeon guillemots (*Cepphus columba*), cormorants, and California brown pelicans (*Pelecanus occidentalis*) were most abundant in spring, summer, and fall (Mason et al. 2007; Kaplan et al. 2010).

3.5.2 Regulatory Setting

3.5.2.1 Federal and State

Federal and State laws and regulations pertaining to this issue area and relevant to the Project are identified in Table 3.5-3.

Table 3.5-3. Laws, Regulations, and Policies (Biological Resources – Marine)

U.S.	Endangered Species Act (FESA) (7 USC 136, 16 USC 1531 et seq.)	The FESA, which is administered in California by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), provides protection to species listed as threatened or endangered, or proposed for listing as threatened or endangered. Section 9 prohibits the "take" of any member of a listed species. • Take is defined as "...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." • Harass is "an intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering." • Harm is defined as "...significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering."

		When applicants are proposing projects with a federal nexus that "may affect" a federally listed or proposed species, the federal agency is required to consult with the USFWS or NMFS, as appropriate, under Section 7, which provides that each federal agency must ensure that any actions authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of areas determined to be critical habitat.
U.S.	Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 USC 1801 et seq.)	The MSA is the primary law governing marine fisheries management in federal waters. The MSA was first enacted in 1976 and amended in 1996. Amendments to the 1996 MSA require the identification of Essential Fish Habitat (EFH) for federally managed species and the implementation of measures to conserve and enhance this habitat. Any project requiring federal authorization, such as a USACE permit, is required to complete and submit an EFH Assessment with the application and either show that no significant impacts to the essential habitat of managed species are expected or identify mitigations to reduce those impacts. Under the MSA, Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 USC 1802(10)). The EFH provisions of the MSA offer resource managers a means to heighten consideration of fish habitat in resource management. Pursuant to section 305(b)(2), federal agencies shall consult with the NMFS regarding any action they authorize, fund, or undertake that might adversely affect EFH.
U.S.	Marine Mammal Protection Act (MMPA) (16 USC 1361 et seq.)	The MMPA is designed to protect and conserve marine mammals and their habitats. It prohibits takes of all marine mammals in the U.S. with few exceptions. The NMFS may issue a take permit under section 104 if the activities are consistent with the purposes of the MMPA and applicable regulations at 50 CFR, Part 216. The NMFS must also find that the manner of taking is "humane" as defined in the MMPA. If lethal taking of a marine mammal is requested, the applicant must demonstrate that using a non-lethal method is not feasible.
U.S.	Migratory Bird Treaty Act (MBTA) (16 USC 703-712)	The MBTA was enacted to ensure the protection of shared migratory bird resources. The MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase, or barter, of any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit. The responsibilities of federal agencies to protect migratory birds are set forth in EO 13186. The USFWS is the lead agency for migratory birds. The USFWS issues permits for takes of migratory birds for activities such as scientific research, education, and depredation control, but does not issue permits for incidental take of migratory birds.
U.S.	Other	• The Bald and Golden Eagle Protection Act makes it illegal to import, export, take (including molest or disturb), sell, purchase or barter any bald eagle or golden eagle or parts thereof. • Clean Water Act (33 USC 1251 et seq.) and Rivers and Harbors Act (33 USC 401) *(see section 3.10, Hydrology and Water Resources).* • CZMA (see Table 1-3). • Executive Order 13112 requires federal agencies to use authorities to prevent introduction of invasive species, respond to and control invasions in a cost-effective and environmentally sound manner, and provide for restoration of native species and habitat conditions in invaded ecosystems. • Executive Order 13158 requires federal agencies to identify actions that affect natural or cultural resources within a Marine Protected Area (MPA) and, in taking such actions, to avoid harm to the natural and cultural resources that are protected by a MPA.
CA	California Endangered Species Act (CESA) (Fish	The CESA provides for the protection of rare, threatened, and endangered plants and animals, as recognized by the California Department of Fish and Wildlife (CDFW), and prohibits the taking of such species without its authorization. Furthermore, the CESA provides protection for those species that are designated

	& G. Code, § 2050 et seq.)	as candidates for threatened or endangered listings. Under the CESA, the CDFW has the responsibility for maintaining a list of threatened species and endangered species (Fish & G. Code, § 2070). The CDFW also maintains a list of candidate species, which are species that the CDFW has formally noticed as under review for addition to the threatened or endangered species lists. The CDFW also maintains lists of Species of Special Concern that serve as watch lists. Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present in the project site and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may affect a candidate species. The CESA also requires a permit to take a State-listed species through incidental or otherwise lawful activities (§ 2081, subd. (b)).
CA	California Marine Life Protection Act (MLPA) (Fish & G. Code, §§ 2850-2863)	Passed by the State Legislature in 1999, the MLPA required the CDFW to redesign its system of MPAs to increase its coherence and effectiveness at protecting State marine life, habitats, and ecosystems. For the purposes of MPA planning, a public-private partnership commonly referred to as the MLPA Initiative was established, and the State was split into five distinct regions (four coastal and the San Francisco Bay) each of which had its own MPA planning process. All four coastal regions have completed these individual planning processes. As a result the coastal portion of California's MPA network is now in effect statewide. Options for a planning process in the San Francisco Bay have been developed for consideration at a future date.
CA	Coastal Act Chapter 3 policies (see also Table 1-3)	Coastal Act policies applicable to this issue area are: • Section 30230 states: Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes. • Section 30231 addresses biological productivity and water quality. • Section 30233, which applies in part to development activities within or affecting wetlands and other sensitive areas among other requirements, identifies eight allowable uses, requires that the proposed project be the least environmentally damaging feasible alternative, and where applicable, requires feasible and appropriate mitigation. • Section 30240 states: (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

3.5.2.2 Local

Local goals, policies, and/or regulations applicable to this issue area are listed below.

Santa Barbara County. The SBC's Coastal Land Use Plan (Coastal Plan) was prepared in accordance with the California Coastal Act, and established goals for future activity in the coastal zone, including:

- Protect, maintain and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and man-made resources.
- Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the State.

3.5.3 Impact Analysis

As noted at the introduction to this section, due to the onshore and offshore components of the Project, impacts to Biological Resources in this MND are assessed in two sections: Section 3.4, Biological Resources (Terrestrial) and Section 3.5, Biological Resources (Marine). The following impact questions from Appendix G of the State CEQA Guidelines (questions b, c, e, and f) are ***not*** applicable for the offshore component of this Project; they are, however, addressed in Section 3.4, Biological Resources (Terrestrial).

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

The following impact questions from Appendix G of the State CEQA Guidelines (a and d) ***are*** applicable for the offshore component of this Project as further discussed below.

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

a) and d). Less than Significant with Mitigation. Project activities have the potential to adversely affect these sensitive habitat or species due to impacts from:

- Seafloor Disturbances (Section 3.5.3.1),
- Noise Impacts (Section 3.5.3.2),
- Marine Species Entanglements or Collisions (Section 3.5.3.3),
- Project Lighting (Section 3.5.3.4), or
- Oil Spill Potential (Section 3.5.3.5).

3.5.3.1 Seafloor Disturbances

Seafloor disturbance, and the resulting impacts to the biota, could be expected from anchoring, the retrieval of existing cables and concrete mats/blocks, the installation of replacement cables and concrete mats/blocks (to insulate the cables from underlying pipelines), and from the anchoring of support vessels.

Anchoring. Project anchoring has the potential to create localized turbidity and affect nearby eelgrass beds, kelp (algae) beds, soft-bottomed seafloor habitat, and rocky substrate. Potentially significant impacts could occur if anchors create turbidity that would reduce water clarify and increase sediment deposition, or if anchor lines are placed onto or cut across sensitive habitats. Deeper water rock habitats are considered more sensitive in that they are not routinely subjected to natural disturbances (i.e., storm waves) and they support long-lived, slow-growing organisms that are particularly sensitive to disturbance. Further, placing anchors onto habitats could crush attached organisms and anchor lines that cross habitat features could abrade and remove or damage algae (including kelp) and attached epibiota.

The dynamically positioned CIV would not require anchoring for Project activities. The only planned anchoring will occur for Project support vessels during diving operations, which reduce the potential for impacts to seafloor species or habitat from removal and installation activities. Anchors would be lowered and retrieved vertically to and from pre-selected positions, using a differential geographic positioning system (DGPS) with accuracy usually within 3 feet (1 m). Anchors would have chain and wire rope extending from the anchor shank to a floating buoy that becomes the mooring buoy and precludes the chain and wire rope from dragging on the seafloor. Controlled mooring using pre-plotted and pre-set anchors and vertical anchor placement and retrieval would reduce seafloor disturbance and prevent placement of anchors onto habitat.

To reduce potential impacts caused by Project anchoring, ExxonMobil shall avoid anchoring on sensitive ocean floor habitats, such as eelgrass and hard bottom substrate, and avoid other pipelines that may be in the Project area. To accomplish this, ExxonMobil shall implement the following mitigation measures (MMs) to reduce Project-related impacts associated with anchoring to less than significant:

MM MBIO-1a: Pre-Construction Marine Biological Survey. No more than 90 days prior to commencement of offshore activities, ExxonMobil shall conduct a Pre-Construction Marine Biological Survey of the areas adjacent to the offshore cable conduit and within the cable corridors as follows:

- At least 2 weeks before commencement of the pre-construction survey ExxonMobil shall submit for review and approval a survey scope and methodology for the survey to California State Lands Commission (CSLC) staff, California Coastal Commission, Bureau of Safety and Environmental Enforcement, and National Marine Fisheries Service.
- The survey scope and methodology shall:
  - Identify survey goals, which shall include but not necessarily be limited to surveys of hard bottom habitat areas, areas where eelgrass and kelp are present, locations of pipelines, etc.
  - Identify the personnel and types of equipment to be used in the survey, such as remotely operated vehicle (ROV), sidescan sonar, diver surveys, etc.
  - Identify how survey data will be provided to the agencies, such as maps (including scale and resolution), video, etc.
- All surveys employing low-energy geophysical equipment, including ROV surveys, shall be conducted by an entity holding a valid Permit under the CSLC's Offshore Low Energy Geophysical Survey Permit Program (see www.slc.ca.gov/Division_Pages/DEPM/OGPP/OGPP.html).

MM MBIO-1b: Anchoring Plan. At least 30 days prior to commencement of offshore activities, ExxonMobil shall prepare and submit an Anchoring Plan to California State Lands Commission (CSLC) staff, California Coastal Commission, Bureau of Safety and Environmental Enforcement, and National Marine Fisheries Service for review and approval that describes how, based on the results of the Pre-Construction Marine Biological Survey (MM MBIO-1a), ExxonMobil will avoid placing anchors on sensitive ocean floor habitats and pipelines. The Plan shall include at least the following information:

- A list of all vessels that will anchor during the Project and the number and size of anchors to be set;
- Detailed maps showing proposed anchoring sites that are located at least 40 feet (12 meters) from rocky habitat identified during the Pre-Construction Marine Biological Survey;
- A description of the navigation equipment that would be used to ensure anchors are accurately set; and
- Anchor handling procedures that would be followed to prevent or minimize anchor dragging, such as placing and removing all anchors vertically.

Access to project vessels and monitoring of the anchoring plan procedures will be available to agency biologists or other representatives during installation and installation-related activities as long as monitoring may be conducted safely and in accordance with ExxonMobil safety requirements (**MM MBIO-2: Site Access**).

MM MBIO-2: Site Access. Under safe conditions, ExxonMobil shall provide access to the site to permitting agencies, during installation and installation-related activities, including but not limited to, the cable installation vessel and support vessels.

ExxonMobil has previously surveyed and cleared 12 anchor locations in the nearshore area for use by support vessels. In addition, prior to anchoring, ExxonMobil shall perform a pre-installation marine biological survey of the nearshore Project area within the proposed anchoring locations. The survey will identify any areas of potential impacts and that information will be used to finalize Project work plans. Specifically, the pre-installation survey will identify specific areas of eelgrass. Although eelgrass has been identified within the immediate anchoring area, density varies by year, season, and water depth (Padre Associates Inc. 2011). Based on the 2011 Padre Associates Inc. survey, impacts to eelgrass within anchor location could total up to 11 $feet^2$ (1 m^2) and an additional 22 $feet^2$ (2 m^2) (two cables at 11 $feet^2$ [1 m^2]) within the cable corridors. This impact is less than the effects from winter storm waves.

Following the completion of Project work activities, ExxonMobil shall conduct a post-installation marine biological survey to identify any impacts to the nearshore area that could have resulted from construction activity including anchoring. If any impacts are identified, mitigation requirements will be based on the results of that survey and a Restoration Plan (Plan) will be developed following consultation with the appropriate regulatory and resource agencies. Such survey shall also include the entirety of the area affected by the Project, including all anchor locations, to confirm seafloor cleanup and site restoration. Following the post-installation marine biological survey and any additional restoration activities, ExxonMobil will document completed cable installation in State waters through verification of the as-built condition of each cable. Such survey shall also include the entirety of the area affected by the Project, including all anchor locations, to confirm seafloor cleanup and site restoration. As-built documentation will include the entirety of the area affected by the Project, including all anchor locations, to confirm seafloor cleanup and site restoration.

Use of the dynamically positioned CIV, as well as implementation of **MMs MBIO-1a, MBIO-1b** and **MBIO-3a** through **c** will reduce seafloor disturbances and potential impacts associated with Project anchoring to less than significant.

MM MBIO-3a: Cable Installation and Retrieval. ExxonMobil shall install and retrieve all cables in such a way and consistent with the California State Lands

Commission (CSLC) staff-approved Anchoring Plan as to avoid areas of rocky substrate, and other sensitive marine habitats such as eelgrass and kelp beds, and oil and gas pipelines whenever feasible. ExxonMobil shall require contractors to use a remotely operated vehicle (ROV) to monitor and videotape selected portions of the installation activities during cable lay operations. If the ROV observes a rocky outcrop or other sensitive marine habitat, the ROV shall assist the cable installation vessel in adjusting its route to avoid the feature, whenever it is feasible to do so.

MM MBIO-3b: Post-Project Survey. During cable installation and retrieval activities and no more than 30 days following completion of cable installation and retrieval activities, ExxonMobil shall perform a post-installation remotely operated vehicle (ROV) survey along the length of the completed cable installation area in State waters as follows:

- The survey shall include the entirety of the area affected by the Project, including all anchor locations, in State waters to confirm seafloor cleanup and site restoration.
- The survey shall document the length of cable in areas of rocky substrate and the actual amount of rocky substrate and number of organisms affected by the cable placement.
- A California State Lands Commission staff-approved marine biologist shall be onboard the cable lay vessel during the ROV survey to observe and record the effects of cable lay operations on the seafloor substrates and the biota along the entire cable route, or if unable to be present during lay operations, shall review ROV collected data of the area during installation and retrieval activities, and prepare a report based on the data. Records of the effects of cable lay operations on the seafloor substrates and the biota along the route captured by other means (divers or drop camera) shall also be reviewed and included in the report.
- In nearshore areas inaccessible by ROV, the post-installation marine biological survey shall be conducted by divers to identify any impacts to the nearshore area that could have resulted from construction activity.
- All surveys employing low-energy geophysical equipment, including ROV surveys, shall be conducted by an entity holding a valid Permit under the CSLC's Offshore Low Energy Geophysical Survey Permit Program (see www.slc.ca.gov/Division_Pages/DEPM/OGPP/OGPP.html).

MM MBIO-3c: Post-Project Technical Report. No more than 60 days following completion of the Post-Project Survey, ExxonMobil shall prepare and submit a post-Project technical report with videos of both the installation and post-construction remotely operated vehicle (ROV) surveys to California State Lands

Commission (CSLC) staff (and other requesting agencies) for review and approval. The report shall include at least the following information:

- A map of the survey route noting the location of all impacted areas and the video timestamp of each relevant site in the ROV survey video;
- Quantification (in square meters) of seafloor impacts and estimated numbers and species of organisms affected if any;
- If required, a restoration proposal that is based on the results of the survey and proportional to the actual amount of rocky habitat, kelp, and eelgrass affected. The proposal shall contain direct restoration actions that repair or restore affected areas and/or a contribution to an ongoing restoration program in the area (e.g., SeaDoc Society Lost Fishing Gear Recovery Project), as specified by the CSLC staff.
- If eelgrass restoration is required, ExxonMobil shall include an eelgrass restoration strategy that adheres to the Southern California Eelgrass Mitigation Policy and include a requirement to use only native eelgrass (e.g., *Zostera marina*) for restoration purposes, where appropriate.
- A schedule for implementing and completing the required restoration.

Retrieval of Existing Cables and Concrete Mats/Blocks. In the shallow nearshore, divers working at and seaward of the conduit termini will excavate sand in order to uncover the out-of-service cables, clear the conduits, and expose the cables and concrete mats/blocks for approximately 50 feet (15 m) offshore. The excavated material will be sidecast and could result in burial of sediment infauna and nearby rocky substrate and the associated epibiota, including eelgrass, kelp, and immobile fauna. Turbidity effects are expected to be local and relatively short-term due to the sandy sediment that is present within this area (de Wit 2001 and 2002; and Padre Associates Inc. 2011a) and its anticipated rapid settlement. The effects are expected to be similar to, but less than, those turbidity effects generated by storm waves.

To further reduce the potential effects of the deposition on the rocky habitat inshore of the conduits, ExxonMobil's contractor will be required to cast excavated sand, via a hose, from 20 to 50 feet (6 to15 m) south and downslope of the nearest rocky habitat (armor rock over the conduits) and onto existing natural sedimentary habitat (**MM MBIO-4: Excavated Sand Disposal [Conduit]**). Implementation of **MM MBIO-4** would reduce potential impacts to less than significant.

MM MBIO-4: Excavated Sand Disposal (Conduit). Sand excavated at or near the conduit shall be cast via a hose, 20 to 50 feet (6 to 15 meters) south, downslope, into the sand channel between the out-of-service cables and the Pacific Offshore Pipeline Company pipeline away from sensitive marine habitats such as eelgrass and kelp beds, armor rock, boulder fields, broken rock, or bedrock ridges wherever it is feasible to do so.

Because most of the existing cables are self-buried into the sediment, exposing, cutting, and removing those cables is expected to result in sediment disturbance and resuspension. Additional turbidity in the near-surface waters could result from the cleaning (washing with seawater) of the removed cables prior to securing them onboard the CIV. Sediment disturbance, albeit substantially less than during cable retrieval, is also expected to occur immediately around the replacement cables as they "touch-down" onto the seafloor. The sedimentary seafloor habitat that characterizes the majority of the Project area is not unique within the region and does not support any sensitive species. The effects of sediment disturbance and increases in turbidity are expected to be less than significant, local, and short-term.

The existing concrete mats/blocks were placed onto sedimentary habitat and the underlying sediments are expected to be resuspended during the removal of those mats/blocks to facilitate the removal of the cables. Similar to the effects of cable retrieval, the resuspended sediment and resulting turbidity is expected to result in less than significant, local, and short-term effects on the surrounding sedimentary habitat and associated biota. The concrete mats/blocks are located in water too deep to support eelgrass and no sensitive biota or habitats are expected to be affected by those activities.

Endangered white abalone has been reported in water depths up to 197 feet (60 m) (NMFS 2008) and could occur on the concrete mats at the existing cable crossings. Removal of the concrete mats could therefore affect endangered white abalone if individuals are present. However, a focused diver survey at the three existing cable/POPCO pipeline crossings (Padre Associates Inc. 2012a) indicated that no abalone were observed. Similarly, placement of concrete mats over of the cut ends of the remaining cables in water depths of approximately 400 and 1,200 feet (122 and 366 m) of water depth is expected to result in less than significant impacts as the seafloor habitat within the water depths of those activities is sedimentary and does not support any special-status species. No significant impacts to the endangered white abalone are expected from the dismantling of the existing concrete mats. To further reduce the potential impacts associated with removal of mats, if listed abalone are detected during Projects activities, **MM MBIO-5: Abalone Avoidance**, would restrict Project activities until any individual(s) have been relocated or another appropriate alternative is determined. Implementation of **MM MBIO-5** would reduce potential impacts to abalone to less than significant.

MM MBIO-5: Abalone Avoidance. Divers shall inspect the waters adjacent to the conduit terminus for abalone within 30 days prior to installation of any equipment/cable. If abalone is detected near the conduit terminus during the pre-construction marine biological survey or the diver inspection, ExxonMobil shall notify California State Lands Commission (CSLC) staff immediately and shall not begin Project operations until the following has occurred.

- If white or black abalone is detected, ExxonMobil shall: (1) consult with the California Department of Fish and Wildlife (CDFW) and applicable Federal wildlife agencies; (2) obtain all necessary wildlife agency authorizations; and (3) obtain CSLC staff approval to begin.
- If a non-listed abalone species is detected, ExxonMobil shall: (1) move all anchor(s) at least 50 feet (15 meters) away to avoid any direct impacts on abalone; and (2) obtain CSLC staff, in consultation with CDFW, approval to begin.

Prior to Project activities, ExxonMobil shall perform a pre-installation marine biological survey of the nearshore Project area within the proposed anchoring locations (**MM MBIO-1a**). The survey will identify any areas of potential impacts and that information will be used to finalize Project work plans. Specifically, the Pre-Installation Surveys will identify specific areas of sensitive habitat and areas of avoidance. **MM MBIO-6: Marine Wildlife Monitoring and Contingency Plan (MWMCP)** will require ExxonMobil to provide awareness training on the most common types of marine wildlife likely to be encountered in the Project area.

MM MBIO-6: Marine Wildlife Monitoring and Contingency Plan (MWMCP). ExxonMobil shall prepare a MWMCP for review and approval by California State Lands Commission (CSLC) staff at least 60 days prior to commencement of cable installation and shall implement the MWMCP during cable retrieval and installation operations. The MWMCP shall include the following elements and shall be implemented consistent with vessel and worker safety.

- Prior to the start of offshore activities ExxonMobil shall provide awareness training to all Project-related personnel and vessel crew, including viewing of an applicable wildlife and fisheries training video, on the most common types of marine wildlife likely to be encountered in the Project area and the types of activities that have the most potential for affecting the animals.
- A minimum of two National Marine Fisheries Service (NMFS)-qualified marine mammal observers shall be located on the cable installation vessel (CIV) to conduct observations, with two observers on duty during all cable installation activities. The MWMCP shall identify any scenarios that require an additional observer on the CIV or other Project vessel and, in these cases, make recommendations as to where they should be placed to ensure complete coverage of the surrounding marine environment.
- Shipboard observers shall submit a daily sighting report to CSLC staff no later than noon the following day that shall be of sufficient detail to determine whether observable effects to marine mammals are occurring.
- The observers shall have the appropriate safety and monitoring equipment to conduct their activities (including night-vision equipment).

- The observers shall have the authority to stop any activity that could result in harm to a marine mammal or sea turtle. For monitoring purposes, the observers shall set a 1,640 foot (500 meter) radius hazard zone around the CIV and other Project vessels (if required by the MWMCP) for the protection of large marine mammals (i.e., whales) and a 500-foot (152-meter) radius hazard zone around the CIV and other Project vessels (if required by the MWMCP) for the protection of smaller marine mammals (i.e., dolphins, sea lions, seals, etc.) or sea turtles.
- ExxonMobil shall immediately contact the Santa Barbara Marine Mammal Center (SBMMC) for assistance should a marine mammal be observed to be in distress. In the event that a whale becomes entangled in any cables or lines, the observer shall notify NMFS and the SBMMC, so appropriate response measures can be implemented. Similarly, if any take involving harassment or harm to a marine mammal occurs, the observer shall immediately notify the required regulatory agencies.
- While cable is being deployed, cable-laying vessel speeds shall be limited to less than 2 nautical miles per hour (knots), with the speed of Project support vessels while assisting cable-laying vessel moderated to 3 to 5 knots to minimize the likelihood of collisions with marine mammals and sea turtles.
- Propeller noise and other noises associated with cable laying activities shall be reduced or minimized to the extent possible.
- The captain of the CIV and ExxonMobil Project management shall be responsible for ensuring that the MWMCP is implemented.

Following the completion of Project work activities, ExxonMobil shall conduct a post-installation marine biological survey to identify any impacts to the nearshore area that could have resulted from construction activity including anchoring. If any impacts are identified, mitigation requirements will be based on the results of that survey and a Plan will be developed following consultation with the appropriate regulatory and resource agencies. If eelgrass restoration is required, ExxonMobil shall adhere to the Southern California Eelgrass Mitigation Policy and include a requirement to use only native eelgrass species, e.g., *Zostera marina*, for restoration purposes, where appropriate (**MM MBIO-3c)**.

Implementation of these mitigation measures will ensure that impacts associated with the retrieval of existing cables and mats would be less than significant.

Installation of the Replacement Cables and Mats. Installation of replacement cables and mats/blocks could increase local turbidity during Project lay-down activities onto the sedimentary seafloor. Similar to the effects of cable retrieval, the resuspended sediment and resulting turbidity is expected to result in less than significant, localized, and short-term effects on the surrounding sedimentary habitat and associated biota. In addition, one installation measure being considered includes the placement of bags containing sand or other materials on top of the installed cables. The bags weigh approximately 1 ton and would be lowered by the CIV onto the installed cable to help hold the cable in place and minimize any unintended movement as the cable is being laid. Like cable and mat placement, turbidity associated with bag placement is expected to result in less than significant, local, and short-term effects on the surrounding sedimentary habitat and associated biota. Impacts are anticipated to be less than significant.

Installation of the replacement cables and mats will occur in areas within or near eelgrass and kelp (algae) beds, sedimentary seafloor habitat, and hardbottom habitat. Potentially significant impacts could occur if installation of the replacement cables or mats are placed onto or cut across these sensitive habitats. Deeper water rock habitats are considered more sensitive in that they are not routinely subjected to natural disturbances (i.e., storm waves) and they support long-lived, slow-growing organisms that are particularly sensitive to physical disturbance. There are rocky habitat features within the cable route that is expected to be crossed by the replacement cables. This feature is located at the OCS break, approximately 5 miles (8 km) from shore, in water depths of 265 to 275 feet (70 to 85 m). Although relatively small in area (each cable is approximately 0.5 feet [<0.2 m] in diameter), uncontrolled placement of the cables across this feature could damage the habitat and bury or injure attached organisms.

Based on previous surveys, eelgrass is assumed to be present along the cable route. Damage or burial of eelgrass under the cables and anchors within sedimentary habitat in water depths that support that species would be a significant impact, however, impacts are expected to be similar to those described in de Wit (2003) and to be limited in extent.

A dynamically positioned CIV will be required for all cable installation activities. Using the dynamically positioned CIV vessel or a separate work boat with DGPS, will allow placement of the concrete mats in the proper location and avoid hardbottom habitat by at least 50 feet (15 m). Using the dynamically positioned CIV, ExxonMobil would be able to lay the replacement cable along a route that would avoid most hardbottom habitats by 50 feet (15 m) or greater. In addition, ExxonMobil has stated that it will use an ROV to monitor cable installation operations in the OCS-break hardbottom area. To avoid impacts, ExxonMobil will monitor the area along the proposed route in water depths from 250 to 500 feet (75 to 150 m) with an ROV during cable installation. If the ROV observes a rocky outcrop, the ROV would assist the CIV in adjusting its route or moving the cable to avoid a feature. There are no hardbottom areas around the offshore Project platforms in or near the path of the Project.

Prior to work activities, ExxonMobil shall perform a pre-installation marine biological survey of the nearshore Project area (**MM MBIO-1a**). The survey will further refine any areas of potential impacts and that information will be used to finalize Project work plans. Specifically, the Pre-Installation Surveys will identify specific areas of eelgrass. Although eelgrass has been identified within the immediate anchoring area, density varies by year, season, and water depth (Padre Associates Inc. 2011). Use of the dynamically positioned CIV as well as implementation of **MMs MBIO-2** and **MBIO-3a** through **c**, would reduce seafloor disturbances to less than significant with mitigation.

Following the completion of Project work activities, ExxonMobil shall conduct a post-installation marine biological survey to identify any impacts to the nearshore area that could have resulted from construction activity including anchoring. If any impacts are identified, mitigation requirements will be based on the results of that survey and a Plan will be developed following consultation with the appropriate regulatory and resource agencies. If eelgrass restoration is required, ExxonMobil shall adhere to the Southern California Eelgrass Mitigation Policy and include a requirement to use only native eelgrass species, e.g., *Zostera marina*, for restoration purposes, where appropriate (**MM MBIO-3c**).

3.5.3.2 Noise

Three to four vessels would be involved in the cable installation: the dynamically positioned CIV, a support tug, and one or two support vessels. Several support skiffs would also be deployed in the nearshore area during the Project. The offshore activities associated with the Phase 2 cable installation and retrieval activities of the Project would be expected to occur over a 1 to 2 month period. Phase 2 is scheduled to take place sometime in 2015.

Overall, the Project would be expected to result in a minor increase in area vessel activity. Three crew boats are typically in the SYU area at any time, and crew boats normally make two to three round trips per day between the SYU platforms and Ellwood Pier. ExxonMobil estimates that there will be no need for additional crew boat trips during the Project period.

In addition, one supply boat is typically in the field at any time and supply boats normally make a trip every other day between the SYU platforms and Port Hueneme. ExxonMobil estimates that there will be no need for additional supply boat trips during the Project period.

Vessels are the major contributors to overall background noise in the ocean (Richardson et al. 1995). Sound levels and frequency characteristics are roughly related to ship size and speed. The dominant sound source is propeller cavitation, although propeller "singing," propulsion machinery, and other sources (auxiliary machinery, flow noise, wake bubbles) also contribute. Vessel noise is a combination of narrowband tones at specific frequencies and broadband noise. For vessels the approximate size of crew and supply boats, tones dominate up to about 50 Hertz (Hz). Broadband components may extend up to 100 kiloHertz (kHz), but they peak much lower, at between 50 and 150 Hz. These sounds are within the frequency range of sounds produced and known or assumed to be heard by marine mammals, with highest levels concentrated at the low frequencies that are assumed to be most audible to large baleen whales, such as the gray whale.

The source levels and frequency ranges of sounds produced by cable- and pipe-laying vessels have apparently not been measured directly. However, diesel-powered vessels of the approximate size of the lay vessel can be expected to generate sounds at broadband source levels above 180 decibels (dB), with most of the energy below 200 Hz (Richardson et al. 1995) at the source. The use of thrusters to dynamically position the cable installation vessel would not be expected to change the overall noise level, because the thrusters are operated from the central engines, which operate continuously throughout the laying process.

Richardson et al. (1995) also gives estimated source levels of 156 dB for a 53 feet (16 m) long crew boat (with a 90-Hz dominant tone) and 159 dB for a 112 feet (34 m) long twin diesel (630 Hz, 1/3 octave). Broadband source levels for small, supply boat-sized ships 180 to 179 feet (55 to 85 m) in length are between 170 and 180 dB. Most of the sound energy produced by vessels of this size is at frequencies below 500 Hz. Many of the larger commercial fishing vessels that operate off southern California fall into this class. Currently, NMFS uses 160 dB 1 microPascals (denoted re: µPa or rms) at received level for impulse noises as the onset of behavioral harassment for marine mammals that are under its jurisdiction. Current NMFS noise exposure standards are that marine turtles should not be exposed to pulsed underwater noise at received levels exceeding 190 dB re 1 µPa (rms) (Fahy, pers. comm., 2008).

In general, seals often show considerable tolerance of vessels. Sea lions, in particular, are known to tolerate close and frequent approaches by boats (Richardson et al. 1995).

Although sea otters often allow close approaches by boats, they sometimes avoid heavily disturbed areas (Richardson et al. 1995). Garshelis and Garshelis (1984) reported that sea otters in southern Alaska tend to avoid areas with frequent boat traffic, but will reoccupy those areas in seasons with less traffic.

Odontocetes, or toothed whales, also often tolerate vessel traffic, but may react at long distances if confined (e.g., in shallow water) or previously harassed (Richardson et al. 1995). Depending on the circumstances, reactions may vary greatly, even within species. Although the avoidance of vessels by odontocetes has been demonstrated to result in temporary displacement, there is no evidence that long-term or permanent abandonment of areas has occurred. Sperm whales may react to the approach of vessels with course changes and shallow dives (Reeves 1992), and startle reactions have been observed (Whitehead et al. 1990; Richardson et al. 1995).

As summarized in Richardson et al. (1995), there have been specific studies of reactions to vessels by several species of baleen whales, including gray, humpback (e.g., Baker and Herman 1989), bowhead and right whales. There is limited information on other species.

Low-level sounds from distant or stationary vessels often seem to be ignored by baleen whales (Richardson et al. 1995). The level of avoidance exhibited appears related to the speed and direction of the approaching vessel. Observed reactions range from slow and inconspicuous avoidance maneuvers to instantaneous and rapid evasive movements. Baleen whales have been observed to travel several km from their original position in response to a straight-line pass by a vessel (Richardson et al. 1995).

Few quantitative data are available on the effects of dredging or trenching, and marine construction noise on marine mammals (Richardson et al. 1995). In two instances, migrating gray whales passing within less than 3 to 4 nm (< 5 to < 8 km) of a platform construction site in the Santa Barbara Channel were not observed to react to pile-driving activities (SBC 2003). Observations from studies in the Arctic indicate that white whales (belugas) and bowheads may tolerate considerable dredge noise, but are more sensitive to moving tug-dredge combinations than to stationary dredges (Malme et al. 1989).

During the Exxon (now ExxonMobil) offshore pipelines and power cables project in 1991/1992, a Marine Mammal Monitoring Program was conducted by biologists from, and under contract to, the Santa Barbara Museum of Natural History (SBMNH 1992). The monitoring program was conducted between December 1991 and March 1992, during the gray whale migration. Although no entanglement, physical contact, or overt startle reactions were observed during the monitoring study, gray whales were observed to alter course in apparent reaction to construction activities (SBMNH 1992). Animals moved through this project area throughout the duration, and there was no evidence that the construction activities interfered with the gray whale migration.

Installation of Cable C-1 was completed over a 15-day period in late October to early November 2003. Onboard marine mammal observers recorded all marine mammals that were visible throughout the cable removal and installation. As reported in MMCG (2003) no large whales approached the dynamically positioned CIV closer than 1 nm (<2 km) and no noise-related effects were recorded. Padre Associates Inc. (2011b, 2012b) reported that with institution of mitigations prescribed in the project-specific Marine Wildlife Contingency Plan, no negative effects from noise generated by the geophysical equipment and survey vessels were observed.

Although it is possible that cetaceans, including gray whales, could respond to noise produced by the cable installation vessel and associated support vessels with short-term changes in swimming speed, increased intervals between blows, and small deflections in course, and that they would resume normal course and speed after passing the source of the sound, recent observations suggest it unlikely. The temporary effects are possible during cable-laying operations but would not be expected to have a significant impact on marine mammals in the Project area.

In order to reduce potential impacts caused by noise, **MM MBIO-6** (as noted above) will be implemented. Implementation of this measure will reduce impacts to less than significant.

ExxonMobil shall prepare a report summarizing the results of the monitoring activities following completion of these activities and shall submit the report to CSLC staff within 60 days after Project completion.

3.5.3.3 Marine Species Entanglements or Collisions

Proposed equipment and vessel activity in the Project area also increases the probability that a marine mammal might become entangled in an anchor line and drown or that a boat might hit an animal. Mooring lines and ROV support lines may also present some risk of entanglement. However, there have been no documented cases of marine mammal entanglement in anchor or mooring lines during operations on the Pacific OCS. The MMCG (2003) reported that no whales approached the cable lay vessel closer than 1 nm (<2 km) and no entanglement of non-cetacean taxa were recorded.

The dynamically positioned CIV would not anchor within the Project area except for an emergency, although support vessels would anchor during operations in the nearshore area adjacent to the conduit terminus, and would use pre-positioned anchor buoys. Given the limited scope of this anchoring activity in time and space and the small associated risk, no impacts would be expected from anchor-line entanglement.

Based on experiences in southern California, accidental collisions between cetaceans and support vessel traffic could occur. Large cetaceans have been struck by freighters or tankers, and sometimes by small recreational boats (Joint Working Group on Vessel Strikes and Acoustic Impacts 2012). Marine turtles are susceptible to vessel collisions because they regularly surface to breathe and often rest at or near the surface (Sea Turtle Restoration Project 2014).

Cable installation vessels move very slowly during cable deployment operations and are even less likely to present a collision risk to large cetaceans or turtles. Only one possible incident of this type has been reported in January 2001, an injured gray whale calf was sighted in the vicinity of a fiber-optic cable-laying operation off Morro Bay (SBC 2003). While the cause of its injuries could not be ascertained, the animal was observed swimming within a few meters of the dynamically positioned CIV.

Pinnipeds are very nimble and considered very unlikely to be struck by vessels. The same is true for southern sea otters. However, the single documented instance of a collision between a marine mammal and a support vessel involved a pinniped, an adult male elephant seal struck and presumably killed by a supply vessel in OCS waters in the Santa Barbara Channel in June 1999.

In their 1984 Biological Opinion on the plan for proposed oil and gas development and production activities in the SYU, the NMFS concluded that the probability of a collision between vessels and marine wildlife was so low that no significant impacts on mammal populations were expected (SBC 2003). Since the only large vessel involved with this Project will be the cable installation vessel itself, the risk of vessel collision with large cetaceans and turtles is expected to be very small. The risk of vessel collision is further reduced by the fact that, with the exception of mobilization/demobilization activities, the cable installation vessel would be moving extremely slowly as the cable is being retrieved or deployed.

Actions specified in the project-specific marine wildlife contingency plans for the 2003 C-1 Cable installation and the plans for the 2011 and 2012 marine geophysical surveys included slowing vessel speed, altering direction of travel, and not crossing the path of whales and turtles. No vessel/mammal or turtle interactions were recorded by onboard observers during either of those projects (MMCG 2003, Padre Associates, Inc. 2011b, 2012b).

If the cable retrieval and installation activities occur outside of the gray whale migration period (approximately December to June), such interactions would be considered unlikely. Other large whale species, such as humpback and blue whales, do occur in the Santa Barbara Channel, but are considered uncommon in the Project area (Allen, et al. 2011). No observations of those species were reported in MMCG (2003) or in Padre Associates Inc. (2011b, 2012b). Fin and sperm whales are uncommon in the Channel. Thus, no harassment of threatened or endangered marine mammals would be expected. If the cable retrieval and installation activities do overlap with the gray whale migration season, it would be expected that whales will continue to move through the Project area, exhibiting the minor reactions observed during the 1991/92 pipelines and power cables project. In addition, ExxonMobil would work with NMFS, BSEE, SBC and other agencies to implement appropriate mitigation in order to further reduce potential impacts, so no significant impacts would be expected.

ExxonMobil will implement a marine wildlife monitoring program during the cable retrieval and installation operations. Based on the OPSR-A project, SBC believed that marine wildlife monitoring would be appropriate for all period of cable laying operations because of the fact that other sensitive species are resident or migrate through the channel at different times of year and could potentially be in the Project area.

In order to reduce potential impacts caused by noise, **MM MBIO-6** has been proposed. Implementation of this measure will reduce impacts to less than significant.

3.5.3.4 Project Lighting

Saleh (2007), Schaar (2002), Anonymous (2002), and Harder (2002) summarize several of the more recent studies on the effects of light on wildlife, including birds, turtles, fish, and insects. These studies suggest that light effects include: disorientation and the associated structural-related mortality, and interruption of natural behaviors. Recommended mitigations cited in Saleh (2007) include the elimination of “bare bulbs” and upward-pointing lights, shielding or cantering light sources, and minimizing overall light level to that which is needed for safe operations.

The results of several studies (i.e*.,* Cochran and Graber 1958; Bruderer et al. 1999; and Reed et al. 1985) suggest that the effects of artificial light on migrating birds include attraction to the buildings on which the lighting is located, disorientation, alteration of flight patterns which results in an increase in building strikes, and/or exhaustion and, ultimately, increased predation. The results of these studies tend to indicate that birds are “trapped” by light beams and are generally reluctant to leave the beam once entering it. Indirect light sources are more “attractive” to birds within approximately 0.5 mile, but tend to be less “attractive” than direct sources. Gauthreaux and Belser (2002) suggest that night-migrating birds showed “nonlinear flight” near towers with white and red strobe lights; however, they also stated that the attraction may have been more attributable to the constant tower lighting with the red strobe lights. Data in Podolsky (2002) indicate that artificial lighting appears to “confuse” seabirds, particularly during their migration between urbanized nesting sites and their offshore feeding grounds. Longcore and Rich (2001) reported that migrating birds can be attracted to tall, well-lit structures, which can result in strikes.

It is assumed that migrating birds use visual cues to orient while flying, which ultimately affect their direction and course. Poot et al. (2008), hypothesize that artificial light can interfere with the magnetic compass of the birds, which is an important orientation mechanism especially during overcast nights. Magnetic orientation is thought to be based on specific light receptors in the eye which have been shown to be intensity and wavelength-dependent. Poot et al. (2008) found that both white and red light interfere with the magnetic compass of migrating birds, and caused disorientation at lower light intensity than green light. The researchers concluded that the disorientation is due to the wavelength; green and blue lights have a short wavelength resulting in very little observable impact to birds’ orientation.

Very little data have been collected on the potential effects of existing platform lighting on marine species, including marine bird species. According to Reitherman and Gaede (2010), who conducted 20 all-night observations of avian activities on southern

California oil production platforms observed no cases of birds being entrained around or confused by lights on the platforms. Reitherman and Gaede (2010) also did not observe birds deviating significantly from their migratory pathway within the 300 foot observable radius. In addition, no significant incidents of bird mortalities resulting from nighttime operations were reported by platform operators; however, nighttime roosting, and in one case of nesting, has been reported on platforms in the Santa Barbara Channel. Black (2005) describes two incidents of bird strikes on vessels operating in the southern ocean (South Georgia Island off the southern tip of South America) wherein vessels operating at night documented approximately 62 and 900 bird strikes. The vessels were either moored or in transit during foggy and rainy conditions and both had “ice lights” (lights designed to assist in observations of floating ice too small to be detected by radar). As a result of these incidents, some vessel operators instituted the use of blackout curtains over port holes and further focused deck lighting onto smaller areas.

The Project platforms are currently, and will continue to be, lit for compliance with U.S. Coast Guard (USCG) navigational hazard requirements. Shielding of the lighting to direct it downward and to limit the area of effect will reduce the potential impacts to flying seabirds by precluding horizontal light. Lighting on the platforms will be sufficient to assure safe operations and to be in compliance with USCG navigation hazard requirements, but are not expected to result in significant impacts to the marine wildlife found in the region.

Nighttime marine construction may take place; however, lighting on Project vessels is expected to be present while the vessel transits along the cable route or while transiting between the port and the site. Therefore, USCG-required vessel lighting will be present within the Project area. The potential effects of lighting on marine wildlife, particularly birds, are expected to be minimal, if any.

In order to reduce potential impacts caused by lighting, **MM MBIO-7: Offshore Vessel Lighting**, has been proposed. Implementation of **MM MBIO-7** will reduce the impact to less than significant.

MM MBIO-7: Offshore Vessel Lighting. Work-area lighting shall be of minimum intensity, consistent with the American Bureau of Shipping vessel class requirements and as required by U.S. Coast Guard operational regulations, and shall be directed inboard and downward to reduce the potential for seabirds to be attracted to the work area. When feasible, all vessel cabin windows shall be equipped with shades, blinds, or shields that block internal light during nighttime operations. If an injured bird is discovered on a vessel, the bird shall be transported as soon as practical on a returning crew or supply vessel to an approved wildlife care facility. The onboard marine mammal monitors shall routinely inspect lighted vessels for birds that may have been attracted to the lighted vessels.

3.5.3.5 Oil Spill Potential

The unintentional release of petroleum into the marine environment from Project activities could result in potentially significant impacts to the marine biota, particularly avifauna and early life stage forms of fish and invertebrates, which are sensitive to those chemicals. Refined products (i.e., diesel, gasoline.) are more toxic than heavier crude or Bunker-type products, and the loss of a substantial amount of fuel or lubricating oil during construction operations could affect the water column, seafloor, and intertidal habitats and associated biota, resulting in their mortality or substantial injury, and in alteration of the existing habitat quality. The release of petroleum into the marine environment is considered a potentially significant impact, but mitigable impact (see **MM HAZ-3: Fueling Measure**).

Marine Invertebrates. Oil spill impacts on sensitive marine invertebrates, including the white and black abalone, would likely result from direct contact, ingestion of contaminated water and food (algae), and secondary impacts associated with response operations. In the event of a spill related to Project activities, the oil would undergo considerable weathering before reaching the mainland. Invertebrates would, therefore, be limited to exposure to highly weathered tar balls, which have limited toxicity. Therefore, adverse impacts would be minimal to sensitive invertebrates as a result of Project activities.

Fish Resources. The effects of oil on fish have been well documented both in the field and within a laboratory. This research shows that fish that are unable to avoid hydrocarbons will take them up from food, sediments, and surrounding waters. Once these hydrocarbons are in the organism’s tissues, they will affect the life span through a variety of behavioral, physiological, or biochemical changes. Also, exposure to oil will affect a species’ ability to search, find, and capture food, which will affect its nutritional health. Early development life stages, such as larvae, will be especially impacted (Jarvela et al. 1984). Small amounts of oil can impact fish embryos by causing physical deformities, damage to genetic material, and mortality (Carls et al.1999). Fish species experience the highest mortalities due to oil exposure when they are eggs or larvae. However, these deaths would not be significant in terms of the species total population in offshore water (Jarvela et al.1984). Brief encounters with oil with juvenile and adult fish species would not likely be fatal. Based on past studies of fish populations following oil spill events in the Santa Barbara and other locations, no long term adverse impacts to fish populations are anticipated as a result of the Project.

Sea Turtles. Oil spills are not considered a high cause for morality for sea turtles, although recent reports from the Gulf of Mexico Deepwater Horizon spill indicate a possible increase in strandings of oil-impacted turtles. Since sea turtles species have been listed as threatened or endangered under the 1973 FESA, there is very little direct experimental evidence about the toxicity of oil to sea turtles. Sea turtles are negatively affected by oil at all life stages: eggs on the beach, post hatchings, young sea turtles in near shore habitats, migrating adults, and foraging grounds. Each life stage varies depending on the rate, severity, and effects of exposure. Sea turtles are more vulnerable to oil impacts due to their biological and behavior characteristics including indiscriminate feeding in convergence zones, long pre-dive inhalations, and lack of avoidance behavior (Milton et al. 2004). The type of diving behavior puts sea turtles at risk because they inhale a large amount of air before diving and will resurface over time. During an oil spill, this would expose sea turtles to long periods of both physical exposure and petroleum vapors, which can be the most harmful during an oil spill.

Marine Birds. The effects of petroleum on marine birds have been extensively documented and the severity depends upon the time of year (equating to seasonal differences in the bird abundance within a specific region) and the species that are present (i.e., more diving or surface birds as opposed to pelagic or shore birds). The effects of oil on marine birds range from loss of water repellency and heat insulation from coating, hypothermia, loss of buoyancy, impaired flying ability, and the toxic effects of ingesting oil from preening or feeding on contaminated prey. Within the Project area, special-status bird species are expected to occur during the time of offshore activities. The potential effects of an oil spill on special-status avian species or any species from OPSR-B construction vessels would not be expected to be significant due to the type and limited amount of releases.

Marine birds can be affected by direct contact with oil though thermal effects due to external oiling of plumage and from the toxic effects of ingested oil by adult birds. In addition, oil can affect the viability of eggs, chicks, and can disrupt avian reproductive abilities.

The loss of waterproofing, and resulting hypothermia, is the primary external effect of oil on marine birds (Fabricius 1959 and Hartung 1964). To survive the bird must metabolize fat, sugar, and eventual skeletal muscle proteins to maintain body heat. The cause of oiled bird’s death can be exposure and loss of these energy reserves or from the toxic effects of ingested oil (Schultz et al. 1983).

The internal effects of oil to marine birds include anemia resulting from bleeding of inflamed intestinal walls, pneumonia from oil passing into the trachea and bronchi, and disruption of liver, kidney, and pancreas functions. Ingested oil can inhibit a bird’s mechanism for salt excretion that enables seabirds to obtain fresh water from salt water, resulting in dehydration (Holmes and Cronshaw 1975). Oil effects on eggs include alteration of egg yolk structure, reduced egg hatchability, and reduced egg-laying rate for seabirds (Grau et al. 1977; Hartung 1965). When oil contacts the exterior of eggs it can reduce the hatching success (Hartung 1965; Albers and Szaro 1978; King and Lefever 1979; Coon et al. 1979; McGill and Richmond 1979).

Cetaceans. The documentation of the effects of oil on whales, dolphins, and porpoises is limited due to the difficult reclusive nature and migratory behavior (Australian Maritime Safety Authority 2014). The impact of direct contact with oil on the animal's skin varies by species. Cetaceans have no fur, which can be oiled and do not depend on fur for insulation. Therefore, they are not susceptible to the insulation effects of hypothermia in other mammals. However, external impacts to cetaceans from direct skin contact with oil could include: eye irritation, burns to mucous membranes of eyes and mouth, and increase vulnerability to infection (NOAA 2010).

Baleen whales skim the surface of water for feeding and are particularly vulnerable to ingesting oil and baleen fouling. Adult cetaceans would most likely not suffer from oil fouling of their blowholes because they spout before inhalation, clearing the blowhole. Younger cetaceans are more vulnerable to inhaled oil. It has been suggested that some pelagic species can detect and avoid contact with oil (Australian Maritime Safety Authority 2014). This still presents a problem for those animals that must come up to the surface to breathe and to feed (NOAA 2010).

Internal injury from oil is more likely for cetaceans due to oil. Oil inhaled could result in respiratory irritation, inflammation, emphysema, or pneumonia. Ingestion of oil could cause ulcers, bleeding, and disrupt digestive functions. Both inhalation and ingested chemicals could cause damage in the liver, kidney, lead to reproductive failure, death, or result in anemia and immune suppression.

Pinnipeds. Seals and sea lions that come in contact with oil could experience a wide range of adverse impacts including: thermoregulatory problems; disruption of respiratory functions; ingestions of oil as a result of grooming or eating contaminated food; external irritation (eyes); mechanical effects; sensory disruption; abnormal behavioral responses; and loss of food by avoidance of contaminated areas.

Guadalupe fur seals and northern fur seals could experience thermoregulatory problems if they come into contact with oil (Geraci and Smith 1976). Oil makes the hair of a fur seal lose its insulating qualities. Once this happens, the animal's core body temperature may drop and increases its metabolism to prevent hypothermia. This could potentially be fatal to a distressed or diseased animal and highly stressful for a healthy animal (Engelhardt 1983).

Pinnipeds that use blubber for insulation (California sea lion, harbor seal, northern elephant seal, and Stellar sea lion) do not experience long-term effects to exposure to oil (Geraci and St. Aubin 1982). Newborn harbor seal pups, which rely on a dense fur for insulation, would be subject to similar thermoregulatory problems of the previously discussed fur seal species (Engelhardt and Ferguson 1980; Oritsland and Ronald 1973).

When pinnipeds are coated with viscous oil, it may cause problems in locomotion and breathing. Pinnipeds that are exposed to heavy coating from oil will experience swimming difficulties, which may lead to exhaustion (Engelhardt 1983; Davis and Anderson 1976), and possible suffocation from breathing orifices that are clogged. The viscosity of the oil is a major factor in determining the effects on pinnipeds. Severe eye irritation is caused by direct contact with oil but non-lethal (Engelhardt 1983). Skin absorption, inhalation, and swallowing of oil while grooming are all possible pathways of ingestion. However, there have not been enough studies on the long-term effects of chronic exposure to oil on pinnipeds.

Fissipeds. Sea otters, although not expected to be found in the immediate Project area, are highly impacted to the adverse impacts of exposure to spilled oil due to the large amount of time spent on the ocean's surface. Contact with spilled oil could result in reducing or eliminating the layer of air trapped in sea otters fur. Matting their fur could cause hypothermia, elevated metabolism, cessation of feeding, and weight loss (Environment Canada 1982; Engelhardt 1983; Kooyman et al. 1997; Siniff et al. 1982) because the layer of air in their fur provides both insulation and buoyancy for the sea otters (Davis and Anderson 1976; Geraci and Smith 1976). Hypothermia could prove to be fatal as the result of contamination of greater than 30 percent of a sea otter's body (Costa and Kooyman 1980).

Sea otters are especially vulnerable to oil spills might ingest oil while feeding of oil-contaminated prey, grooming, or inhalation. (Bodkin et al. 2002; NOAA 2008). Ingestion of oil is considered potentially toxic depending on the type and quantity consumed. Oil spills could affect a sea otter's caloric intake by oil spill-induced mortality of their prey, such as crabs and sea urchins (Cimberg and Costa 1985).

In order to reduce potential impacts from oil spills, **MMs HAZ-7: Oil Spill Response Plan (OSRP)**, and **HAZ-8: Oil Spill Response Plan (OSRP) Training** have been proposed. Implementation of **MMs HAZ-7** and **HAZ-8** will reduce the impact to less than significant.

3.5.4 Mitigation Summary

ExxonMobil has proposed the following mitigation measures to reduce Project-related impacts to marine biological resources:

- MM MBIO-1a: Pre-Construction Marine Biological Survey.
- MM MBIO-1b: Anchoring Plan.
- MM MBIO-2: Site Access.
- MM MBIO-3a: Cable Installation and Retrieval.
- MM MBIO-3b: Post-Project Survey.
- MM BMIO-3c: Post-Project Technical Report.

- MM MBIO-4: Excavated Sand Disposal (Conduit).
- MM MBIO-5: Abalone Avoidance.
- MM MBIO-6: Marine Wildlife Monitoring and Contingency Plan (MWMCP).
- MM MBIO-7: Offshore Vessel Lighting.
- MM HAZ-3: Fueling Plan (see Section 3.9.3).
- MM HAZ-7: Oil Spill Response Plan (OSRP) (see Section 3.9.3).
- MM HAZ-8: Oil Spill Response Plan (OSRP) Training (see Section 3.9.3).