3.3 Biological Resources

This section describes the effects on biological resources that may result from the implementation of the proposed Project. The following discussion addresses the existing environmental conditions in the affected area, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid impacts anticipated from Project construction and operation. Section 3.3.1, *Environmental Setting*, includes a detailed description of the baseline conditions for the Project area. Existing laws and regulations relevant to biological resources are described in Section 3.3.2, *Regulatory Setting*. Section 3.3.3 presents the impact analysis for biological resources.

As described in Chapter 2 (Project Description), the proposed Project would be constructed in phases. The final locations of the terrestrial conduits, as well as the terrestrial landing sites are not fully known because the final engineering design may change after consultation with the City of Hermosa Beach (City). Therefore, for the purposes of the analysis, the whole of the proposed Project, and all potential terrestrial conduit routes, are analyzed for impacts to biological resources. However, given the nature of the Project, sensitive biological resources primarily occur in the marine and coastal environment.

3.3.1 Environmental Setting

Both marine and terrestrial biological resources occur in the Project area. The following sections describe baseline data collection methodology and the regional and local environmental settings with regard to biological resources.

3.3.1.1 Baseline Data Collection Methodology

Information used to prepare this section were derived from a number of sources including biological resources reports provided by the applicant, review of existing literature and analyses for similar projects in the region, consultation with technical experts, and reconnaissance surveys of the Project site. Biological resource data included, but were not limited to the following.

Literature Review

The following resources were consulted to determine which sensitive biological resources have previously been documented within the Project vicinity:

- California Natural Diversity Database (CNDDB) for the terrestrial Project alignments and a 5-mile radius (CDFW, 2015),
- USFWS sensitive species lists for the Project area,
- *California Least Tern Breeding Survey, 2012 Season* (Frost, 2013),
- *The Western Snowy Plover in Los Angeles and Orange Counties, California: September 2012 to June 2014* (Ryan et al., 2014),
- Review of information summarized for the Tyco Global Network (TGN) Project EIR (E&E, 2001) a similar undersea telecommunication project,
- Review of management reports and peer-reviewed published papers describing benthic and pelagic communities in the general Project area that are likely to be encountered along the proposed Project route (AMS, 2015), and

- A synthesis of field survey data collected for similar undersea telecommunication projects, including the TGN and UNITY projects (Tyco Telecommunications, 2003, 2010; E&E, 2001).

Collection of Field Data

Site visits and field reconnaissance surveys were conducted on October 15, 2014, by the applicant and then again on December 18, 2014, by Aspen, to review the Project terrestrial locations, identify potential resources of concern, and assess current habitat conditions within the terrestrial portion of the Project area as well as the surrounding vicinity. Biological surveys for the marine portion of the Project were completed on October 2015. Field surveys conducted during the preparation of the proposed E&B Oil Drilling & Production Project were also reviewed to form a more in-depth understanding and analysis of the baseline existing conditions at the City of Hermosa Beach maintenance yard.

3.3.1.2 Regional Setting

Terrestrial

The terrestrial portions of the proposed Project lie wholly within the City of Hermosa Beach. The City lies within the Southern California Coast ecological section of the California Coastal Chaparral Forest and Shrub ecological province (City of Hermosa Beach, 2014). The Southern California Coast ecological section is subdivided into 10 different subsections, including the Los Angeles Plain where the City is located.

The Los Angeles Plain is generally characterized by mountains, hills, alluvial fans, marine terraces, and floodplains which are located south of the San Gabriel Mountains. Generally, the soil structure within this region is well drained. The vegetation cover, when present, is typically dominated by California sagebrush. There are other common plants throughout the region including California buckwheat series and mixed sage series, as well as coast live oak series and California walnut series. The climate in the Project area is sub humid and hot, with mean annual temperatures falling between 58 and 64 degrees Fahrenheit and 12 to 20 inches of precipitation, generally falling as rain (City of Hermosa Beach, 2014). Given the proximity to the marine environment, the terrestrial climate in the region is greatly affected by the marine influences and as a result, summer fog is common.

The greater Los Angeles Plain has been largely developed, and native habitats have been fragmented and are now primarily associated with nature preserves and parks. The terrestrial portion of the Project and surrounding area is urbanized, with little native vegetation.

Marine

The Project area is located within a large and gradual bend in the California coastline, regionally called the Southern California Bight (SCB). The SCB is bounded on the west by the California Current and extends from Point Conception to Cabo Colnett, Baja California, Mexico. The marine life of the SCB is abundant and diverse because of the various habitats, environmental conditions, and persistent upwelling events. Interactions between the physiography, currents, wind, and anthropogenic inputs contribute to the richness of this body of water. The continental shelf within the SCB contains relatively deep nearshore waters and a complex bottom topography resulting in habitats of rapidly changing depths, many hard- and soft-bottom regimes, multiple island outcrops, and deep basins.

The marine environment is discussed under two primary marine habitats: (1) benthic or bottom habitats and species, and (2) pelagic or open-water habitats and species. The biological characterization addresses existing marine habitats from the beach area to the outer limit of the continental shelf, generally defined as the location where seawater depth reaches approximately 5,904 feet (1,800 meters). The beach area is generally defined by the mean high water mark (MHW), referring to the line of the medium high tide between the monthly highest tide and the monthly lowest tide when averaged out over the year. The biological characterization addresses marine habitats likely to be encountered along the four proposed cable alignments (Figure 1-2).

3.3.1.3 Local Setting

Terrestrial Environment

The proposed Project is located within the City of Hermosa Beach. The elevations within the City range from mean sea level at the sandy beach located at the westernmost edges of the City, to approximately 200 feet above mean sea level. The Project area is predominantly urbanized, but portions of the proposed Project may be sited on the approximately 400-foot-wide sandy beach located at the western side of the City. The proposed Project is bounded on all sides by urban development including roadways as well as ornamental and landscaped vegetation, except for the portions of the Project that would be located on the beach. The beach area does not support dunes or native vegetation, and is heavily used by recreationists.

The conduit routes are proposed for installation in public ROWs (streets) and areas zoned as Open Space (i.e., the Greenbelt between S. Ardmore Avenue and S. Valley Drive [Figure 2-1]). Land use adjacent to the conduit routes is mainly residential, commercial, and recreational. The PFE facilities would be located in existing commercial properties, such as the commercial structures located at 1529 Valley Drive. The precise location of the PFE facilities and the associated conduit routes within the ROWs would be determined during final design and in consultation with the City. However, none of the proposed routes are in or near native terrestrial habitats, and the terrestrial portion of the proposed Project does not provide important habitat for native wildlife.

Vegetation Communities

Historic accounts of vegetation communities within the proposed Project area indicate the presence of both coastal sage scrub and southern coastal scrub communities. Generally, these communities are composed of low-growing, drought-tolerant shrubs with herbs and grasses located in the understory. The scrub communities that were historically present in the region provide a high-value habitat for wildlife and are structurally diverse. However, the scrub and other naturally occurring vegetation communities that were present within the City have been almost entirely removed to allow for urban development, and as a result the City is largely built-out (City of Hermosa Beach, 2014). The City maintains several open-space areas including the beach, the Hermosa Valley Greenbelt (Veterans Parkway), a hillside west of the Marine Land Mobile Home Park, and several large parks. These open space areas largely consist of landscaping and ornamental plants with little native vegetation remaining.

Vegetation and landforms were mapped by the City of Hermosa Beach in 2014 as part of the City of Hermosa Beach General Plan Update, and are documented in the Existing Conditions Report (City of Hermosa Beach, 2014). The following communities and landforms occur along the terrestrial portions of the Project alignment.

Urban/Developed. The area surrounding the proposed Project is dominated by urban/developed land uses. Urban landforms include areas that have been heavily altered by and for human use, including roadways, existing buildings, recreation fields, parks, lawns, and other landscaped vegetation. Areas that are classified as urban/developed exhibit a high level of disturbance and generally provide low-value habitat for most wildlife. However, landscaped areas may allow for limited nesting and foraging opportunities for migratory and resident birds.

Non-Native/Ornamental. While the urban/developed area surrounding the proposed Project includes small areas of non-native and ornamental vegetation associated with residences and businesses, the mapping studies conducted by the City in 2014 identified larger blocks of non-native/ornamental cover. The largest of these areas is the Hermosa Valley Greenbelt. A large portion of the proposed Project's terrestrial conduit would be within the Greenbelt. The Greenbelt is regularly maintained and consists of a mulched trail, benches, and landscaped trees and shrubs. The non-native trees and shrubs identified in the Greenbelt include eucalyptus (*Eucalyptus* spp.), palms (*Trachycarpus* spp., *Phoenix* spp., and *Washingtonia* spp.), pine trees (*Pinus* spp.), Peruvian pepper tree (*Schinus molle)*, cape honeysuckle (*Tecoma capensis)*, lantana (*Lantana* spp.), and acacia species (*Acacia* spp.). Groundcover observed within the Greenbelt includes various non-native grasses, ice plant (*Carpobrotus edulis*), and Boston ivy (*Parthenocissus tricuspidata)*. Parks near the cable route are primarily composed of open, manicured lawn areas bounded by large trees. The parks also include trails, picnic areas, playgrounds, and recreation areas (City of Hermosa Beach, 2014). The hillside west of the Greenbelt is characterized by a similar group of disturbance-tolerant, non-native species and includes areas of open grasslands and woodland.

While these areas consist primarily of non-native vegetation, they provide a resource for common disturbance-tolerant wildlife species which are accustomed to the urbanized setting. A variety of birds are expected to use the non-native/ornamental areas, including American crow (*Corvus brachyrhyncos),* Anna's hummingbird (*Calypte anna)*, house finch (*Carpodacus maxicanus)*, mourning dove (*Zenaida macroura*), and northern mockingbird (*Mimus polyglottos).* Raptors such as red-tailed hawk (*Buteo jamaicensis)* and American kestrel (*Falco sparverius*) may perch in trees and forage on prey species that utilize areas with heavy ground cover and low shrubs (City of Hermosa, 2014). Other common wildlife expected in the Greenbelt include urban-adapted species such as opossum (*Didelphis virginiana*), Botta's pocket gopher (*Thomomys bottae*), raccoon (*Procyon lotor*), eastern fox squirrel (*Sciurus niger*), western fence lizard (*Sceloporus occidentalis*), southern alligator lizard (*Gerrhonotus multicarinatus*), Skilton's skink (*Plestiodon skiltonianus skiltonianus*, formerly *Eumeces skiltonianus skiltonianus*), and gopher snake (*Pituophis melanoleucus*).

Beach Sand and Intertidal Zone. Portions of the proposed Project would be located directly on the sandy beach area, where the cables would transition from the sea floor into the terrestrial conduit. Sandy beach habitat is typically found between the intertidal zone, the area between the low tide and high tide marks, and the area where terrestrial vegetation cover is established. Sandy beach habitats can often form dunes, which are hills of sand constructed either through aeolian (wind) or alluvial (water) transport. However, no such dunes are present within or near the proposed Project area. The beach habitat where the proposed Project would be sited is heavily used for recreation and primarily barren, except for man-made structures such as nearby lifeguard towers or volleyball courts. Occasionally kelp wrack collects on the beach, which is then removed by tractor. Beached kelp wrack can provide a food source for invertebrates, and provides cover for numerous organisms that inhabit the sand of the intertidal zone. These organisms in turn act as a food source for, and attract, various species of shorebirds such as sanderling (*Calidris alba)*, western sandpiper (*Calidris*

maudi), least sandpiper (*Calidris minutilla)*, willet (*Tringa semipalmata*), as well as various species of gull (*Larus* spp.). The beach may also provide habitat for special-status species. The State and federally listed western snowy plover (*Charadrius niviosus nivosus*) is known to winter on the shores of the City, though nesting within the City has not been recorded since 1949. The nearest breeding colony to the proposed Project is located at Bolsa Chica in Orange County (City of Hermosa, 2014).

The intertidal zone plays an important role in coastal ecology and sand beaches are among the most extensive coastal habitats in the Project area. Sand beaches and the organisms that utilize them are subjected to a wide variety of physical instability, causing this habitat to generally be less diverse than other environments, but they provide foraging and breeding habitat for a variety of species including shore birds. Organisms occupying intertidal sand beaches are usually limited by abiotic factors such as tidal height, exposure to wave action, and the composition of the sediment.

Dominant species include amphipods (*Synchelidium* spp.), polychaete worms (*Nerine cirratulus* and *Euzonus mucronata*), and isopods (*Excirolana chiltoni*). Zonation patterns for intertidal sand beach assemblages are less distinct than rocky intertidal communities (Thompson et al., 1993). Small beach hoppers (*Orchestoidea* sp.) and kelp flies (*Coelopa vanduzeei*) are abundant in clumps of giant kelp (*Macrocystis pyrifera*) cast up on the beach at the high tide line (Lissner and Dungan, 2001).

Dominant fishes that use the intertidal zone include small active plankton feeders such as northern anchovy (*Engraulis mordax*) and topsmelt (*Atherinops affinis*), roving substrate feeders such as the barred surfperch (*Amphistichus argenteus*), and flatfishes such as juvenile California halibut (*Paralichthys californicus*). Other fishes that migrate through the surfzone includeyellowfin croaker (*Umbrina roncador*) and spotfin croaker (*Roncador stearnsii*), and beach spawners such as California grunion (*Leuresthes tenuis*) are also expected to occur (Moyle and Cech, 1988; Love, 1996).

State and Federal Waters/Wetlands

There are no wetlands, streams, or riparian habitat along the proposed Project's terrestrial route. As described in Chapter 2 (Project Description), the terrestrial portion of the proposed Project would be constructed primarily within the city streets of the City, with portions of the Project running through the urban Greenbelt, and sited on the sandy beach. The Pacific Ocean is considered a State and federal water and plays an important role in the ecology of the region.

Marine Benthic Communities

Benthic habitats are typically characterized as either soft or hard substrate. Depending on water depth, currents, wave energy, and other physical conditions, the soft substrate can range from coarse sands, (typically observed in high-energy and shallow water depth environments) to fine muds (low-energy/deeper water depth environments). Similarly, hard substrate can be initially divided into natural (rocky outcrop) or artificial (concrete, pilings, steel, etc.) substrate and further characterized by elevation or rise above the seafloor. The typical descriptors used for categorizing elevation of hard substrate above the seafloor are:

- Mixed Bottom - A combination of coarse sand, gravel, cobble, and small boulders;
- Low-Relief - Exposed bedrock and rocky outcropping rising less than approximately 1 foot (0.3 meter) from the seafloor;
- Moderate-Relief - Exposed rocky outcroppings that typically rise above the seafloor approximately 1 to 3 feet (0.3 to 1.0 meters) from the seafloor; and

- High-Relief - Exposed rocky outcropping that typically rise over 3 feet (1.0 meter) from the seafloor.

Biological surveys of the proposed cable alignments were completed on October 15, 2015; however, the data regarding the composition of the substrate was not yet available for inclusion in this EIR. To develop the baseline characteristics of the seafloor and assess the potential for sensitive biological resources to occur the Draft EIR utilizes information from previous studies conducted in the region. Based on the TGN field surveys conducted in the Santa Monica Bay area (Tyco Telecommunications, 2003, 2010) and surveys reported in Thompson et al. (1993) conducted in the region, it is expected that most of the proposed cable route will be located over soft-bottom substrates consisting of sand and gravel nearshore and silty sand, gravel, and clay offshore. Thompson et al. (1993) reported approximately 3 percent of the bottom along their survey route was comprised of rocky outcroppings, rubble, and talus in water deeper than 100 feet (approximately 30 meters). On the shelf these areas are interspersed with soft substrates. Farther offshore, the Santa Rosa-Cortes Ridge and Tanner and Cortes banks include base rock and rocky outcroppings that may be covered with a veneer of fine sediment.

The proposed cable route would encounter a wide variety of epifaunal (on the surface of seafloor) and infaunal (burrowing) benthic organisms. Nearshore benthic species are uniquely adapted to high-energy sand and gravel habitats. These species are adapted to the ever-changing nearshore environment along the Southern California coast. They are more mobile and less prone to impacts from disruption of the sea bottom. Deeper water, soft-bottom habitats are more stable, and substrate is finer grain, silty sand. Deep water soft-bottom substrates tend to support higher densities of less mobile, sessile, and more fragile organisms. Bergen et al. (2001) reported abundance and species diversity maximum at depths between 105 feet (32 meters) and 377 feet (115 meters) in the SCB.

The TGN field survey recorded unavoidable hard-bottom substrates at various points along the surveyed cable route (E&E, 2001). Hard-bottom substrates encountered were isolated rock outcroppings, steep sloped rock surfaces, and sections of tightly folded sedimentary rock. The sections of sedimentary rock were either bare or covered by a thin layer of sand or silt. The TGN sonar survey also encountered sections recorded as hard-bottom substrate that video surveys subsequently discovered were sub-bottom, hard-substrate (i.e., hard-bottom buried by a thick layer of sand and gravel). Hard-bottom substrates of all types provide a stable surface for sessile organisms to attach. In addition, rock outcroppings and rocky crevices provide important shelter for a variety of fishes and invertebrates.

The following is a summary of subtidal habitats and associated biota observed along the California coast, primarily in southern and central California in water depths ranging from 0 to 100 fathoms (0 to 180 meters). The same substrate and species composition is expected to occur along the cable routes for the proposed Project. A comprehensive species list is presented in AMS (2015).

Habitats and Associated Biota Observed in the 0- to 100-Foot (0- to 30-Meter) Depth Range

Most fiber-optic cable installations begin at landfall or the point at which the cable exits an existing pipeline/outfall or horizontal bore hole in approximately 40 to 80 feet (12 to 25 meters) of water depth in soft substrate habitat. Although hard substrate does occur in these shallower depths, the cable routes are usually carefully selected to avoid them, especially in the very shallowest water depths. As a result, most of the fiber-optic cable route reconnaissance surveys begin at the deeper

depths within the 0- to 100-foot (0- to 30-meter) depth range. Table 3.3-1 provides a summary of observed invertebrate taxa by water depth range.

Soft Substrate

Soft substrate habitat types observed in the 0- to 100-foot (0- to 30-meter) depth range include coarse sands through the surf and wave zone, shifting to finer sands and muds (silts and clays) at the deeper water depths. The same substrate and species composition is expected to occur along the cable routes for the proposed Project.

Table 3.3-1. Macrobenthic Invertebrates and Alga Taxonomic List for Fiber-Optic Cable Route Surveys Conducted in Coastal California Waters by Depth (from AMS, 2015)

Scientific Name	Common Name	Morro Bay				Hermosa Beach				Monterey Bay				So. Calif. Bight	Global West	
		9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-150m	150-300m
Angiosperm																
Phyllospadix sp.	Surf grass, drift	X	X	X												
Phaeophyta																
Egregia meanzinii	Feather boa kelp, drift	X	X	X										X		
Macrocystis pyrifera	Giant kelp, drift	X	X	X	X									X		
Nereocystis californica	Bull kelp, drift	X	X													
Rhodophyta																
Mastocarpus papillatus	Turkish towel													X		
	Encrusting coralline algae	X	X	X												
Ochrophyta																
Cystoseira osmundacea	Chain-bladder kelp													X		
Desmarestia ligulata	Acid kelp					X								X		
Eisenia arborea	Southern sea palm													X		
Laminaria farlowii	Oarweed													X		
Laminaria setchellii	Southern stiff striped kelp													X		
Pterygopgora californica	Pom pom kelp													X		
Sargassum sp.	wireweed													X		
Undaria pinnatifida	wakame													X		
Porifera																
Craniella arb	Gray puffball sponge													X		
Rhabdocalyptus sp.	Vase sponge							X	X							
Tethya aurantia	Orange puff ball sponge		X	X										X		
Toxadocia spp.	White finger sponge													X		
	Tan globular sponge		X	X	X											
Cnidaria																
Acanthoptilum sp.	Sea Pen		X	X	X	X		X								
Actinaria unident.	Sea anemone									X	X	X				
Actinostola	Anemone														X	X
Adelogorgia phyllostera	Orange gorgonian				X		X									
Amphianthus	Sea anemone														X	X
Anthopleura artemsia?	Moonglow anemone		X													
Anthopleura elegantissima	Aggregating anemone													X		
Anthopleura sola	Solitary anemone													X		

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		9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-150m	150-300m
Anthopleura xanthogrammica	Giant green anemone													X		
Balanophyllia elegans	Orange cup coral		X	X	X											X
Caryophillia sp.	White cup coral		X												X	X
Cerianthidae, unident.	Cerianthid anemone		X	X							X	X				
Corallimorphus sp. 1	Colonial anthizoan											X				
Corynactis californica	Strawberry or club-tipped anemone	X								X					X	
Cyathoceras foxi	Cup corals							X								
Desmophyllum	Cup corals														X	X
Eugorgia rubens	Purple gorgonian						X							X		
Gorgonocephalus eucnemis	Giant basket star								X			X				X
Hydrozoa	Corals													X		
Lophelia sp.	Branching white coral			X												X
Lophogorgia chiliensis	Red gorgonian (sea whip)		X				X							X	X	
Metridium farcimen (=giganteum)	White-plumed anemone		X	X	X		X		X	X	X	X	X		X	X
Muricea californica	Golden gorgonian													X		
Muricea fruticoas	Brown gorgonian													X		
Paracyathus stearnsi	Brown cup coral	X	X	X							X				X	
Parazoanthus sp.	Parasitic aggregating						X									
Pachycerianthus sp.	Tube anemone		X	X	X									X		
Pennatulacea sp.	Sea pen								X							
Polyorchis pencillatus	Bell medusa													X		
Ptilosarcus gurneyi	Orange or fleshy sea pen		X				X				X	X	X			
Scytalium sp.	Sea pen		X	X	X											
Stomphia coccinea	Swimming anemone	X	X								X	X				X
Stompia spp.	Swimming anemone										X	X				
Stylaster californicus (formerly Allopora californica)	California hydrocoral													X	X	
Stylatula elongata	White sea pen	X	X	X	X	X				X	X	X	X			
Stylatula sp.	Sea pen	X	X	X	X										X	
Urticina columbiana	Sand-rose anemone	X														
Urticina piscivora	White-spotted rose anemone	X														
Urticina sp.	Anemone, unident.	X	X	X	X											
Urticina lofotensis	White-spotted rose anemone	X												X		

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Urticina mcpeaki	McPeak's urticina													X		
Virgularia californica	Sea pen	X	X	X	X											
Virgularia sp	Sea pen	X	X	X	X											
Virgularidae unident.	Sea pen	X	X	X	X											
Annelida																
Amphinomidae	Free living Polychaete				X											
Chaetopterus variopedatus	Parchment worm					X										
Chloeia pinnata	Free living polychaete				X											X
Cossura	Polychaete														X	
Diopatra ornata	Ornate tube worm	X	X								X					
	Tube Worm, unident.	X	X	X	X											
Diopatra splendidissima	Splendid diopatra					X										
Lumbrineris	polychaete														X	X
Maldanidae	polychaete mound worms					X										
Mediomastus	Polychaete worm														X	
Nephtys	Catworm														X	
Paraprionospio sp.	polychaete														X	X
Pectenaria	Fanworm														X	
Phyllochaetopterus	Parchment worms					X										
Prionospio	(No common name)														X	
Sabellidae unident.	Feather duster worms													X		
Spiophanes	(No common name)														X	
Tharyx	(No common name)															X
	Unknown feathered tube worm		X													
Mollusca																
Aplysia californica	California sea hare													X		
Axinopsida	(No common name)														X	
Bivalve Mollusk	Clam like bivalve		X								X					
Cadlina leuteomarginata	Yellow-edged cadlina													X		
Calliostoma annulatum	Purple ring top snail		X													
Ceratostoma foliatum	Leafy hornmouth													X		
Chaceia ovoidea	Wart-necked piddock													X		
Crassedoma giganteum	Rock scallop													X		

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Cyclocardia	(No common name)														X	
Cypraea spadicea	Chestnut cowry													X		
Dendrodoris sp.	Dendrodorid nudibranch													X		
Diaulula sandiegensis	San Diego dorid													X		
Dirona albolineata	White-lined dirona													X		
Doris montereyensis	Monterey dorid													X		
Flabellinopsis iodinea	Spanish shawl nudibranch													X		
Gastropoda	Marine snail	X	X								X					
Haliotis corrugata	Pink abalone													X		
Haliotis fulgens	Green abalone													X		
Haliotis rufescens	Red abalone													X		
Kelletia undosum	Kellet's whelk													X		
Lithopoma undosum	Turban snail													X		
Loligo sp.	Squid	X	X	X	X											
Megathura crenulata	Giant keyhole limpet													X		
Mexichromis porterae	Porter's chromodorid													X		
Mitrella sp.	Sea snail															X
Norrisia norrisi	Norris's topsnail													X		
Nudibranch, dorid white	Sea slug										X					
Octopoda	Octopus										X	X			X	
Octopus bimaculoides	Two-spot octopus													X		
Octopus californicus	Deep water octopus							X	X							
Octopus rubescens	Octopus	X	X	X	X											
Parapholas californica	Scaleside piddock													X		
Parvilucina sp.	(No common name)														X	
Peltodoris nobilis	Sea lemon													X		
Pleurobranchea californica	Sea slug		X	X	X			X			X	X	X			X
Tritonia diomedea	Large triton slug							X								
Ectoprocta																
(Unknown)	Bryozoa, orange branching		X													
(Unknown)	Bryozoa, orange encrusting	X	X	X												
(Unknown)	Bryozoa, pink encrusting	X	X	X												
(Unknown)	Bryozoa, unknown	X	X	X												

Table 3.3-1. Macrobenthic Invertebrates and Alga Taxonomic List for Fiber-Optic Cable Route Surveys Conducted in Coastal California Waters by Depth (from AMS, 2015)

Scientific Name	Common Name	Morro Bay				Hermosa Beach				Monterey Bay				So. Calif. Bight	Global West	
		9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-150m	150-300m
Cellaria sp.	Stick-figure bryozoan		X													
Arthropoda																
Barnacle	Unidentified barnacle													X		
Cancer antennarius	Brown rock crab													X		
Cancer gracilis	Slender crab	X	X	X	X											
Cancer productus	Red rock crab					X										
Cancer spp.	Crab	X	X	X	X					X	X	X	X		X	
Euphilomedes	(No common name)														X	
Galatheidae	Squat lobster														X	X
Hemisquilla ensigera	Manta shrimp						X									
Hinnites giganteus	Rock scallop		X											X		
Loxorhynchus crispatus	Masking crab	X												X		
Majidae	Masking spider crab							X								
Paguristes sp.	Hermit crab		X													
Pandalid shrimp	Shrimp		X	X	X											
Pandalis jordani	Pacific ocean shrimp		X	X	X											
Pandalus gurneyi	Coonstriped shrimp													X		
Pandalus platyceros	California spot prawn						X									
Panulirus interruptus	California spiny lobster													X		
Paralithodes californiensis	California king crab								X							
Photis	Amphipod														X	
Pugettia producta	Northern kelp crap													X		
Pugettia richii	Cryptic kelp crab													X		
Sicyonia	Prawn														X	
Echinodermata																
Allocentrotus fragilis	Pink sea urchin								X							X
Amphiodia urtica	Brittle star		X	X	X											
Amphiodia sp.	Brittle star		X	X	X										X	X
Amphipholis sp.	Brittle star		X	X	X										X	
Asterina miniata	Bat star	X	X	X	X									X	X	
Asteroidea unident.	Sea star									X	X	X				
Astometis sertulifera	Fragile rainbow star													X		
Astropecten verrilli and/or	Spiny sand star		X			X								X	X	X

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		9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-150m	150-300m
A. armatus																
Brisaster	Sea urchin															X
Brisingidae	Sea star											X				X
Centrostephanus coronatus	Black sea urchin													X		
Ceramaster patagonicus	Cookie cutter sea star													X		
Crinoidea	Orange crinoid					X										
Cucumaria piperata	Salt-and-pepper sea cucumber													X		
Dedraster ecentricus	Sand dollar		X													
Dermasterias imbricata	Leather star		X											X		
Ecinoderm, juvenile unident.	Juvenile sea star	X	X													
Florometra serratissima	Crinoid															X
Henricia spp.	Sea star													X	X	
Hippasteria sp.	Sea star												X		X	
Holothuroidea sp.	Sea cucumber						X	X								
Linckia columbianus	Fragile star													X		
Lytechinus anamesus	White urchin						X							X	X	
Lytechinus pictus	White sea urchin															
Mediaster aequalis	Red sea star	X	X				X		X		X	X	X			X
Ophiocantha diplasia	Brittle star														X	
Ophionereis sp.	Brittle star		X												X	X
Ophiocantha dispasia	Brittle star		X													
Ophiocanthus sp.	Brittle star		X													
Ophiothrix spiculata	Brittle star															
Ophiura sp.	Brittle star	X	X	X	X											
Ophiuroids	Brittle star	X	X	X	X		X									
Ophioplocus esmarki	Smooth brittle star													X		
Orthasterias koehleri	Rainbow sea star	X												X		
Parastichopus californicus	Sea cucumber					X	X	X	X				X	X		
Parastichopus leukothele	Sea cucumber												X			
Parastichopus parvimensis	Purple sea cucumber													X		
Peridontaster	(No common name)															X
Parastichopus sp.	Sea cucumber			X		X			X				X		X	
Peridontaster	(No common name)															

Table 3.3-1. Macrobenthic Invertebrates and Alga Taxonomic List for Fiber-Optic Cable Route Surveys Conducted in Coastal California Waters by Depth (from AMS, 2015)

Scientific Name	Common Name	Morro Bay				Hermosa Beach				Monterey Bay				So. Calif. Bight	Global West	
		9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-150m	150-300m
Petalaster (luidia) foliolata	Leafy flat star	X	X	X	X		X		X		X	X	X			
Pisaster brevispinus	Pink sea star	X	X			X								X		
Pisaster sp.	Sea star	X	X													
Pisaster giganteus	Giant-spined sea star	X	X	X										X		
Pisaster ochraceus	Ochre star													X		
Poraniopsis inflata	Fat yellow sea star								X							
Pteraster sp.	Sea star										X					
Pycnopodia helianthoides	Sunflower star	X		X						X	X			X		
Rathbunaster californica	Multi-armed sea star		X	X	X						X	X	X		X	
Solaster dawsonii	Morning sun star		X													
Strongylocentrotus franciscanus	Red sea urchin													X		
Strongylocentrotus purpuratus	Purple sea urchin													X		
Stylasterias forreri	Fish-eating star											X	X	X		
Urorchordata																
Cystodytes sp.	Lobed tunicate		X													
Polyclinum planum	Elephant ear tunicate		X													
Styela montereyensis	Stalked tunicate													X		
Brachiopoda																
Laqueus californianus	Lampshell												X			

The most common algal and invertebrate taxa observed included the ornate tube worm (*Diopatra ornata),* cancer crabs *(Cancer* sp.*),* the slender crab *(Cancer gracilis),* the masking crab *(Loxorhynchus crispatus),* octopus *(Octopus rubescens* and *O. bimaculatus/bimaculoides)*), the white sea pen (*Stylatula elongata*), the sea cucumber (*Parastichopus californicus*), the sunflower star (*Pycnopodia helianthoides*), occasional polychaete tube worms, *Pachycerianthus* anemones, the spiny sand star (*Astropecten B. armatus)*, the short-spined seastar (*Pisaster brevispinus)*, and the seastar *Petalster* (*Luidia) foliolata*, the sea pansy (*Renilla kollikeri*), swimming crabs (*Portunus xantusii*), an occasional hermit crab, and sand dollars (*Dendraster excentricus*). The sea stars *Asterina miniata* and *Mediaster aequalis* were occasionally observed in soft substrate located in close proximity to exposed hard substrate. In the coarser sand habitats, the invertebrate community was typically dominated by ornate tubeworms and sand dollars when they were present in colonies occupying fairly narrow bands. Algal populations of very small red and brown algae have been reported occasionally occurring attached to worm tubes (AMS, 2015). In the deeper water depths of this depth range, where the sediments shift to finer muds, brittle stars (*Ophiura* spp.) start to occur.

It is not uncommon to observe various species of drift algae along the seafloor, including giant kelp (*Macrocystis pyrifera*) and feather boa kelp (*Egregia menziesii*) when hard substrate is located nearby.

Hard Substrate

Hard substrate habitat types typically observed in the 0- to 100-foot (0- to 30-meter) depth include mixed bottom (a combination of coarse sand, cobble, and small rocks less than 1 foot [0.3 meter] in height above the seafloor), low substrate consisting primarily of exposed bedrock and small boulders, and occasionally higher relief (greater than 3.3 feet [1 meter]) above the seafloor.

The biological community inhabiting these hard substrate habitats is typically dominated by a dense mat of turf species (a mixture of small hydroids, bryozoans, tunicates, and sponges), occasional red and brown algae, and the white-plumed anemone (*Metridium farcimen* [=*giganteum*]). Other species that were present at some locations included surfgrass (*Phyllospadix* sp.) in the very shallow depths of this zone include the sea anemone (*Actinaria* sp.), strawberry or club-tipped anemone (*Corynactis californica*), the swimming anemone (*Stomphia coccinea*), squid (*Loligo* sp.), crab (*Cancer* sp.), the masking crab (*Loxorhynchus crispatus*), the bat star (*Asterina miniata*), the red sea star (*Mediaster aequalis*), the giant-spined sea star (*Pisaster giganteus*) and other *Pisaster* sea stars, brittle stars (*Ophiura* spp.), and occasional sea hares (*Aplysia californica*).

Giant kelp forms large dense forests in the nearshore waters of Southern California and throughout the Channel Islands, where clear water allows them to grow in water depths exceeding 100 feet (33 meters). These kelp forests are home to many marine animals and act as spawning and nursery grounds for many invertebrates and fish. Giant kelp anchors itself to the seafloor by attaching its holdfast to small boulder-sized rocks or rocky outcroppings. The closest giant kelp beds to Hermosa Beach are 3 to 4 miles (5 to 7 kilometers) to the south at the Palos Verdes shelf, and approximately 12 miles (19 kilometers) to the north at the southern edge of the Malibu coast (AMS, 2015).

Surfgrass is a flowering marine plant in the family Zosteraceae and can be found throughout coastal California where suitable habitat occurs. It is most commonly observed attached to rocks in the middle to low intertidal zone, but where conditions are favorable, it can occur to depths of 40 to 50 feet (12 to 15 meters). No known surfgrass beds occur near Hermosa Beach, with the largest known occurrence offshore from Topanga Canyon to the north (Pondella et al., 2011).

Eelgrass (*Zostera marina*) is a marine seagrass typically found in protected bays and estuaries from the low intertidal to a depth of approximately 65 feet (19.8 m). Limited eelgrass beds have also been

documented in fairly protected nearshore environments. This habitat functions as an important structural element in the marine environment, dampening wave and current action, trapping suspended particulates, and reducing erosion by stabilizing the sediment. In addition, eelgrass beds provide essential habitat for a variety of marine organisms. Eelgrass beds provide one of the greatest sources of primary production of any nearshore marine ecosystem, forming the base of detrital-based food webs, as well as providing a food source for organisms that feed directly on eelgrass leaves, such as migrating waterfowl. Eelgrass is also a source of secondary production, supporting epiphytic plants, animals, and microbial organisms that in turn are grazed upon by other invertebrates, larval and juvenile fish, and birds. Additionally, eelgrass beds function as nursery areas for many commercially and recreationally important finfish and shellfish species. (City of Hermosa Beach and Marine Research Specialists, 2014)

The current distribution of eelgrass in Santa Monica Bay is limited to small patches at Mother's Beach at the northern end of Marina del Rey and in King Harbor, as well as several areas associated with semi-protected habitats in the northern portion of the Bay at Pepperdine, Latigo Point, and Escondido (Chesney, 2005; Stephens et al., ca. 1990). There are no confirmed observations of eelgrass along the non-protected habitats of the central portion of the Bay (City of Hermosa Beach and Marine Research Specialists, 2014).

Habitats and Associated Biota Observed in the 100 to 330 Foot (30 to 100 Meter) Depth Range

Soft Substrate

Soft substrate habitats normally observed in the 100- to 330-foot (30- to 100-meter) depth range in the region include scattered mixed bottom and coarse sand substrate where bottom currents or wave energy continue to wash the seafloor and fine muds. The coarser sand substrates are normally only seen at the shallower depths of this depth range. The finer mud substrate is typically pockmarked with burrow holes.

The soft substrate macrofauna is dominated by several species of sea pens (*Ptilosarcus gurneyi, Stylatula elongata, Acanthoptilum* spp.*)*, the sea slug (*Pleurobranchea californica*), and the leafy flat star (*Petalaster [Luidia] foliolata*). Also frequently observed were crabs (*Cancer* sp.), the red sea star (*M. aequalis*) and multi-armed sea star (*Rathbunaster californica*), Cerianthidae anemones, the swimming anemone (*Stomphia coccinea*), the ornate tubeworm *(D. ornata*) in the coarser sediments, brittle stars (Ophiuroids), and the sunflower star (*Pycnopodia helianthoides*). One noticeable difference between surveys conducted in Central California and Southern California is the presence of the sea cucumber (*Parastichopus californicus*). It is observed more frequently in Southern California than farther north. Table 3.3-1 provides a summary of observed invertebrate taxa by water depth range.

Hard Substrate

Hard substrate habitat types observed in the 100- to 330-foot (30- to 100-meter) water depth range include mixed bottom in the shallower depths and low, moderate, and high relief. The predominant hard substrate community appears to be dominated by turf, and the white-plumed anemone. Also commonly occurring were cup corals (*Paracyathus stearnsii*), assorted crabs (*Cancer* spp.) and shrimp, the red sea star (*M. aequalis*), the swimming anemone, and brittle stars. Additionally, soft gorgonian corals are occasionally observed, including *Lophogorgia chiliensis* and *Eugorgia rubens* (Table 3.3-1).

Habitats and Associated Biota Observed in the 330 to 600 Foot (100 to 183 Meter) Depth Range

Soft Substrate

The soft substrate habitat exclusively observed in the 330 to 600 foot (100 to 183 meter) depth range is soft mud. The macrobenthic community in this depth range is characterized by sea pens (*S. elongata, Virgularia* spp.), the leafy flat star (*P. foliolata*), crabs (*Cancer* spp.), and assorted shrimp. Other commonly or frequently occurring taxa include the sea slug (*P. californica*), the red sea star (*M. aequalis*), several species of sea anemones (e.g. *Urticina* spp.), the multi-armed sea star (*R. californica),* the free-living polychaete (*Chloeia pinnata*), pink sea urchin (*Allocentrotus fragilis*), brittle stars (*Amphiodia* sp. and Ophiuroidea), and the sea cucumber (*P. californicus*) (Table 3.3-1).

Hard Substrate

Hard substrate habitat types observed in the 330- to 600-foot (100- to 183-meter) water depth range are the same as those present in the 90- to 300-foot (30- to 100-meter) water depths. The macrobenthic taxa are similarly characterized with turf, cup corals, and the white-plumed anemone being the most often observed. Also commonly observed were the giant basket star (*Gorgonocephalus eucnemis*), brittle stars (Ophiuroidea), various species of crabs (*Cancer* spp.), and the red sea star (*M. aequalis*). Also commonly observed at some locations are crinoids (e.g. *Florometra serratissima*).

It is at these depths (and deeper) where the deep-water corals have been reported to be occasionally present along the potential fiber-optic cable routes. Based on favorable high relief, current speeds, and sedimentation rates, branching hard and soft corals have been reported including the branching white coral *Lophelia* sp. and the California hydro coral *Stylaster californicus (Allopora californica*). *Stylaster* can also occur in shallower water depths where conditions are favorable, although frequently in a very small, stunted form (Table 3.3-1).

Ridge and Basin Benthic Communities

The proposed cable routes would cross multiple ridges and basins before landing at Hermosa Beach. These ridges and basins have associated slopes, escarpments, and basins providing a unique type of hard-bottom substrate. Thompson et al. (1993) described the community assemblages for these habitat types from transect studies in the San Pedro Basin to the Patton Escarpment at depths of 5,900 feet (1,800 meters) (Table 3.3-2).

Table 3.3-2. Deep Benthic Species Along Ridges and Basins of the Southern California Coast

Location	Depth Range (feet [meters])	Slope Type	Species
Mainland Shelf	98.4–492 (30–150)	Flat	Brittle star (*Amphiodia urtica*) Painted urchin (*Lytechinus pictus*)
	492–1,640 (150–300)	Upper slope	Tube worm (*Maldane sarsi)* Sea urchin (*Allocentrotus fragilis*)
	1,640–2,460 (500–750)	Lower Slope	Polychaete worm (*Anobothrus trilobata*) Sea urchin (*Brissopsis pacifica*)
Offshore	1,640–4,920 (500–1,500)	Lower Slope	*Byblis* spp. Polychaete worm (*Phyllochaetopterus* sp.)
Santa Catalina Basin	1,640–4,920 (500–1,500)	Lower Slope	Polychaete worm (*Tharyx* sp.) Ophiuroid, brittle sea star (*Ophiophthalamus normani*) Sea cucumber (*Scotoplanes* sp.)

Table 3.3-2. Deep Benthic Species Along Ridges and Basins of the Southern California Coast			
Location	Depth Range (feet [meters])	Slope Type	Species
San Nicolas Basin	1,640–4,920 (500–1,500)	Lower Slope	Segmented marine worm (*Nephasoma nicolasi*)
Offshore shelves, ridges, and banks	98.4–1,640 (30–500)	Upper Slope	Dwarf brittle star (*Amphipholis squamata*) Polychaete worm (*Chloeia pinnata*) Sea urchins (*Echinoids*)

Source: Thompson et al. (1993), as summarized in E&E (2001)

Deep-Sea Coral Communities and Organisms

Deep-sea corals (also called cold-water corals) are a diverse group of organisms of over 3,000 species found worldwide. They occur primarily on hard-bottom substrate on the continental shelf and slope, offshore canyons, and on oceanic island slopes and seamounts. Deep-sea coral are commonly found at depths below 164 to 3,280 feet (50 to 1,000 meters).

Deep-sea coral ecosystems are long lived, slow growing, and fragile, which makes them especially vulnerable to physical damage. The calcified skeletons of branching stony coral species form vertical reef-like structures in deep water. Gorgonians and black corals often have branching, tree-like forms and can occur singly or form thickets. These three-dimensional features and vertical structures provide habitat for numerous fish and invertebrate species and enhance the biological diversity of many deep-sea ecosystems.

Included with deep-sea corals are sea pens (Order Pennatulacea), which occur over soft-bottom substrates. Some sea pens are more mobile and can uncover themselves if buried by sediment and re-anchor with a stem-like foot if detached from the bottom. Their contribution to deep-sea ecosystems is less well known.

The National Oceanic and Atmospheric Administration (NOAA) has an increased interest in these ecosystems and especially the potential for impacts from bottom contact fishing activities (NOAA, 2010). Deep-sea coral are being evaluated for designation as Essential Fish Habitat (EFH) within the Pacific Coast Groundfish Fishery Management Plan (FMP) and likely will be designated once the 5-year review is complete.

NOAA has established a Deep Sea Coral Research and Technology Program under the authority of Section 408 of the Magnuson-Stevens Fishery Management and Conservation Act (MSFCMA) reauthorization (see Section 3.3.2.1 for additional information on the MSFCMA). This program includes deep-sea surveys and developing models to predict where deep-sea coral may be located using habitat suitability indices. Anticipated products from the program are maps that show fishing and other human activities in areas deep-sea coral is known or is likely to be present and recommendations for future deep-sea coral zones, areas of particular concern, or other marine protected areas to reduce interactions.

There is limited mapping of known occurrences of deep-sea coral in the proposed Project area. Christmas tree coral (*Antipathes dendrochristos*), a species of black coral that occurs in the SCB, has been documented around Piggy Bank and on Hidden Reef north of Santa Catalina Island; there are also a few documented occurrences around San Nicolas Island (Huff et al., 2013). The biological survey for the TGN fiber-optic cable project (E&E, 2001) reported encountering a few species of deep-sea fan corals (gorgonians) and sea pens (Order Pennatulacea) (Table 3.3-3).

Table 3.3-3. Deep-Sea Corals Identified During Remotely Operated Vehicle (ROV) Submarine and Diver Biological Surveys for the TGN Project

Scientific Name	Common Name
Acanthoptilum sp.	Deepwater sea pen
Adelogorgia phyllosclera	Orange gorgonian
Eugorgia rubens	Purple gorgonian
Ptilosarcus gurneyi	Fleshy sea pen
Stylatula elongata	White sea pen

Source: E&E (2001)

Huff et al. (2013) mapped ocean currents, primary productivity (chlorophyll), and temperature against known locations of Christmas tree coral to develop a predictive model for the SCB. Based on these environmental correlates they predicted bands of low occurrence, interspersed with isolated pockets of high occurrence in the Project area. Specific locations of coral within these bands of low occurrence and pockets of high occurrence depend on the availability of hard-bottom substrate. Guinotte and Davies (2014) developed a habitat suitability model for multiple species of deep-sea coral for the U.S. West Coast. They reported bands of suitable habitat associated with specific bathometric features in the Project area. Both studies show suitable deep-sea coral habitat in places that would be crossed by the proposed cable routes. Specific locations where the proposed cable routes may encounter deep-sea coral are the following.

- Bottom slopes south of the Channel Islands and around Piggy Bank;
- High-relief bottom between Santa Barbara Island and the Channel Islands; and
- High-relief bottom between San Nicolas Island and the Channel Islands.

Fish Communities

The distribution of fishes off the California coast is influenced by depth, substrate type, temperature, and ocean currents, which, when integrated, often define fish habitat. Fish communities in Santa Monica Bay, including the vicinity of the proposed cable landing sites in Hermosa Beach and along the shallow offshore route, have been studied intensively over the past few decades as part of one of the few long-term quarterly monitoring programs (1974 to present) in the region (AMS, 2015). This ongoing research, combined with data from fiber-optic cable reconnaissance surveys and nearshore monitoring programs, is the basis for describing fish communities. Although many marine resources, including fishes, are typically distributed by depth and habitat type, the following description of fish communities is divided by substrate type. Table 3.3-4 provides a summary of the fish species by depth range, and a master list of fish species observed during several fiber-optic cable reconnaissance surveys and monitoring projects in Southern California is presented in AMS (2015).

Table 3.3-4. Fish Taxonomic List for Fiber-Optic Cable Route Surveys Conducted in Coastal California Waters by Depth (from AMS, 2015)

Scientific Name	Common Name	Morro Bay				Hermosa Beach				Monterey Bay				So. Calif. Bight	Global West	
		9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-150m	150-300m
Agonidae unident.	Poacher		X	X			X						X			
Alloclinus holderi	Island kelpfish													X		
Anisotremus davidsonii	Sargo													X		
Anoplodoma fimbria	Sablefish						X					X	X			
Artedius corallinus	Coralline sculpin													X		
Argentina sialis	Pacific Argentine						X		X							
Atherinops affinis	Topsmelt													X		
Atherinopsidae	Silverside													X		
Atherinopsis californiensis	Jack smelt													X		
Aulorhynchus flavidus	Tubesnout	X			X									X		
Balistes polylepis	Finescale triggerfish													X		
Caulolatilus princeps	Ocean whitefish													X		
Cephaloscyllium ventriosum	Swell shark	X												X		
Cheilotrema saturnum	Black croaker													X		
Chilara taylori	Spotted cusk-eel	X	X	X	X											
Chilara sp	Cusk-eel	X	X	X	X											
Chromis punctipinnis	blacksmith													X		
Citharichthys sordidus	Pacific sanddab		X	X	X		X		X							
Citharichthys spp	Sanddab		X	X	X					X	X	X	X			
Clinidae	kelpfish													X		
Clinocottus analis	Wooly sculpin													X		
Cottidae unident.	Sculpin		X	X	X						X	X	X			
Cymatogaster aggregata	Shiner perch					X								X		
Embiotoca jacksoni	Black perch													X		
Embiotoca lateralis	Striped seaperch													X		
Engraulis mordax	Northern anchovy	X	X	X	X									X		
Enophrys taurina	Bull sculpin		X													
Eptatretus stouti	Pacific hagfish		X	X	X											
Galeorhinus galeus	Soupfin shark													X		
Genyonemus lineatus	White croaker		X													
Gibbonsia elegans	Spotted kelpfish													X		
Gibbonsia sp.	Kelpfish													X		
Girella nigricans	Opaleye													X		

Table 3.3-4. Fish Taxonomic List for Fiber-Optic Cable Route Surveys Conducted in Coastal California Waters by Depth (from AMS, 2015)

Scientific Name	Common Name	Morro Bay				Hermosa Beach				Monterey Bay				So. Calif. Bight	Global West	
		9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-150m	150-300m
Glyptocephalus zachirus	Rex sole												X			X
Gobiidae sp.	Unidentified goby													X		
Gymnothorax mordax	California moray													X		
Hydrolagus colliei	Spotted ratfish		X						X							
Halichoeres semicinctus	Rock Wrasse													X		
Hermosilla azurea	Sebraperch													X		
Heterodontus francisci	Horn shark													X		
Heterostichus rostratus	Giant Kelpfish													X		
Hexagrammos decagrammus	Kelp greenling													X		
Hyperprosopon argenteum	Walleye surfperch													X		
Hypsurus caryi	Rainbow seaperch													X		
Hypsypops rubicundus	Garibaldi													X		
Leiocottus hirundo	Lavender scuplin													X		
Lethops connectens	Halfblind goby													X		
Lycodes sp.	Eelpout		X	X	X								X			
Lycodes cortezanus	Bigfin eelpout												X			X
Lycodopsis pacifica	Blackbelly ellpout								X							
Lythrypnus dalli	Bluebanded goby													X		
Medialuna californiensis	halfmoon													X		
Merluccius productus	North Pacific hake							X	X							X
Micrometrus minimus	Dwarf surfperch													X		
Microstomus pacificus	Dover sole		X	X			X		X				X			X
Myliobatis californicia	California bat ray					X								X		
Ophiodon elongatus	Lingcod		X						X				X	X		X
Orthonopias triacis	Snubnose sculpin													X		
Oxyjulis california	Senorita					X								X		
Oxylebius pictus	Painted Greenling													X		
Paralabrax clathratus	Kelp bass	X	X											X		
Paralabrax neubulifer	Barred sandbass					X								X		
Paralichthys californicus	California halibut		X	X	X	X								X		
Phanerodon atripes	Sharpnose seaperch													X		
Phanerodon furcatus	White seaperch													X		
Pleuronectes vetulas	English sole		X	X									X			
Pleuronectidae unident.	Sole		X	X	X											

Table 3.3-4. Fish Taxonomic List for Fiber-Optic Cable Route Surveys Conducted in Coastal California Waters by Depth (from AMS, 2015)

Scientific Name	Common Name	Morro Bay				Hermosa Beach				Monterey Bay				So. Calif. Bight	Global West	
		9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-150m	150-300m
Pleuronichthys coenosus	C-O sole							X								
Pleuronichthys ritteri	Spotted turbot					X										
Porichthys notatus	Plainfin midshipman															X
Raja binoculata	Big skate		X													
Raja rhina	Longnose skate			X							X	X	X			
Raja sp.	Skate		X	X					X		X					
Rathbunella alleni	Stripefin ronquil													X		
Rhacochilus toxotes	Rubberlip seaperch													X		
Rhacochilus vacca	Pile perch													X		
Rhinogobiops nicholsii	Blackeye goby													X		
Sarda chiliensis	Bonito													X		
Sardinops sagax	Pacific sardine													X		
Scomber japonicus	Pacific chub mackerel													X		
Scorpaena guttata	California scorpionfish													X		
Scorpaenichthys marmoratus	Cabezon													X		
Scorpaenodes xyris	Rainbow scorpionfish													X		
Sebastes atrovirens	Kelp rockfish													X		
Sebastes auriculatus	Brown rockfish													X		
Sebastes cimplex	Brown rockfish													X		
Sebastes carnatus	Gopher rockfish													X		
Sebastes caurinus	Cooper rockfish													X		
Sebastes crameri	Darkblotched rockfish												X			
Sebastes chrysomelas	Blank-and-yellow rockfish													X		
Sebastes dallii	Calico rockfish													X		
Sebastes diplopora	Splitnose rockfish												X			
Sebastes elongatus	Green stripped rockfish												X			
Sebastes jordani	Shirtbelly rockfish											X	X			
Sebastes melanostomus	Blackgill rockfish															X
Sebastes miniatus	Vermillion rockfish													X		
Sebastes mystinus	Blue rockfish													X		
Sebastes paucispinus	bocaccio													X		
Sebastes pinniger	Orange rockfish						X									
Sebastes rastrelliger	Grass rockfish													X		

Table 3.3-4. Fish Taxonomic List for Fiber-Optic Cable Route Surveys Conducted in Coastal California Waters by Depth (from AMS, 2015)

Scientific Name	Common Name	Morro Bay				Hermosa Beach				Monterey Bay				So. Calif. Bight	Global West	
		9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-85m	85-100m	100-300m	9-30m	30-150m	150-300m
Sebastes rosaeeus	Rosy rockfish	X	X													
Sebastes rubrivinctus	Flag rockfish						X									
Sebastes saxicola	Stripetail rockfish												X			
Sebastes semicinctus	Half banded rockfish						X	X	X							
Sebastes serriceps	Tree fish													X		
Sebastes serrinoides	Olive rockfish		X											X		
Sebastes serrinoides/flavidus	Olive/yellowtail rockfish													X		
Sebastes spp. (juveniles)	Rockfish (juveniles)	X	X	X	X					X	X		X			
Sebastes spp. (adult)	Rockfish (adult)	X	X	X	X									X		
Sebastes umbrosus	Honeycomb rockfish						X							X		
Sebastolobus alascanus	Shortspine thornyhead															X
Semicossyphus pulcher	Claifornia sheephead													X		
Seriphus politus	queenfish					X										
Sphyraena argentea	Pacific barracuda													X		
Squalus acanthias	Dogfish shark								X							
Squatina californica	Pacific angel shark		X			X								X		
Stereolepis gigas	Giant sea bass													X		
Symphurus atricauda	California tonguefish		X	X												
Synodus luciocepsis	California lizardfish					X					X	X				
Torpedinidae	Torpedo ray										X	X				
Torpedo californica	Pacific electric ray		X													
Trachurus symmetricus	Jack mackerel													X		
Triakis semifasciata	Leopard shark													X		
Urobatis halleri	Round stingray													X		
Xeneretmus leiops	Smootheye poacher															X
Xenistius californiensis	Salema													X		
Zalembius rosaceus	Pink surfperch		X	X			X		X		X	X	X			
Zanioleis latipinnis	Longspine combfish			X			X		X							
Zapteryx exasperata	Banded guitarfish		X													
Zoarcidae unident	Eelpout												X			

Hard Substrate

Nearshore rocky reefs in the SCB are highly variable in terms of both abiotic and biotic reef structure, and metrics of the associated macroinvertebrates (see above discussion) and fishes (Pondella et al., 2011). Surveys conducted during the Regional Bight monitoring program documented a total of 78 fish species on or near rocky reef habitat. The most dominant fish species in terms of numerical density during the Regional Bight program were the schooling blacksmith (*Chromis punctipinnis*) and senorita (*Oxyjulis californica*), followed by kelp perch (*Brachyistius frenatus*). Other schooling species that were commonly collected included tubesnouts (*Aulorhynchus flavidus*), opaleye (*Girella nigricans*), jacksmelt (*Atherinopsis californiensis*), topsmelt (*Atherinops affinis*), and blue rockfish (*Sebastes mystinus*). These species are found throughout the water column, in the midwater, and within and around giant kelp (*Macrocystic pyrifera*) canopy. Note that no kelp forests occur near the proposed landing sites or along the proposed offshore route. In addition to water column fish species, numerous demersal (i.e., fishes living on or near the sea floor) species are associated with rocky reef and hard bottom habitat, including kelp bass (*Paralabrax clathratus*), California sheephead (*Semicossyphus pulcher*), garibaldi (*Hypsypops rubicundus*), and black perch (*Embiotoca jacksoni*) (Pondella et al., 2011). Fish assemblages on deep-water rock outcrops are dominated by rockfishes such as yellowtail rockfish (*Sebastes flavidus*), bocaccio (*S. paucispinis*), chilipepper (*S. goodei*), widow (*S. entomelas*), and greenspotted and starry (*S. constellatus*) rockfishes (Love and Yoklavich, 2006). These same species are expected to be found in the vicinity of hard bottom features along the offshore cable route.

Soft Substrate

Soft bottom habitat is the most widespread benthic habitat on the Southern California shelf (Allen et al., 2011). Demersal fishes occupying this habitat are relatively sedentary compared to pelagic fish species and respond more readily to changes in the benthic environment. Allen et al. (2011) reported a total of 135 species of fish that were collected during the 2008 Regional trawl survey of the Bight monitoring program, with a median value of 11 fish species per haul for the entire SCB. Fishes that are found in shallow water soft bottom habitats are typified by flatfishes such as sanddabs (*Citharichthys* spp.), California halibut (*Paralichthys californicus*), lizardfish (*Synodus luciocepsis*), shiner surfperch (*Cymatogaster aggregata*), and pink seaperch (*Zalembius rosaceus*) (AMS, 2015). Pelagic species that are common in the bays and nearshore areas off Hermosa Beach include northern anchovy (*Engraulis mordax*), topsmelt, California grunion (*Leuresthes tenuis*), and Pacific sardine (*Sardinops sagax*) (SAIC, 2010). Other common species associated with soft-bottom habitats in the area include white croaker (*Genyonemus lineatus*), queenfish (*Seriphus politus*), and white surfperch (*Phanerodon furcatus*) (SAIC, 2010). Soft-bottom habitats on the upper and middle slope (water depths from approximately 650 to 3300 feet (200 to 1,000 meters) are characterized by moderate numbers of fish species, including flatfishes such as Dover sole (*Microstomas pacificus*) and California halibut, rockfishes, Pacific hake (*Merluccius productus*), sablefish (*Anoplopoma fimbria*), and skates (AMS, 2015; see Table 3.3-4).

Magnusson-Stevens Act Managed Fish Species

This Essential Fish Habitat assessment is in accordance with the 1996 amendments to the MSFCMA. Essential Fish Habitat includes “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” 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. Substrate includes sediment, hard-bottom, 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 (50 CFR 600.10). An adverse effect is any impact that reduces quality and/or quantity of Essential Fish Habitat and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey species, including affected life history stages), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

The proposed Project alignments would traverse designated Essential Fish Habitat from Hermosa Beach seaward to the edge of the continental shelf (generally defined as the point where water depth reaches 5,905 feet [1,800 meters], the limit of regulatory jurisdiction for the proposed Project).

Santa Monica Bay and the coastal waters offshore Hermosa Beach, California, are located in an area designated as Essential Fish Habitat for three Fishery Management Plan area: Pacific Coast Groundfish (PFMC, 2014), Coastal Pelagic Species (CPS) (PFMC, 1998), and Highly Migratory Species (HMS) (PFMC, 2007).

The CPS live in the water column, not near the sea floor, and are usually found from the surface to over 1,000 meters deep (PFMC, 1998). There are six species of coastal pelagics managed under the CPS FMP, including Jack mackerel (*Traxchurus symmetricus*), krill (Euphausiids), Pacific mackerel (*Scomber japonicas*), Pacific sardine, market squid (*Loligo opalescens*), and Northern anchovy.

Groundfish Essential Fish Habitat includes waters and substrate found from depths less than or equal to 11,483 feet (3,500 meters) to the mean higher high water (MHHW) level or upriver extent of saltwater intrusion. Seamounts in depths greater than 11,483 feet (3,500 meters) and areas designated as a Habitat Area of Particular Concern (HAPC) are also included as designated Essential Fish Habitat. Artificial structures are not considered substrate unless they are designated as a HAPC.

All of the 83 groundfish species managed under the Pacific Groundfish Fishery Management Plan are found in diverse habitats at various stages in their life histories throughout Santa Monica Bay. Some species are broadly dispersed during specific life stages, especially those with pelagic eggs and larvae, while other species may have limited distributions (i.e., adult rockfishes in nearshore habitats) with strong affinities to a particular location or substrate type. Estuaries, sea grass beds, canopy kelp, rocky reefs, and other "areas of interest" (e.g., seamounts, offshore banks, canyons) are designated HAPCs for groundfish managed species.

Fish species managed under the Pacific Groundfish Fishery Management Plan known to inhabit Southern California waters include 13 species of flatfishes, 39 species of rockfish (*Sebastes* spp. and *Scorpaena guttata*), 2 species of thornyheads (*Sebastolobus* spp), 6 species of roundfishes, cabezon, kelp greenling, lingcod, Pacific cod, Pacific hake, and sablefish (Table 3.3-4). There are also 9 species of skates, sharks, and chimeras managed under this plan.

Essential Fish Habitat for Highly Migratory Species includes all marine waters from the shoreline to 200 nautical miles (370 kilometers) offshore, and no HAPCs have been adopted for Highly Migratory Species in the waters offshore Hermosa Beach, California. There are 5 species of shark managed under the Highly Migratory Species management plan, including bigeye thresher shark (*Alopias superciliosus*), blue shark (*Prionace glauca*), common thresher shark (*Alopias vulpinus*), pelagic thresher shark (*Alopias pelagicus*), and shortfin mako shark (*Isurus oxyrinchus*). In addition, there are 5 species of tunas managed under this plan and include albacore tuna (*Thunnus alalunga*), bigeye

tuna (*T. obesus*), Northern bluefin tuna (*T. orientalis*), skipjack tuna (*Katsuwonus pelamis*), and yellowfin tuna (*T. albacares*). Striped marlin (*Tetrapturus audax*) is the only species of billfish managed under the Highly Migratory Species management plan; while broadbill swordfish (*Xiphias gladius*) is the only species of swordfish, and dorado (mahi mahi) (*Coryphaena hippurus*) is the only species of dolphin fish managed under this plan.

Pelagic Communities

The pelagic community occupies the water column above the seafloor and below the surface. It consists of planktonic organisms (plants and animals) that are at the mercy of the winds, tides, and currents, as well as free swimming organisms known as nekton which are capable of moving through the water at will. They are predominately vertebrates, including fishes (described in greater detail above), reptiles, birds, and mammals.

Fish Species

Pelagic fish species common in the area are anchovy, mackerel, Pacific sardine, and tuna (*Thunnus* sp.). The pelagic fish community is predominately smaller planktivorous species (sardines and anchovy) that are prey to large piscivorous species, such as tuna, swordfish, sharks, and mackerel.

Marine Mammals

More than 40 species of marine mammals are reported as occurring within Santa Monica Bay, all of which are protected under the Marine Mammal Protection Act (MMPA). These include 34 species of cetaceans (whales, dolphins, and porpoises) and six species of pinnipeds (seals and sea lions) (AMS, 2015). Additionally, the southern sea otter (*Enhydra lutris nereis*), a representative of the weasel family, Mustelidae, is also occasionally observed in the area.

Marine mammals commonly observed in the area include California sea lions (*Zalophus californianus*) and Pacific harbor seals (*Phoca vitulina*). The most common dolphins in Santa Monica Bay, including offshore of the proposed landing sites off Hermosa Beach, are bottlenose dolphins (*Tursiops truncatus*), but Pacific white-sided (*Lagenorhynchus obliquidens*) and Risso's dolphins (*Grampus griseus*) are also occasionally observed (AMS, 2015). Other marine mammal species observed in Santa Monica Bay, although less frequently, include gray whales (*Eschrichtius robustus*), humpback whales (*Megaptera novaeangliae*), blue whales (*Balaenoptera musculus*), fin whales (*B. physalus*), minke whales (*B. acutorostrata*), sperm whales (*Physeter macrocephalus*), and killer whales (*Orcinus orca*). Carretta et al. (2001) surveyed the area around San Clemente Island and reported cetaceans (whales, dolphins, and porpoises), pinnipeds (seals and sea lions), and fissipeds (sea otters).

Table 3.3-5. Cetacean Species Observed in the Southern California Bight

Common Name	Scientific Name
Common dolphins	*Delphinus* spp.
Risso's dolphin	*Grampus griseus*
Short-finned pilot whale	*Globicephala macrorhynchus*
Fin whale	*Balaenoptera physalus*
Common bottlenose dolphin	*Tursiops truncatus*
Gray whale	*Eschrichtius robustus*
Blue whale	*Balaenoptera musculus*
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*
Humpback whale	*Megaptera novaeangliae*
Northern right whale dolphin	*Lissodelphis borealis*
Common minke whale	*Balaenoptera acutorostrata*
Dall's porpoise	*Phocoenoides dalli*
Orca (Killer) whale	*Orcinus orca*
Cuvier's beaked whale	*Ziphius cavirostris*
Bryde's whale	*Balaenoptera edeni*
Sperm whale	*Physeter macrocephalus*

Source: Jefferson, T. A., Smultea, M.A. 2014

Smultea and Jefferson (2014) evaluated the relative occurrence of the 16 most common cetacean species observed in the SCB. Their analysis integrated marine mammal surveys that have been con-

ducted in the region since the 1970s. Overall, recent aerial surveys indicate that the 16 most commonly seen species in the SCB, in descending order of frequency, were common dolphins (two species), Risso's dolphin, fin whale, common bottlenose dolphin, gray whale, blue whale, Pacific white-sided dolphin, humpback whale, northern right whale dolphin, common minke whale, Dall's porpoise, killer whale, Bryde's whale, Cuvier's beaked whale (the latter three tied in ranking), and sperm whale (Table 3.3-5). Six species of cetaceans are federally listed as endangered, while two species of pinnipeds and the southern sea otter are listed as threatened under the Federal Endangered Species Act (ESA). Select marine mammals are also discussed in the *Special-Status Species* section.

Sea Turtles

All species of sea turtles are protected under the ESA and are managed by NMFS and USFWS. Species of sea turtles reported in the Southern California region are green (*Chelonia mydas*), loggerhead (*Caretta caretta*), olive ridley (*Lepidochelys olivacea*), and leatherback (*Dermochelys coriacea*). Sightings are rare for these species because of range limits, low population abundance, and migratory behavior. Sea turtles are also discussed in the *Special-Status Species* section.

Marine Birds

Seabirds in the SCB are abundant and diverse, with more than 195 species of birds that use coastal or offshore habitats in the Project area (Baird, 1993). Many are present across the entire extent of the proposed cable routes and during all months of the year in the SCB (E&E, 2001). The highest abundance of seabirds occurs during the summer and autumn with the migrants, seasonal users, and nesting residents (E&E, 2001). In addition, oceanic productivity determines the abundance and distribution of seabird prey, which in turn, affects the abundance and distribution of seabirds (Baird, 1993), and since the highest ocean productivity occurs in waters overlying the continental shelves in areas of upwelling, where cold, rich, nutrient-rich water replaces warm surface waters, this area tends to support high diversity and abundance of seabirds. Select seabirds are also discussed in the *Special-Status Species* section.

Conservation Areas

Channel Islands National Marine Sanctuary

In 1980, the area surrounding the Santa Barbara Channel was designated as the Channel Islands National Marine Sanctuary under the National Marine Sanctuaries Act (NMSA). The sanctuary encompasses 1,470 square miles (3,807 square kilometers) surrounding San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara islands. The proposed cable routes pass outside of the current sanctuary boundaries.

California Marine Protected Areas

California Marine Protected Areas are marine or estuarine areas seaward of MHW designated for protection or conservation of marine species and habitats. The take, damage, injury, or possession of any marine resource is prohibited in a marine reserve. Some marine conservation areas prohibit the take, damage, injury, or possession of marine resources, while others permit recreational or commercial take when expressly allowed by regulation. The proposed cable routes pass adjacent to several marine reserves and marine conservation areas (see Figure 2-18). The marine reserves are associated with the Channel Islands National Marine Sanctuary.

Cowcod Conservation Areas

Cowcod (*Sebastes levis*) were declared "overfished" based on a 1999 statewide stock assessment. The state and federal agencies responsible for cowcod management implemented management measures to reduce the catch of cowcod in the SCB. Statewide, the take of cowcod is prohibited (managed as a "no-retention" fishery). Cowcod Conservation Areas were identified in 2001 to further protect the species. Most bottom-fishing is prohibited in the conservation areas at depths below approximately 20 fathoms (36 meters) in an area of the SCB where cowcod are abundant. The proposed cable routes cross portions of the Cowcod Conservation Areas (see Figure 3.3-1).

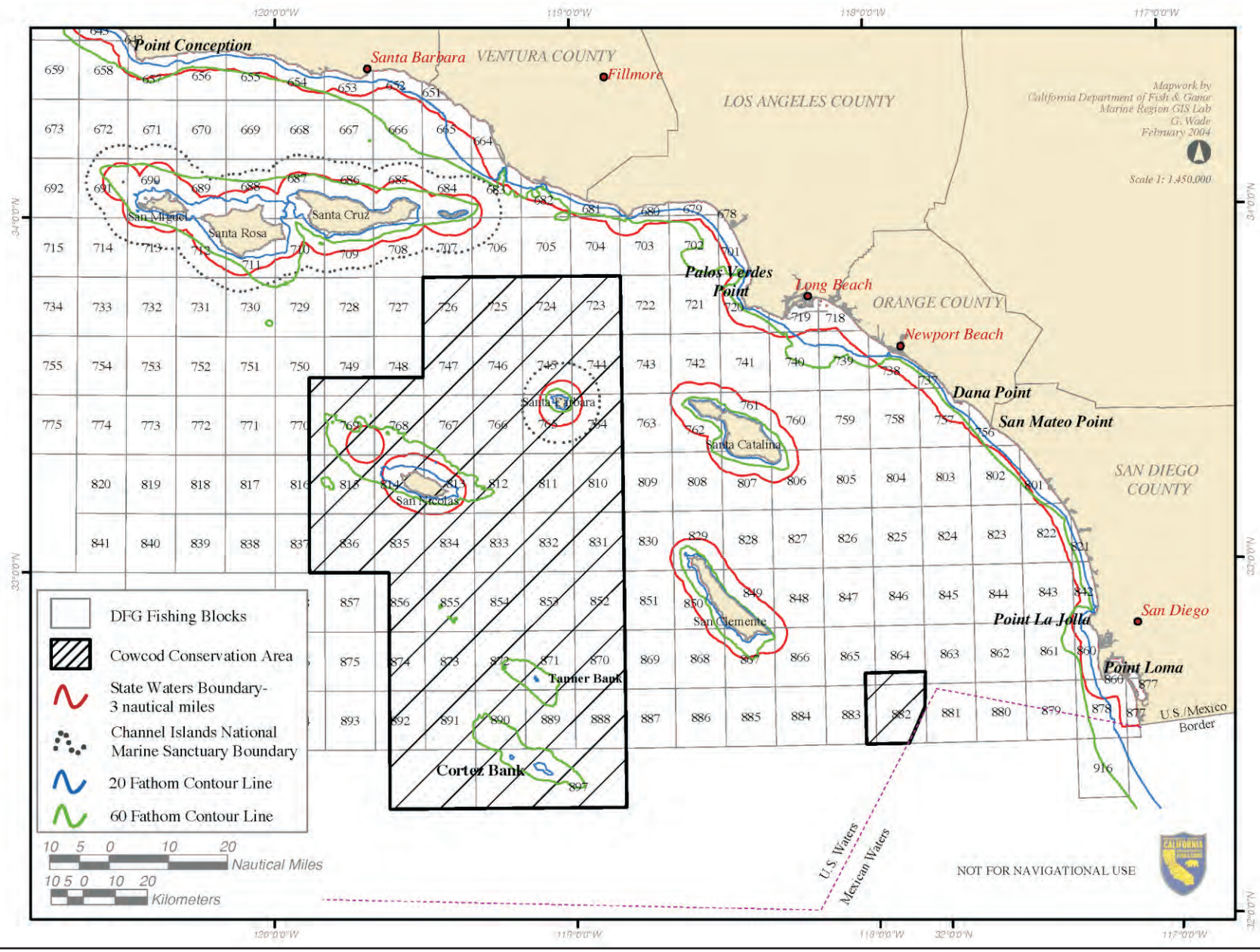
3.3.1.4 Special-Status Biological Resources

Special-status species are those that meet one or more of the criteria listed below.

- Species listed or proposed for listing as threatened or endangered under the ESA (50 CFR 17.12 for listed plants, 50 CFR 17.11 for listed animals; and various notices in the *Federal Register* [FR] for proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the ESA (74 FR 57804, November 9, 2009).
- Species that are listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (California Code of Regulations [CCR], Title 14, Section 670.5).
- Plants listed as rare under the California Native Plant Protection Act of 1977 (California Fish and Game Code Section 1900, et seq.).
- Plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California and elsewhere" (List 1B and 2).
- Species designated by the CDFW as Species of Special Concern, Watch List Species, or species that are considered rare and worthy of consideration by local agencies.

Tables 3.3-6 and 3.3-7 list the special-status plants and wildlife known from the region and summarize their habitat and distribution, conservation status, and potential for occurrence in the Project area. The potential for occurrence of each species is assessed based on the following criteria, but may be modified based on professional judgement:

- **Present:** Observed on the Project site during surveys or previously documented on the Project site.
- **High:** Documented in the Project vicinity (within approximately 5 miles) and suitable habitat found on the Project site, but not detected on the Project site during Project-specific biological surveys.
- **Moderate**: Either documented in the Project vicinity (within approximately 5 miles), or suitable habitat found on the Project site and the Project site is within species' known geographic range.
- **Low:** There are no records in the Project vicinity (within approximately 5 miles), the habitat is marginal, or the species is conspicuous and was not detected during biological surveys.
- **Minimal:** There are no records in the Project vicinity (within approximately 5 miles) and the site lacks suitable habitat requirements.



Source: ICF

Figure 3.3-1

Cowcod Conservation Areas

Table 3.3-6: Special-Status Plants with Potential to Occur in the Project Area

Common and Scientific Names	Status Federal/ State/CNPS	Habitat Requirements	Potential of Occurrence in Project Area
Brand's star phacelia *Phacelia stellaris*	--/--/1B.1	Coastal dunes, coastal scrub; 3.3–1312 feet (1–400 meters)	Not Likely to Occur. No coastal scrub or dunes on Project site or conduit alignment.
California Orcutt grass *Orcuttia californica*	E/E/1B.1	Vernal pools; 49–2,165 feet (15–660 meters)	Not Likely to Occur. No vernal pools on Project site or conduit alignment.
Coastal dunes milk-vetch *Astragalus tener* var. *titi*	E/E/1B.1	Sandy soils of coastal bluff scrub, coastal dunes, wet areas in coastal prairie; 3.3–164 feet (1–50 meters)	Not Likely to Occur. No coastal bluff scrub or coastal dunes on Project site or conduit alignment. Recorded population "probably extirpated" (CDFW, 2015)
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	–/–/1B.1	Coastal salt marshes and swamps, Grasslands, vernal pools, alkali sinks, playas, in alkaline soils; 3.3–4,003 feet (1–1,220 meters)	Not Likely to Occur. No vernal pools, coastal salt marshes, valley and foothill grasslands, or playas on Project site or conduit alignment.
Orcutt's pincushion *Chaenactis glabriuscula var. orcttiana*	–/–/1B.1	Coastal dunes, sandy areas in coastal bluff scrub; below 328 feet (100 meters)	Not Likely to Occur. No coastal dunes or scrub on the Project site or conduit alignment.
Parish's brittlescale *Atriplex parishii*	–/–/1B.1	Alkaline soils in chenopod scrub, playas, vernal pools; 82–6,234 feet (25–1,900 meters)	Not Likely to Occur. No alkali meadows, vernal pools, chenopod scrub, or playas on the Project site or conduit alignment.
Prostrate vernal pool navarretia *Navarretia prostrata*	--/--E/1B.1	Vernal pools and mesic areas in coastal scrub and alkali grasslands; 49–3,970 feet (15–1,210 meters)	Not Likely to Occur. No vernal pools, coastal scrub, or valley and foothill grasslands on the Project site or conduit alignment.
South Coast saltscale *Atriplex pacifica*	–/–/1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, playas; below 460 feet (140 meters)	Not Likely to Occur. No coastal bluff scrub, coastal dunes, coastal scrub or playas on Project site or conduit alignment.
Southern tarplant *Centromadia parryi ssp. australis*	--/--/1B.1	Vernal pools, margins of marshes and swamps, wet areas in valley and foothill grassland; below 1,575 feet (480 meters)	Not Likely to Occur. No marsh or swamp margins or valley and foothill grassland on Project site or conduit alignment.
Spreading navarretia *Navarretia fossalis*	T/–/1B.1	Chenopod scrub, assorted shallow freshwater marshes and swamps, San Diego hardpan and claypan vernal pools, saltbush scrub, and playas; 98–2,149 feet (30–655 meters)	Not Likely to Occur. No chenopod scrub, freshwater marsh or swamp, vernal pool, or playa on Project site or conduit alignment.
Ventura Marsh milk-vetch (*Astragalus pycnostachyus Gray var. lanosissimus*)	E/E/1B.1	Coastal dunes, Coastal scrub, Marshes and swamps (edges, coastal salt or brackish)	Not Likely To Occur: No coastal dunes, scrub, or salt marsh habitat on Project site or conduit alignment.

Status explanations:
Federal
E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
– = no listing.
State
E = listed as endangered under the California Endangered Species Act.
R = listed as rare under the California Native Plant Protection Act (this category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation)
– = no listing.
California Native Plant Society (CNPS)
1B = List 1B species; rare, threatened, or endangered in California and elsewhere.
2 = List 2 species; rare, threatened, or endangered in California but more common elsewhere.
0.1 = seriously endangered in California.
0.2 = fairly endangered in California.

Table 3.3-7: Special-Status Wildlife with Potential to Occur in the Project Area

Species	Status Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in the Project Area
Terrestrial Invertebrates				
Dorothy's El Segundo dune weevil *(Trigonoscuta dorothea dorothea)*	--/--	El Segundo Dunes in Los Angeles County.	Coastal sand dunes	Not Likely to Occur. No coastal sand dunes on the Project site or conduit alignment
El Segundo blue butterfly *(Euphilotes battoides allyni)*	E/–	Although once more widespread, now restricted to two sites: approximately 270 acres at Los Angeles International Airport and approximately 1.3 acres at the Chevron refinery in El Segundo.	Native vegetated sand dune habitats with its host plant, coastal buckwheat (*Eriogonum parvifolium)*	Not Likely to Occur. No dunes present on the Project site or conduit alignment, and no coastal buckwheat was identified during surveys.
Globose dune beetle *(Coelus globosus)*	--/--	Sporadically distributed central and southern CA and the Channel Islands; from Bodega Bay, Sonoma County to Ensenada, Baja California, Mexico.	Foredunes and sand hummocks, burrows beneath sand surface under shrubs or herbaceous plants	Not Likely to Occur. Sand hummocks and foredunes not present on the Project site or conduit alignment.
Henne's eucosman moth *(Eucosma hennei)*	--/--	Coastal southern CA from Ventura County south to Orange County. Known from less than 10 locations including El Segundo dunes, Los Angeles County [where possibly extirpated], and dune lakes near Oceano, San Luis Obispo County.	Undisturbed sand dunes with native vegetation including open areas of open sand and fairly dense shrubs and herbs, including the caterpillar host, *Phacelia ramasissima*	Not Likely to Occur. No dunes present on the Project site or conduit alignment.
Monarch butterfly - overwintering habitat *(Danaus plexippus)*	--/--	Adults migrate from August to October and winter along the CA coast and in Central Mexico.	Monarch butterflies roost in wind-protected tree groves (such as eucalyptus) with nectar and water sources nearby; caterpillar host plants are milkweeds	Not Likely to Occur. No wind-protected tree groves for winter roosting on the Project site or pipeline alignment.
Palos Verde blue butterfly *(Glaucopsyche lygdamus palosverdesensis)*	E/--	The Palos Verde Peninsula, on the south coast of Los Angeles County, CA.	Coastal scrub where the host plant, southern CA locoweed (*Astragalus trichopodes* var. *lochus*) occurs.	Low. The proposed Project is located within the historic range, but no coastal scrub or host plants are present within the Project area.
Riverside fairy shrimp *(Steptocephalus woottoni)*	E/–	Vernal pools from southwestern Riverside County and western San Diego County, to northwestern Baja California, Mexico. One population known from Orange County.	Found only in deep lowland pools that retain water through the warmer weather of late spring.	Not Likely to Occur. No lowland pools present within the Project site or conduit alignment.
Sandy beach tiger beetle *(Cicindela hirticollis gravida)*	--/--	Records from the dune habitat near the Los Angeles International Airport and at the Chevron refinery in El Segundo.	Clean, dry, light colored sand in the upper zone of beach dunes near brackish water	Not Likely to Occur. No areas adjacent to brackish water on the Project site or conduit alignment.

Table 3.3-7: Special-Status Wildlife with Potential to Occur in the Project Area

Species	Status Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in the Project Area
Senile tiger beetle *(Cicindela sinilis frosti)*	--/--	Coastal areas from Sonoma County south to San Diego County.	Coastal salt marshes and tidal mud flats as well as interior alkali mud flats	Low. The proposed Project is located adjacent to the historic range, and contains marine shoreline, but salt marshes or mud flats are not present within the Project site or conduit alignment
Vernal pool fairy shrimp *(Branchinecta lynchi)*	T/–	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.	Common in vernal pools; also found in sandstone rock outcrop pools, and seasonal wetlands	Not Likely to Occur: No vernal pools, outcrop pools, or wetlands present within the Project site or conduit alignment.
Molluscs/Crustaceans/Echinoderms				
White abalone (*Haliotis sorenseni*)	E/-	Point Conception, CA, to Punta Abreojos, Mexico.	Found at depths of 24-30 meters (80-100 feet) on low and high relief rock or boulder habitat interspersed with sand channels	Low: Project site overlaps the historic range, however distance to known extant populations indicates an unlikely occurrence.
Black abalone (*Haliotis cracherodii*)	E/-	Point Arena, CA, to Bahia Tortugas and Isla Guadalupe, Mexico.	Crevices of intertidal and shallow subtidal rocks.	Not Likely to Occur: No suitable habitat present in Project area
Fish				
Steelhead - southern California, (*Oncorhynchus mykiss*)	E/-	Santa Maria River, CA, to U.S.-Mexico Border.	Born in freshwater streams, and later move into the ocean. After spending between one and four years in the ocean, steelhead return to their home freshwater stream to spawn	Low: No seasonally accessible watershed or suitable spawning habitat present in Project area.
Terrestrial Reptiles				
Coast horned lizard *(Phrynosoma blainvillii)*	–/SSC	Most of west-central and south-western CA (U.S.) as well as most of Baja California (Mexico) (except the northeastern portion). In CA, it ranges from San Diego north to Shasta County, though a disjunct population occurs farther north at Grasshopper Flat, Siskiyou County, CA.	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging	Not Likely to Occur: Marginal habitat is present within the Greenbelt; no recent records within 5 miles of the site. Habitat area subject to frequent human disturbance.
Marine Reptiles				
Green sea turtle (*Chelonia mydas*)	T/-	Subtropical coastal waters of southern Baja California, Mexico, and Central America.	Typically make dives shallower than 100 ft. (31 m), with most dives not exceeding 58 ft. (18 m)	Low: Given population density, there is a low potential for occurrence within Project alignment, with no known nesting area on southern CA beaches.

Table 3.3-7: Special-Status Wildlife with Potential to Occur in the Project Area

Species	Status Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in the Project Area
Loggerhead sea turtle (*Caretta caretta*)	E/-	In U.S. waters, records have been of juveniles from nearshore waters of southern CA. Sightings increase during the summer, peaking from July to September off southern CA and southwestern Baja California.	Coastal foraging loggerheads all dives were shallower than 100 ft. (31 m).	Low: Given population density, there is a low potential for occurrence within the Project alignment, with no known nesting area on southern CA beaches.
Olive ridley sea turtle (*Lepidochelys olivacea*)	T/-	Occurs off the coast of southern and central CA, but is not known to nest on CA beaches.	Dive deeper than loggerheads, but spent only about 10 percent of time at depth under 100 ft. (31 m).	Low: Given population density, there is a low potential for occurrence within Project alignment, with no known nesting are on southern CA beaches.
Leatherback sea turtle (*Dermochelys coriacea*)	E/-	Regularly seen off the western coast of the United States, with the greatest densities found off central CA. In the waters of southern CA, nearly all sightings occur in deeper waters seaward of the Channel Islands.	Deepest diving sea turtle, with a recorded maximum depth of 4,200 ft. (1,280 m), although most dives are much shallower (usually less than 820 ft. [250 m]) (	Low: Given population density, there is a low potential for occurrence within Project alignment, with no known nesting area on southern CA beaches.
Birds				
California black rail *(Laterallus jamaicensis coturniculus)*	–/T[1], FP	Permanent resident in San Francisco Bay and eastward through Delta into Sacramento and San Joaquin counties. Small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial counties	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations	Not Likely to Occur: No marshes present within the Project site or conduit alignment.
Western snowy plover - coastal population *(Charadrius alexandrines nivosus)*	T/SSC	Population defined as those birds that nest adjacent to or near tidal waters, including all nests along the mainland coast, peninsulas, offshore islands, and adjacent bays and estuaries; 20 breeding sites are known in CA from Del Norte to Diego County	Coastal beaches above the normal high tide limit in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent	Moderate: Potential habitat is present within the Project landing sites, but this area is frequently disturbed. Not identified during reconnaissance surveys. Known to roost during winter in the vicinity of the landing sites. Recent (non-breeding) sightings within 5 miles of the Project, potential to forage on or near the Project site. Nearest critical habitat is 0.7 mile south of 25th Street Landing Site.

Table 3.3-7: Special-Status Wildlife with Potential to Occur in the Project Area

Species	Status Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in the Project Area
California least tern *(Sterna antillarun browni)*	E/E, FP	Nests on beaches along the San Francisco Bay and along the southern CA coast from southern San Luis Obispo County south to San Diego County	Nests on sandy, upper ocean beaches, and occasionally uses mudflats; forages on adjacent surf line, estuaries, or the open ocean	Low: Potential habitat present within the Project site is frequently disturbed. No recent records within 5 miles of the site. Low potential to forage within the Project site.
Coastal California gnatcatcher *(Polioptila californica californica)*	T/SSC	Found only along the southern CA coast from Los Angeles County to San Diego County	Permanent resident in coastal sage scrub, where it prefers relatively dense stands dominated by CA sage (*Artemesia californica*)	Not Likely to Occur: No coastal sage scrub present within the Project site or conduit alignment.
Least Bell's vireo *(Vireo bellii pusillus)*	E/E	Small populations remain in southern Inyo, southern San Bernardino, Riverside, San Diego, Orange, Los Angeles, Ventura, and Santa Barbara counties	Riparian thickets either near water or in dry portions of river bottoms; nests along margins of bushes and forages low to the ground; may also be found using mesquite and arrow weed in desert canyons	Not Likely to Occur: No riparian thickets or canyons present within the Project site or the conduit alignment.
Southwestern willow flycatcher *(Empidonax trailii extimus)*	E/E	Breeds in coastal southern CA in the Los Angeles Basin, the San Bernardino/Riverside area, and San Diego County; no longer breeds along the Colorado River and is known to exist only in eight widely disjunct nesting populations	Densely vegetated riparian habitat with streamside associations of cottonwoods and willows	Not Likely to Occur: No suitable habitat present within the Project site or conduit alignment.
Light-footed clapper rail *(Rallus longirostris levipes)*	E/E	Small populations along the coast in Santa Barbara, Ventura, Orange, and San Diego counties	Restricted to salt marshes and tidal sloughs where pickleweed is abundant	Not Likely to Occur: No salt marshes or sloughs present within the Project site or conduit alignment.
Tricolored blackbird *(Agelaius tricolor)*	–/SSC	Permanent resident in the Central Valley from Butte County to Kern County; breeds at scattered coastal locations from Marin County south to San Diego County and at scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony	Not Likely to Occur: No suitable habitat present within the Project site or conduit alignment.
Western burrowing owl *(Athene cunicularia)*	–/SSC	Lowlands throughout CA, including Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Level, open, dry, heavily grazed or low-stature grassland or desert vegetation with available burrows	Not Likely to Occur: No suitable habitat with available burrows present within the Project site or conduit alignment. No recent records within 5 miles of the site.

Table 3.3-7: Special-Status Wildlife with Potential to Occur in the Project Area

Species	Status Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in the Project Area
Short-eared owl *(Asio flammeus)*	--/SSC	In North America, it is distributed from Alaska and all Canadian provinces except the Northwest Territories south through the conterminous United States to central Mexico.	Preferred habitats include fresh- and saltwater marshes, coastal plains, tamarack (*Larix laricina*)-black spruce (*Picea mariana*) bogs], old fields, prairies, sagebrush (*Artemisia* spp.) steppes, wet meadows, grasslands, open shrublands, and montane parklands	Not Likely to Occur. No marsh or grassland foraging habitats on the Project site or cable alignment.
Northern harrier *(Circus cyaneus)*	--/SSC	The historic breeding range extended from the Modoc Plateau south to San Diego, mostly east and south of the humid northwest coast and west and north of the arid southeastern deserts	Prefer open country, grasslands, steppes, wetlands, meadows, agriculture fields; roost and nest on ground in shrubby vegetation often at edge of marshes	Not Likely to Occur. No grassland or marsh breeding and foraging habitats on the Project site or conduit alignment.
Loggerhead shrike *(Lanius ludovicianus)*	--/SSC	In Los Angeles County, shrikes have declined substantially on the coastal slope, nesting is now known from only 2–3 localities per year on the coast and in the Los Angeles basin	Broken woodland, savannah, pinyon-juniper woodland, Joshua tree woodland, riparian woodland, desert oases, scrub, and washes; prefers open country for hunting with perches for scanning and fairly dense shrubs and brush for nesting	Not Likely to Occur. No riparian habitats, woodlands, or open natural habitats for foraging and nesting on the Project site or conduit alignment
Osprey *(Pandion haliaetus)*	--/--	Can be found throughout North America along major water bodies during breeding, and elsewhere when migrating.	Forages and nests along rivers, lakes, and reservoirs.	Low: No open water for foraging on the Project site or conduit align-ment, but historic records within 5 miles, and nearby open water.
Belding's savannah sparrow *(Passerculus Sandwichensis beldingi)*	--/E	Southern CA coastal marshes from San Diego County to Goleta Slough, Santa Barbara County	Breeds on the southern coast from Santa Barbara to San Diego County. Open fields, meadows, salt marshes, prairies, dunes, shores	Not Likely to Occur: No salt marsh habitat for breeding or foraging on the Project site or conduit alignment.
California brown pelican *(Pelecanus occidentalis)*	--/FP	Breeds along Pacific coast of central and southern CA (the Channel Islands south), on islands off Baja California and on islands in the Gulf of California (south to Isabella and the Tres Marias Islands)	Brown Pelicans live year-round in estuaries and coastal marine habitats along both the east and west coasts. They breed between Maryland and Venezuela, and between southern CA and southern Ecuador—often wandering farther north after breeding as far as British Columbia or New York. On the West Coast they breed on dry, rocky offshore islands. When not feeding or nesting, they rest on sandbars, pilings, jetties, breakwaters, mangrove islets, and offshore rocks. [Cornell, 2015]	High (foraging/flyover only): Likely to fly over beach landing and ocean section of Project; no nesting habitat in Project area.

Table 3.3-7: Special-Status Wildlife with Potential to Occur in the Project Area

Species	Status Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in the Project Area
Double-crested cormorant (*Phalacrocorax auritus*)	–/SSC	Winters along the entire CA coast and inland over the Coast Ranges into the Central Valley from Tehama County to Fresno County; a permanent resident along the coast from Monterey County to San Diego County	Rocky coastlines, beaches, inland ponds, and lakes; needs open water for foraging, and nests in riparian forests or on protected islands, usually in snags	High (foraging/flyover only): Likely to fly over beach landing and ocean section of Project; no nesting habitat in Project area.
Bank swallow *(Riparia riparia)*	--/T	Breeding range in North America extends from western and central Alaska eastward across Canada to the southern Hudson Bay region, Labrador, and Newfoundland, and south to central CA, Nevada, Utah, New Mexico, Oklahoma, Arkansas, Tennessee, northern Alabama, and North Carolina, and disjunctly to southern Texas and adjacent northeastern Mexico (northern Veracruz, northeastern San Luis Potosí, and extreme northern Coahuila)	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert; requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or the ocean to dig a nesting hole (USACE and CDFW, 2010).	Not Likely to Occur: No riparian habitat for breeding and foraging on the Project site or conduit alignment. Nesting populations are considered extirpated in southern CA.
Black skimmer *(Rynchops niger)*	--/SSC	Breeds in southern CA (Salton Sea, around San Diego)	Nests primarily near coasts on sandy beaches, shell banks, coastal and estuary islands, on wrack and drift of salt marshes (especially where traditional beach nesting areas have been lost or where Herring gulls have become abundant), along tropical rivers, salt pond levees (southern CA), and locally, on gravelly rooftops; also on dredged material sites. Nests usually in association with or near terns	Moderate: Sandy beaches may provide nesting habitat at the Project site, but areas are frequently disturbed and unlikely to support nesting. Recently recorded at the Hermosa Beach Pier (in 2012; eBird, 2015).
Terrestrial Mammals				
Western mastiff bat *(Eumops perotis californicus)*	–/SSC	Occurs along the western Sierra primarily at low to mid elevations and widely distributed throughout the southern coast ranges; recent surveys have detected the species north to the Oregon border	Found in a wide variety of habitats from desert scrub to montane conifer; roosts and breeds in deep, narrow rock crevices, but may also use crevices in trees, buildings, and tunnels	Not Likely to Occur: No suitable habitat present within the Project site or conduit alignment

Table 3.3-7: Special-Status Wildlife with Potential to Occur in the Project Area

Species	Status Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in the Project Area
Pacific pocket mouse *(Perognathus longimembris pacificus)*	E/SSC	Historically inhabited the coastal plains of Los Angeles County south to San Diego County; currently, only one extant population known from Dana Point Headlands, Orange County; and three populations on Camp Pendleton, San Diego County	Generally within 2 miles (3 kilometers) of the coast and below 600 feet (183 meters) on fine-grained, sandy substrates within coastal strand, coastal dune, river alluvium, and coastal sage scrub habitats	Not Likely to Occur: The Project site lies within the historic range, however no recent records exist, and the frequent and ongoing disturbance of the site, marginal habitat present, as well as distance to known extant populations indicates an unlikely occurrence.
Marine Mammals				
Humpback whale *(Megaptera novaeangliae)*	E/-	In the North Pacific, there are at least three separate populations including a California/ Oregon/ Washington stock that winters in coastal Central America and Mexico and migrates to areas ranging from the coast of California to southern British Columbia in summer/fall.	While feeding and calving, prefer shallow waters. During calving, usually found in the warmest waters available at that latitude. Calving grounds are commonly near offshore reef systems, islands, or continental shores. Feeding grounds are in cold, productive coastal waters.	Low: Given population density, there is a low potential for occurrence within the Project alignment.
Blue whale (*Balaenoptera musculus*)	E/-	In the eastern North Pacific Ocean, range from the Gulf of Alaska and California south to Costa Rica	Spend winters off of Mexico and central America, and feed during summer off the U. S. West Coast	Low: Given population density, there is a low potential for occurrence within the Project alignment.
Fin whale (*Balaenoptera physalus*)	E/-	In U.S. waters, have been divided into four stocks, including one off California/ Oregon/ Washington.	Migratory, moving seasonally into and out of high-latitude feeding areas	Low: Given population density, there is a low potential for occurrence within the Project alignment.
Sei whale (*Balaenoptera borealis*)	E/-	Cosmopolitan distribution and occur in subtropical, temperate, and subpolar waters around the world	Usually observed in deeper waters of oceanic areas far from the coastline	Low: Given population density, there is a low potential for occurrence within the Project alignment.
Sperm whale (*Physeter microcephalus*)	E/-	Inhabit all oceans of the world	Distribution is dependent on their food source and suitable conditions for breeding	Low: Given population density, there is a low potential for occurrence within the Project alignment.
False killer whale (*Pseudorca crassidens*)	E/-	In the U.S., in Hawaii, along the entire West Coast, and from the Mid-Atlantic coastal states south. Can also be found in all tropical and temperate oceans worldwide	Prefer tropical to temperate waters that are deeper than 3,300 feet (1000 m)	Low: Given population density, there is a low potential for occurrence within the Project alignment.

Table 3.3-7: Special-Status Wildlife with Potential to Occur in the Project Area

Species	Status Federal/ State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in the Project Area
Southern sea otter (*Enhydra lutris nereis*)	T/FP	Occurs approximately from the vicinity of Half Moon Bay south to Gaviota, CA; approximately 20 otters, including pups, are at San Nicolas Island as a result of translocation efforts to establish an experimental population	Coastal waters, typically within 0.6 mile (1 kilometer) of shoreline; often associated with kelp beds	Not Likely to Occur: No suitable habitat present in Project area
Guadalupe fur seal (*Arctocephalus townsendii*)	T/T,FP	Primarily Baja California, Mexico, but occasionally found on San Miguel and San Nicolas islands	Rocky insular shorelines and sheltered coves	Not Likely to Occur: No suitable habitat present in Project area

Status explanations:
– = no listing.
Federal
E = listed as endangered under federal Endangered Species Act (ESA).
T = listed as threatened under ESA.
State
E = listed as endangered under California Endangered Species Act (CESA).
T = listed as threatened under CESA.
FP = fully protected under California Fish and Game Code.
SSC = species of special concern in California.

Potential Occurrence:
High – Suitable habitat is present within or near the proposed site: occurrence records exist for species in proximity to the site; species expected to occur on or near the site.
Moderate – Low quality habitat is present within or near the proposed site; species was not identified during reconnaissance surveys of the site; species may occur on or near site.
Low – Marginal habitat is present on or adjacent to site; no recent records within 5 miles of the site.
Not Likely to Occur – No recent records within 5 miles, no suitable habitat occurs on or near site.

[1] The tricolored Blackbird was granted emergency protection by the California Fish and Game Commission under the California Endangered Species Act as of 12/3/14.

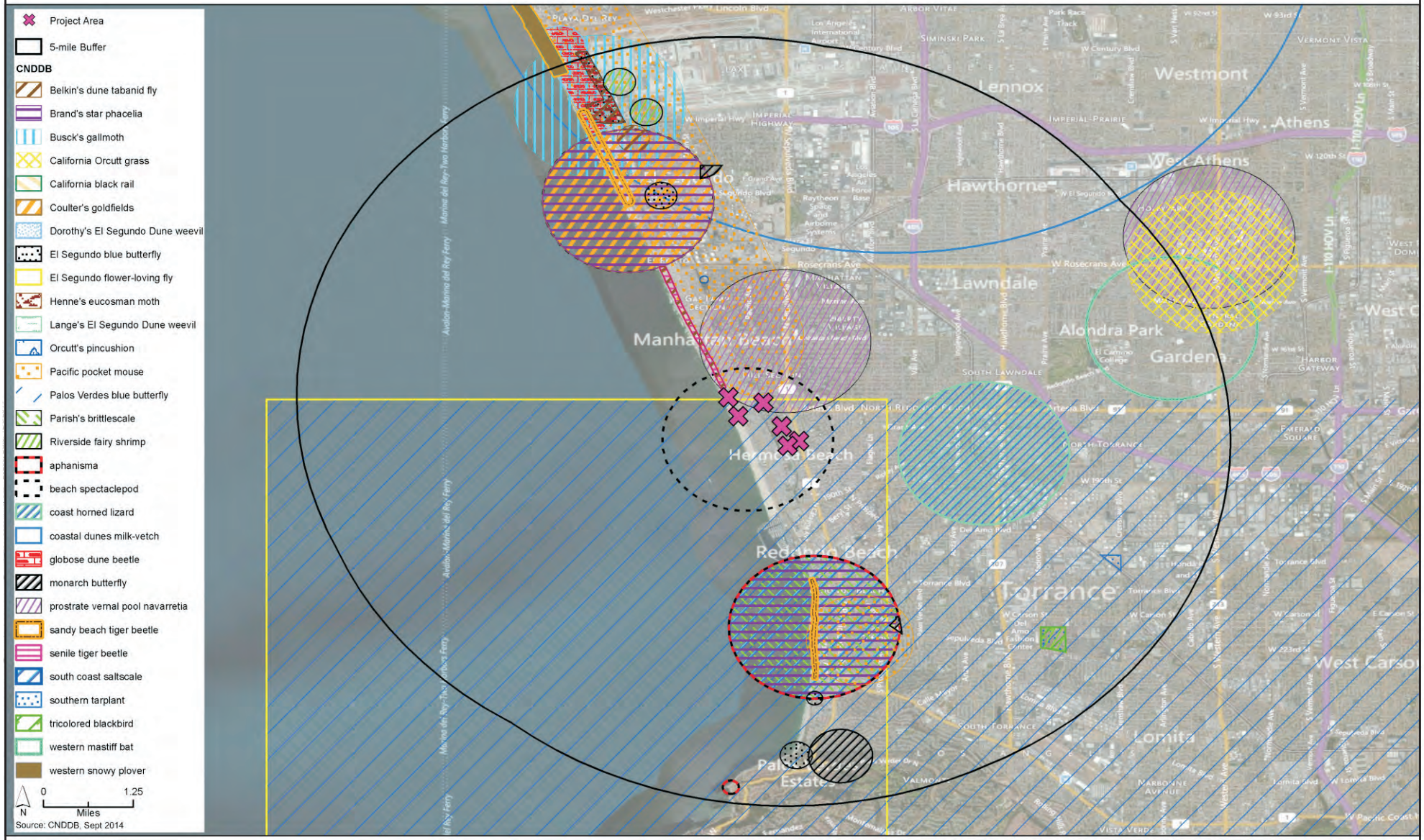
Special-Status Plants

Due to the lack of natural habitats within the City, it is extremely unlikely that any special-status plants would occur within or near the proposed Project area. All open spaces within the City are routinely landscaped and frequently used for recreation. The sandy beach habitat is highly disturbed, with frequent grading to remove trash or other detritus and heavy recreational use. Vegetated dune habitat is not present within the City.

No federal- or State-listed plant species were observed in the Project area during reconnaissance surveys, no potential habitat was present, and no listed plants are expected to occur. No plant species considered rare by the California Native Plant Society (CNPS) (i.e., List 1, 2, or 4 species) were observed and none are expected to occur. A CNDDB database query was conducted, and no sensitive plants have a moderate or high potential to occur within or adjacent to the proposed Project sites.

Special-Status Wildlife

Two listed wildlife species, the western snowy plover (*Charadrius alexandrinus nivosus*) and the California least tern (*Sternula antillarum browni*), are known from the region and use habitats similar to those in the Project area, (see Tables 3.3-6 and 3.3-7). Figure 3.3-2 shows the approximate locations of special-status species that have been recorded within 5 miles of the Project (CDFW, 2015).



Source: ICF

Figure 3.3-2

CNDDB Occurrences Within 5 Miles of Project Area

Western Snowy Plover. The western snowy plover is federally listed as threatened and is a California species of special concern. It nests along the Pacific coast from southern Washington to southern Baja California, Mexico. Western snowy plovers breed from April through August on sandy marine and estuarine shores, and roost in these same habitats from September through March. Nesting habitat includes sandy, gravelly, or friable soils. The western snowy plover frequently builds its nest near or under objects such as driftwood or rocks, but will also nest build on barren ground with no nearby cover. It feeds on insects and amphipods that are gleaned from dry sand of upper beaches as well as on sand crabs in wet sand. (Rigney, 2008.)

The western snowy plover is not known to nest in or within 5 miles of the north and south cable landing areas. Because the area serves as a public beach it is highly unlikely to be used as nesting habitat. However, the species is known to roost at Hermosa Beach during the non-breeding season (July through March) (CDFW, 2015; Ryan et al., 2014). During the survey period from 2012 to 2014, Ryan et al. (2014) detected 28 to 79 plovers roosting at Hermosa Beach from October to March, which is 18 percent of the non-breeding population in Los Angeles County. This represents an increase over previous years. The winter roost location is variable from year to year within the general area, which is consistent with other roosting beaches that have high levels of disturbance (Ryan et al., 2014).

The proposed Project area is not within critical habitat designated for the western snowy plover. The nearest critical habitat is approximately 0.7 mile south of the Project area on Hermosa Beach between 11th Street and 1st Street. According to the City of Hermosa Beach Existing Conditions Report, a western snowy plover has not been recorded nesting within the City since 1949. The online community bird reporting site eBird has recorded sightings of nonbreeding snowy plovers within the City and near the proposed Project area as recently as May, 2015.

California Least Tern. California least tern is State and federally listed as endangered. The California least tern is migratory in California, usually arriving at the breeding territories in late April in the southern part of the State and mid-May in the northern part of the State. The wintering sites for the species are thought to be the Pacific coastal areas of South America. The breeding colonies for California least tern typically occur along marine and estuarine shores in Southern California as well as the salt ponds and estuarine shores of the San Francisco Bay region. Foraging occurs in nearby shallow estuarine waters where small fish are abundant. Feeding also occurs near shore in the open ocean. Adult individuals roost and nest mainly on the ground on open, sandy, or gravelly shores near their feeding areas, where vegetation is sparse. In areas of harder soils, the species may use artificially created depressions. Nesting colonies occur in areas that are relatively free of human disturbance (Rigney, 2008).

California least terns are not known to nest at Hermosa Beach (Frost, 2013), and no nesting areas have been documented within 5 miles of the cable landings (Frost, 2013; CDFW, 2015). It is highly unlikely that the species would nest in the Project area given the heavy recreational use of the public beach; however, the species could potentially forage in the area (ICF, 2015). The closest documented nesting locations are at Venice Beach/Marina del Rey north of the Project area, and Long Beach to the south. These areas are approximately 7 miles (11.6 kilometers) and 17 miles (27 kilometers) from the Project, respectively (Frost, 2013).

3.3.2 Regulatory Setting

3.3.2.1 Federal

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA), the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) are responsible for implementing the federal ESA. USFWS has jurisdiction over federally listed plants, wildlife, and resident fish, and NMFS has jurisdiction over anadromous fish, marine fish, and marine mammals. USFWS also has a "watch list" of species that are designated species of concern.

Under the ESA, a permit to "take" a listed species is required for any federal action that may harm an individual of that species. Take is defined under ESA Section 9 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. This definition includes impacts that may take a species indirectly and impacts to habitat that supports listed species. Critical habitat is designated for federally listed species, which includes but is not limited to habitat occupied by the listed species or is otherwise essential for its continued existence and recovery. The proposed cable routes do not cross designated critical habitat for any federally listed species.

ESA Section 7 outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat. Section 7(a)(2) requires federal agencies to consult with USFWS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species.

ESA Section 10 regulates activities affecting ESA-listed species and their habitats. Section 10 allows issuance of an incidental take permit for actions that may potentially harm an ESA-listed species or designated critical habitat. Take can mean a range of activities that harm a listed species, including indirect harm to an ESA-listed species. Section 10 is applicable to the Project if any impact on a federally protected species results.

Magnuson-Stevens Fishery Conservation and Management Act

Under the provisions of the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), the amendments require the delineation of "essential fish habitat" for all managed species. Essential fish habitat (EFH) has been designated over all tidal marine waters in Southern California. Federal action agencies that fund, permit, or carry out activities that may adversely impact EFH are required to consult with the NMFS regarding the potential effects of their actions on EFH, and respond in writing to the NMFS's recommendations.

The 2006 reauthorization of the MSFCMA makes special notice of deep-sea coral ecosystems and their protection. The following provisions of the MSFCMA authorize research on deep-sea corals or may require or permit the Pacific Fishery Management Council or the Secretary of Commerce to include management measures for deep-sea coral ecosystems:

- Section 301(a)(9) requires Councils to include conservation and management measures that, to the extent practicable, minimize bycatch.

- Section 303(b)(2)(b) permits Councils to include management measures in FMPs that protect deep-sea coral identified under the Section 408 Deep Sea Coral Research and Technology Program.
- Section 303(b)(12) authorizes Councils to include management measures in FMPs to conserve target and non-target species and habitats.
- Section 305(b) requires Councils to identify and describe EFH and minimize, to the extent practicable, the adverse effects on such habitat caused by fishing.
- Section 408 authorizes the establishment of a Deep Sea Coral Research and Technology Program.

Marine Mammal Protection Act

The Marine Mammal Protection Act of 1972 (MMPA) prohibits, with certain exceptions, the take of marine mammals in United States waters and by United States citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. The MMPA defines take as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill" any marine mammal (16 USC 1361 et seq.). The USFWS and NMFS administer the MMPA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703 et seq.) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the former Soviet Union (now Russia) and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. The act establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; Code of Federal Regulations [CFR], Title 50, Section 21 et seq.). Most actions that result in taking or permanent or temporary possession of a protected species constitute violations of the MBTA. The Migratory Bird Permit Memorandum, dated April 15, 2003, clarifies that destruction of most unoccupied bird nests is permissible under the MBTA; exceptions include nests of federally threatened or endangered migratory birds, and bald eagles and golden eagles. USFWS is responsible for overseeing compliance with the MBTA. Most bird species and their occupied nests that occur in the Project area would be protected under the MBTA.

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972 (33 United States Code [USC] 1251–1376), as amended by the Water Quality Act of 1987, and better known as the Clean Water Act (CWA), is the major federal legislation governing water quality. The purpose of the federal CWA is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges into waters of the United States are regulated under CWA Section 404. Waters of the United States include: (1) all navigable waters (including all waters subject to the ebb and flow of the tide); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above. Important applicable sections of the CWA are discussed below:

- Section 303 requires states to develop water quality standards for inland surface and ocean waters and submit to the U.S. Environmental Protection Agency (EPA) for approval. Under Section 303(d), the state is required to list waters that do not meet water quality standards and to develop action plans, called total maximum daily loads, to improve water quality.
- Section 304 provides for water quality standards, criteria, and guidelines.

- Section 401 requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the CWA. Certification is provided by the respective Regional Water Quality Control Board (RWQCB). A Section 401 permit from the RWQCB would be required for the Project if a Section 404 permit were required.
- Section 404 provides for issuance of dredge/fill permits by the U.S. Army Corps of Engineers (ACOE). Permits typically include conditions to minimize impacts on water quality. Common conditions include: (1) ACOE review and approval of sediment quality analysis before dredging, (2) a detailed pre- and post-construction monitoring plan that includes disposal site monitoring, and (3) requiring compensation for loss of waters of the United States. The areas of the Project that occur below mean higher high water (MHHW) would be subject to regulation under Section 404.

Rivers and Harbors Appropriation Act

The Rivers and Harbors Appropriation Act of 1899 (33 USC 403), commonly known as the Rivers and Harbors Act (R&H), prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. Under R&H Section 10, the USACE is authorized to permit structures in navigable waters. Building or modifying wharves, piers, jetties, and other structures in or over the waters of the coastline requires USACE approval through the Section 10 permit process. When reviewing applications for Section 10 permits, the USACE consults with the USFWS or NMFS for compliance with the ESA when a project may affect a federally listed species.

Coastal Zone Management Act of 1972

The Coastal Zone Management Act (CZMA) was established in recognition of the importance the need to “preserve, protect, develop, and where possible, to restore or enhance the resources of the nation’s coastal zone” (16 USC 1451 et seq.). This act is administered by the NOAA and provides for the management of coastal resources. In addition, the CZMA was established to “encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources in the coastal zone”.

The CZMA includes three national programs, the National Coastal Zone Management Program, the National Estuarine Research Reserve System, and the Coastal and Estuarine Land Conservation Program.

National Marine Sanctuaries Act of 1972

The National Marine Sanctuaries Act (NMSA) designates and protects areas of the marine environment with special national significance due to their “conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities as national marine sanctuaries” (16 USC 1431). Management of national marine sanctuaries is the responsibility of NOAA and the Office of National Marine Sanctuaries (ONMS). ONMS has the authority provide under the NMSA to issue and regulate activities for each sanctuary and the system as a whole. In 2011, ONMS issued final policy and permit guidance for proposed submarine cables crossing marine sanctuaries (Code of Federal Regulations [CFR], Title 15, Section 922). The Channel Islands National Marine Sanctuary is the nearest sanctuary to the proposed Project.

3.3.2.2 State

California Coastal Act

The California Coastal Act (CCA) authorizes California's coastal zone management program and the California Coastal Commission (CCC) within the coastal zone for purposes of the federal CZMA (PRC 30008). Goals of the CCA include the following.

a. Protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources.

b. Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state.

c. Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.

d. Assure priority for coastal-dependent and coastal-related development over other development on the coast.

e. Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone. (Public Resources Code, Section 30001.5.)

The CCA established a statewide coastal commission to oversee implementation of the act's goals and objectives. It contains policies that guide local and state decision-makers in the management of coastal and marine resources. Jurisdiction of the CCA is the "coastal zone," which includes land and water in the state from the Oregon border to Mexico, extending seaward to the outer limit of the state jurisdiction (3 nautical miles [5.6 kilometers]).

A significant element of the federal CZMA is that it gives the CCC regulatory control (federal consistency review authority) over federally permitted activities seaward of the coastal zone if the activity affects coastal resources. That authority essentially extends authority of the CCC beyond the coastal zone, into federally permitted waters to the outer limit of the continental shelf.

Portions of the CCA relevant to the marine biological resources of the Project are as follows:

> 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. (CCA Section 30230.)

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams (CCA Section 30231). Please see Figure 3.3-3 for an illustration of the Coastal Zone boundaries within the City of Hermosa Beach relative to the proposed Project design.

Source: California Coastal Commission, 2015

0 0.1 0.2 Miles

Power Feed Equipment (PFE)

Beach Manhole/ Landing

Buried Conduit System

Directional Bores

Figure 3.3-3

Coastal Zone Boundary

California Endangered Species Act

The California Endangered Species Act (CESA) authorizes the California Fish and Game Commission (Commission) to designate endangered, threatened, and rare species and to regulate the taking of these species (California Fish and Game Code [FGC] Sections 2050–2098). The CESA defines endangered species as those whose continued existence in California is jeopardized. State-listed threatened species are those not presently facing extinction, but that may become endangered in the foreseeable future. FGC Section 2080 prohibits the taking of State-listed plants and animals. The CDFW also designates fully protected or protected species as those that may not be taken or possessed without a permit from the Commission and/or CDFW. Species designated as fully protected or protected may or may not be listed as endangered or threatened. The CESA does not supersede the ESA, but is intended to operate in conjunction with it. A species may be listed under both acts, in which case the provisions of both state and federal laws apply, or under one act. The CESA does not protect habitat, whereas the federal ESA includes protection of critical habitat.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) establishes State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by State lead agencies. Regulations for implementation are found in the State CEQA Guidelines published by the California Natural Resources Agency. These guidelines establish an overall process for the environmental evaluation of projects.

California Fish and Game Code

The FGC is implemented by the Commission, as authorized by Article IV, Section 20, of the Constitution of the State of California. The Commission is responsible, under the provisions of Sections 200–220, for regulating the take of fish and game, not including the taking, processing, or use of fish, mollusks, crustaceans, kelp, or other aquatic plants for commercial purposes. However, the Commission does regulate aspects of commercial fishing, including fish reduction; shellfish cultivation; take of herring, lobster, sea urchins, and abalone; kelp leases; lease of state water bottoms for oyster allotments; aquaculture operations; and other activities. These resource protection responsibilities involve the setting of seasons, bag and size limits, and methods and areas of take, as well as prescribing the terms and conditions under which permits or licenses may be issued or revoked by the CDFW. The Commission also oversees the establishment of wildlife areas and ecological reserves, regulates their use, and sets policy for the CDFW.

FGC Sections 3503, 3503.5, 3505, 3800, and 3801.6 protect all native birds, birds of prey, and nongame birds, including their eggs and nests, that are not already listed as fully protected and that occur naturally within the State. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. The CDFW is the State agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to people. The CDFW oversees the management of marine species through several programs, some in coordination with NMFS and other agencies. The Southern California Eelgrass Mitigation Policy (SCEMP) is administered by the USFWS, NMFS, and CDFW. In addition, the CDFW jointly manages (with NMFS) the implementation of the *Caulerpa* Control Policy (CCP), which calls for performance of a survey for *Caulerpa* before any bottom-disturbing activities.

California Ocean Plan

The California Ocean Plan (COP) was adopted by the State Water Resources Control Board in 1972 and has undergone subsequent amendments since. The COP is administered by the State Water Resources Control Board with the purpose to protect degradation of marine habitats caused by "point" and "nonpoint" sources of contaminated discharge to marine waters. The COP sets discharge standards in order to prevent degradation of marine resources.

3.3.2.3 Local

Hermosa Beach Local Coastal Program

Following adoption of the California Coastal Act in 1976, the City of Hermosa Beach embarked on the development of a Coastal Land Use Plan (CLUP) in partnership with the California Coastal Commission to maximize protection of coastal resources and the economic benefits these coastal resources provided to Hermosa Beach and California. The last comprehensive update to the City's CLUP was completed in 1980. The City prepared and submitted implementing ordinances and amendments in 2000 toward obtaining a certified Local Coastal Program (LCP). However, the LCP was not certified; the City and the Coastal Commission were not able to resolve several issues, including use of the beach for temporary events, water quality management, and categorical exclusions. Since that time, several emerging coastal resource and protection issues have arisen, such as climate change and sea level rise, and the regulatory landscape and new technologies have emerged that may help to solve issues that were previously unresolved or constrained by lack of staff resources or funding and would benefit from being addressed in a comprehensive manner through the LCP. The City was recently awarded several grants to support efforts to complete certification of a new LCP to reflect new information, changed conditions, and emerging issues, with an emphasis on addressing climate change and sea-level rise, consistent with the Coastal Act. Anticipated completion is 2016. The CCC still retains permanent coastal permit jurisdiction over development proposed on tidelands, submerged lands, and public trust lands

City of Hermosa Beach General Plan – Conservation Element

The City of Hermosa Beach General Plan Conservation Element is intended to maintain and preserve biological resources in Hermosa Beach. The element places restrictions on the amount and types of runoff that may occur to tidal and ocean waters, and prohibits oil drilling or mining of natural resources on City beaches or by offshore platforms in ocean waters under the jurisdiction of the City. It allows oil and gas drilling in certain areas by means of slant drilling from an onshore drill site if approved by a vote of the people. These restrictions are an effort to maintain the biological integrity of public spaces. Additionally, the Conservation Element designates the entire city as a wild bird refuge.

3.3.3 Impact Analysis

This section presents information on biological resources in the proposed Project region and describes baseline conditions within the proposed Project area, including both the terrestrial and marine environments. In addition, this section includes wildlife and vegetation types within the proposed Project area to characterize the botanical resources and potential for wildlife to occur on or within the proposed Project site. Biotic habitats suitable for the occurrence of plant and wildlife species of special-status (State and federally listed threatened and endangered species, federal

candidate species, California Native Plant Society List species, California Fully Protected, and California Species of Special Concern) are described.

3.3.3.1 Methodology/Approach

Consistent with the requirements of CEQA, the significance of potential impacts is evaluated through the application of the significance criteria described in Section 3.3.3.2, *Significance Thresholds*. Impacts have been combined and evaluated for all four phases of the proposed Project. The objective of the biological resources analysis is to identify potential adverse effects and significant impacts on biological resources. While avoidance is the preferred approach for the management of biological resources, it is not always possible to avoid impacts to biological resources. If impacts can be avoided through Project design, establishment of exclusion zones, or other means, then specific mitigation measures may be unnecessary. However, appropriate mitigation measures to avoid or minimize impacts are identified as needed to reduce impacts below a level of significance. The following factors were considered in the analysis of potential impacts:

- The duration, frequency, intensity, and spatial extent of the impact;
- The sensitivity/vulnerability of the habitat;
- Habitat functions that might be altered by the impact; and
- The timing of the impact relative to when species may use or need the habitat.

Direct and indirect impacts to biological resources along the terrestrial portion of the Project would be minor, as construction areas would be very limited in extent (two small beach landing sites, access points for the underground boring along the cable route) and would occur in disturbed areas.

Direct impacts to marine biological resources may occur by vessel operations and through disturbance of soft- and hard-bottom habitats and associated organisms located in the path of the proposed cables during the pre-deployment and installation phases. Indirect impacts may result in reduction in habitat quality, interference with foraging or impaired growth, diminished reproduction, or interruption of wildlife movement by decreasing marine water quality or releasing contaminants into the water column during installation, as well as potential scouring of hard-bottom habitat following installation.

Numerous fiber-optic cables have been installed in California coastal waters over the past several decades, with landfalls in Southern California (San Diego, Hermosa Beach, Manhattan Beach, and Santa Barbara), Central California (Montana de Oro, Grover Beach, Estero Bay, and Moss Landing), and Northern California (Pt. Arena). The environmental documents prepared for these projects discuss in detail potential impacts to marine biota from the installation, operation, and removal/abandonment of fiber-optic cables. Prior to and after these installations, post-survey cable inspections have been performed that provide some information on the duration and severity of effects to marine habitats and biota from the cable installations.

Previous fiber-optic cable projects identified the need to mitigate for hard-bottom communities crossed by the cable since direct contact of the cable could potentially scrape or scour organisms living on the substrate. To assess impacts to benthic habitats (shallower than 1,200-meter water depth), it was assumed for this analysis that 20 percent of the bottom consisted of hard bottom. Post-lay inspection reports (Tyco Telecommunications, 2003 and 2010) for similar fiber-optic cables projects suggest that this is a conservative estimate and that the actual percentage would be less than 20 percent. The final impact area and mitigation fee for impacts, if any, to hard bottom

communities would be determined during installation. The impact footprint is assumed to be twice the diameter of the cable (or 3 inches [7.6 centimeters]) and, similar to other projects, the mitigation fee was assumed to be $100,000 per 5,500 square feet payable to UC Davis Wildlife Health Center's California Lost Fishing Gear Recovery Project (Recovery Project) run by the SeaDoc Society. For soft bottom impacts, it was assumed the footprint was 3.3 feet (1 meter) wide. A summary of benthic impacts are included in Table 3.3-8.

Table 3.3-8. Estimated Benthic Habitat Impact and Mitigation Fee for MC GLOBAL Fiber-Optic Cables that Occur Shallower than 1,200 Meter Depth Contour

	MC GLOBAL Cable #1	MC GLOBAL Cable #2	MC GLOBAL Cable #3	MC GLOBAL Cable #4	MC GLOBAL TOTAL
Total Cable Length	836,614	738,189	770,997	1,115,485	3,461,285
Portion Deeper than 1,200 Meter Water Depth (Non- Jurisdictional)	177,165	104,987	154,199	0	436,352
Portion Shallower than 1,200 Meter Water Depth	659,449	633,202	616,798	1,115,485	3,024,934
Estimated Soft Bottom (Shallower than 1,200 Meter Water Depth)[1]	528,166	507,144	494,006	893,415	2,422,730
Disturbance Area– Soft Bottom[2] (ft^2)	1,742,947	1,673,576	1,630,219	2,948,268	7,995,010
Estimated Hard Bottom (Shallower than 1,200 Meter Water Depth)[3]	131,283	126,058	122,792	222,071	602,203
Disturbance Area - Hard Bottom (ft^2)[4]	32,821	31,514	30,698	55,518	150,551
Non-Intermittent Contact (ft^2)[5]	8,205	7,879	7,675	13,879	37,638
Estimated Mitigation Fee[6]	$596,745	$572,981	$558,145	$1,009,418	$2,737,291

Notes: Units are in feet unless otherwise noted

[1] Assumes 80% of habitat is soft bottom substrate.

[2] Assumes impact width = 3.3 feet (1 meter).

[3] Assumes 20% of habitat is hard bottom substrate.

[4] Assumes disturbance area equal to twice the cable diameter or 3 inches.

[5] Assumes 25% of high-relief substrate where the cable has intermittent contact and thus no impact based on Tyco Telecommunications 2003 and 2010 post-lay inspection report.

[6] Assumes mitigation fee = $100,000 per 5,500 ft^2 similar to previous fiber-optic projects.

3.3.3.2 Significance Thresholds

An impact related to biological resources would be considered significant if the proposed Project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on Waters of the U.S. or Waters of the State through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory terrestrial wildlife species or with established native resident or migratory wildlife corridors, or impede the use of terrestrial native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other conservation plan protecting biological resources.
- Have a substantial adverse effect, either directly or through habitat modifications, on any benthic communities and organisms.
- Have a substantial adverse effect, either directly or through habitat modifications, on pelagic communities and organisms.

3.3.3.3 Impacts and Mitigation Measures

Effects on Listed and Other Special-Status Terrestrial Species

The terrestrial portion of the proposed Project would be constructed on open, sandy beaches, city streets, the Greenbelt and Valley Park, bikeways, residential communities, and commercial properties. Habitat along the proposed fiber-optic line consists of disturbed, developed, and landscaped areas. With the exception of disturbance-tolerant species, special-status plants and most special-status wildlife have a low potential to occur in these areas.

Although California brown pelican (fully protected in California), black skimmer (California Species of Special Concern), and double-crested cormorant (California Species of Special Concern) are likely to fly over the Project, there is no nesting or roosting habitat for these species within or adjacent to Project impact areas. Black skimmers nest on sandy beaches, but the high levels of recreation and beach management disturbance make the Project area unlikely to support nesting. Project activities are not expected to interfere with foraging for California brown pelicans, black skimmers, or double-crested cormorants. Impacts to listed shorebirds are described under Impact BIO-1.

Special-status marine species are discussed under "Benthic Communities and Organisms" and "Pelagic Communities and Organisms," below. The proposed cable routes do not cross designated critical habitat for listed species potentially occurring within the Project area and, therefore, impacts to critical habitat would not occur.

Impact BIO-1: Project construction/installation and decommissioning may adversely affect western snowy plover and California least tern.

Western snowy plover and California least tern are known from the region. Western snowy plover is federally listed as threatened and a California species of special concern. Designated critical habitat (Subunit CA 45D) for this species is located south of the proposed Project area between 11th Street and 1st Street (USFWS, 2012). California least tern is a State and federally listed endangered species. Neither of these listed birds is known to nest within 5 miles of the cable landing areas (ICF, 2015; CDFW, 2015; and Frost, 2013). Based on the level of existing activity on the beach, including routine grooming, recreation, and patrolling, these species are expected to have a low potential to nest in the Project area. During winter, western snowy plovers are known to roost on Hermosa Beach and are regularly observed adjacent to 19th to 22nd Streets and from 26th to 28th Streets (Ryan et al., 2014).

Each beach landing site would be 15,000 square feet (0.34 acre), and would be fenced off with chain-link fence covered in privacy fabric and sound-dampening blankets. Construction/installation activities including drill rig operation would not be expected to create a substantial source of noise and visual disturbance to any listed bird that may be roosting or foraging in the area. The proposed Project would have a very low potential to directly affect a snowy plover or California least tern roost

or nest site, and any birds foraging in the area would be able to move away from any Project disturbance during construction/installation. In addition, there is a high level of existing disturbance around the two proposed beach landing sites from recreationists and beach grooming and patrol activities.

Although Project activities would pose a low risk to western snowy plovers, because they are known to roost nearby, measures to avoid disturbing roosting snowy plovers would be required. Mitigation Measure BIO-1 requires conducting boring activities at beach landing sites outside of the western snowy plover roosting season (September through March) to avoid impacts. If activities at beach landings cannot be avoided during the roosting season, Mitigation Measure BIO-1 requires coordination with the USFWS and CDFW, surveys and construction monitoring by a qualified biologist, and exclusion fencing. If the landing site(s) are located in a Special Protection Zone (as determined through coordination with USFWS and CDFW), construction activities would be prohibited until western snowy plovers are no longer present. With implementation of Mitigation Measure BIO-1, the proposed Project would not create a substantial adverse impact to nesting, roosting, or foraging western snowy plovers or California least terns. Impacts would be reduced to less than significant (Class II).

Mitigation Measure

BIO-1 **Avoid Disturbing Roosting Western Snowy Plovers or California Least Terns.** If the beach landing sites are selected, the directional bore and facility installation activities will be conducted outside of the roosting period for western snowy plovers (September through March) as feasible, to avoid impacts on roosting snowy plovers. If the beach landing sites will be established, and construction activities at the bore sites must occur during the roosting season, a qualified biologist approved by the City will contact USFWS and CDFW to determine if the site(s) are within a Special Protection Zone for roosting western snowy plovers. If the landing site(s) are within a Special Protection Zone, construction activities will not be allowed until western snowy plovers are no longer present. If the area is not within a Special Protection Zone, a qualified biologist will survey the area for western snowy plovers using established protocols and in coordination with USFWS and CDFW to determine if plovers are present. If present, no work will occur until after snowy plovers leave the roost site for the season. If surveys are negative for western snowy plovers or California least terns, work may proceed during the roosting period and the biologist will be present to monitor the establishment of the beach landing sites to ensure that no western snowy plovers are injured or killed, should they arrive in the area subsequent to work commencing. The sites will include fencing/walls that will prevent western snowy plovers from entering the work areas. The biologist will conduct weekly site visits to ensure that fence/walls are intact until construction activities are finished at the sites and all equipment is removed from the beach. The results of the preconstruction survey will be submitted to the City prior to the establishment of beach landing sites. All biological monitoring efforts will be documented in monthly compliance reports to the City.

Impact BIO-2: Project construction/installation and decommissioning may adversely affect nesting birds.

Native birds could nest in the ornamental plantings, on buildings or other structures, or on the ground along the terrestrial cable routes and other work areas. The beach area is subject to ongoing disturbance, making it unlikely that birds would nest along the beach. Biological surveys conducted

by the applicant observed a red-shouldered hawk perched in a tree in Valley Park, and a Cooper's hawk hunting other birds at the south end of the Greenbelt near 6th Street during the October 3, 2014, site visit. Nests, nestlings, and eggs of these and other native birds are protected by the MBTA and Fish and Game Code Sections 3503 and 3513.

If present adult birds would flee from equipment during Project construction/installation. However, nestlings and eggs of ground-nesting birds or birds nesting in ornamental trees, landscaping, or equipment and facilities would be vulnerable to injury during Project construction. Construction and demolition activities conducted during the nesting season could destroy bird nests, including eggs or nestling birds, or could disturb nesting birds to the point of nest failure. Project activities would occur in small, localized areas at the two landing sites, at periodic access points for underground boring, and at the PFE facilities. Installation activities would occur within a developed, urbanized area and would be generally consistent with current human activity levels from recreationists, traffic, and other sources of noise and disturbance. Any birds nesting in the Project area are expected to be acclimated to and tolerant of human disturbance, and Project activities are not expected to result in substantial adverse impacts. Nonetheless, noise and vegetation removal in the Greenbelt and Valley Park may result in loss of nests, eggs, or nestlings without mitigation.

Mitigation Measure BIO-2 requires preconstruction surveys for active nests if construction would occur on the beach, in the Greenbelt or Valley Park during the nesting season (March 15 to August 31). A 50-foot, no-disturbance buffer would be established around each active nest to minimize potential impacts from vegetation trimming and construction noise. Impacts to nesting birds would be less than significant with implementation of Mitigation Measure BIO-2 (Class II).

Mitigation Measures

BIO-2 **Conduct preconstruction surveys for nesting raptors and other birds.** Prior to the issuance of any construction permits, the applicant shall retain a qualified avian biologist approved by the City of Hermosa Beach to conduct pre-construction surveys for nesting birds within 100 feet of work areas on the beach, along the greenbelt, and in Valley Park. The preconstruction survey for active nests will occur within 2 weeks of the start of construction activities if construction activities in these areas occur between March 1 and August 31 (the period covering the nesting season for most birds). If an active nest is identified during the survey, a 50-foot (15-meter) buffer zone will be established around the nest to minimize potential impacts on nesting activities from vegetation trimming and construction noise.

The prescribed buffers may be adjusted by the qualified avian biologist based on existing conditions around the nest, planned construction activities, tolerance of the species, and other pertinent factors. The qualified avian biologist shall conduct regular monitoring of the nest to determine success/failure and to ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The avian biologist shall be responsible for documenting the results of the surveys, nest buffers implemented, and the results of ongoing monitoring and shall provide a copy of the monitoring reports for impact areas to the City on a monthly basis.

If trees or existing structures with nests are to be removed as part of Project-related construction activities, they shall be done so outside of the nesting season to avoid impacts to nesting raptors and other birds. If removal during the nesting season cannot be avoided, all trees shall be inspected for active nests by the biologist. If nests are found

within these structures and contain eggs or young, no activities within a 50-foot buffer shall occur until the young have fledged the nest.

Effects on Riparian Habitat or Other Sensitive Natural Community

The terrestrial Project components would occur entirely within developed and disturbed areas. Although the Greenbelt and Valley Park are open space park areas, limited native vegetation occurs. The two proposed landings would be located on an unvegetated sandy beach area; however, these sites are heavily used by recreationists and are subject to frequent disturbance from grooming and foot traffic. No sensitive natural communities occur in the Project area. No impacts would occur, and no mitigation is required.

Effects on Waters of the U.S. or Waters of the State

The terrestrial portion of the Project would not occur in or near any Waters of the U.S. or Waters of the State. Terrestrial facilities would be located entirely within developed areas. No impact would occur.

The marine portion of the Project would be located in State and federal waters and is anticipated to require a federal permit from the U.S. Army Corps of Engineers and a certification pursuant to Section 307 (c)(3)(A) of the Coastal Zone Management Act. The applicant will obtain all applicable permits and will abide by the terms and conditions contained therein to minimize impacts to jurisdictional waters. Compliance with existing regulations requires the applicant to implement Best Management Practices to reduce the potential for contamination or sediment from entering State or federal waters. These measures include the use of containment devices, implementation of erosion control plans, and routine monitoring and inspection which would ensure impacts to waters of the U.S. and waters of the State are not significant (Class III). This topic is further addressed in Section 3.8, *Hydrology and Water Quality*.

Interference with Terrestrial Wildlife Movement, Wildlife Corridors, Nursery Sites, or Passage Routes

The terrestrial portion of the proposed Project would be constructed entirely within a developed area, and the cable routes would be underground. No impacts to terrestrial wildlife movement, wildlife corridors, nursery sites, or passage routes would occur. Impacts to marine wildlife movement are discussed under “Pelagic Communities and Organisms,” below.

Conflicts with Local Policies or Ordinances Protecting Biological Resources

Impact BIO-3: Project construction/installation and decommissioning may conflict with local policies protecting biological resources.

The City of Hermosa Beach General Plan Conservation Element is intended to maintain and preserve biological resources in Hermosa Beach. The Conservation Element also designates the entire City as a wild bird refuge. Construction of the proposed Project could result in disturbance to native wildlife or degrade habitat conditions along the beach or greenbelt. Construction activities may also temporarily disrupt bird use. Trenches or holes that are left uncovered during directional boring could also entrap wildlife.

The terrestrial portion of the proposed Project would be located in developed ROWs within the City of Hermosa Beach, and the two landing locations would be on beach sand regularly subject to

disturbance associated with heavy recreational use. Conduit installation could disturb areas at the beach, along the Greenbelt, and in Valley Park that provide habitat for common wildlife species, which are protected under the City of Hermosa Beach General Plan Conservation Element. Although the footprint of disturbance at the beach, Greenbelt, and Valley Park would be small and similar habitat is abundant in the vicinity of the work areas, construction activities in these areas may displace common wildlife by removing habitat and creating noise and other human disturbance.

Compliance with the General Plan would occur through the implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3. Mitigation Measure BIO-1 requires conducting boring activities at beach landing sites outside of the western snowy plover roosting season (September through March) to avoid impacts. Mitigation Measure BIO-2 requires preconstruction surveys for active nests if construction would occur on the beach or in the Greenbelt during the nesting season (March 15 to August 31). Mitigation Measure BIO-3 requires all holes and trenches to be covered overnight or inspected by construction personnel at the start of construction the next day to remove any wildlife that may have become trapped. Compliance with these measures would reduce impacts from noise and other disturbances from conduit installation that could conflict with local policies protecting biological resources. Implementation of these measures reduce impacts to less than significant (Class II).

The Project's consistency with policies protecting marine biological resources is described under "Benthic Communities and Organisms" and "Pelagic Communities and Organisms," below.

Upon retirement of the Project, it is the applicant's intent to abandon the terrestrial cable systems in place, meaning they would not be removed (see Section 2.7, *Retirement, Abandonment, or Removal of the Cable Systems*). If the cables are completely abandoned in place, there would be no impacts on biological resources. If the terrestrial cable is removed from the buried conduit as part of the retirement of the Project, a truck with a reel puller would be used to pull the terrestrial cable from the existing manhole locations. This activity would disturb local wildlife, primarily in the Greenbelt and along City streets, but to a much lesser degree than the original installation of the cable.

Mitigation Measure

BIO-3 **Minimize impacts to common wildlife.** If holes or trenches are left open overnight, the applicant's construction contractor will:

- Cover excavations to prevent wildlife entrapment, or
- Inspect excavations at the start of construction the next day to determine if trapped wildlife are present before the hole, trench, pit, or tank is filled or closed. If wildlife are trapped, the construction personnel will immediately contact the California Department of Fish and Wildlife for instruction on how to proceed. Trapped animals will be relocated to a safe area or transported to a local wildlife rehabilitation facility or veterinarian as needed.

Conflicts with Habitat Conservation Plans, Natural Communities Conservation Plans, or other Conservation Areas

No known habitat conservation plans or other habitat plans have been identified for the terrestrial portion of the Project. The closest plan is the Palos Verde Peninsula NCCP/HCP located approximately 5 miles south of the proposed Project. Therefore, no impacts would occur for the terrestrial portion of the Project.

The proposed cable routes pass adjacent to several California Marine Protected Areas and the Channel Islands National Marine Sanctuary, but because the Project would not be within these areas, no conflicts would occur. However, the proposed cable routes cross portions of the Cowcod Conservation Areas as well as designated EFH.

Impact BIO-4: Marine cable installation and repair would result in disturbance to Essential Fish Habitat and Cow Cod Conservation Area.

The Project area includes designated Essential Fish Habitat (EFH) for three Fishery Management Plan (FMPs): (1) coastal pelagics, (2) Pacific coast groundfish, and (3) highly migratory species, as well as, a Cow Cod Conservation Area. The potential effects on benthic organisms, hard and soft bottom benthic habitats and communities, and ridge and basin benthic habitats and communities are detailed under "Benthic Organisms and Communities," below.

Three Habitat Area of Particular Concern (HAPCs) including estuaries, canopy kelp, and sea grass identified in the groundfish FMP would not be encountered by the proposed Project based on the proposed routes:. The potential effects on two HAPCs likely to be encountered during proposed Project activities (rocky reefs and areas of interest) are as follows.

- Soft bottom benthic communities, primarily disturbed during the pre-lay grapnel run, sea-plow, and ROV activities, can be expected to fully recover in a matter of months (Merkel and Associates, 2010) (see Table 3.3-8 for estimated impact area).
- On hard-bottom substrates, the impact footprint would be smaller but benthic organism recovery may require several years depending on the species; the potential effect would be minimized by routing the cable to avoid areas of high-relief, hard-bottom substrate. However, considering the bathymetry of the area crossed by the proposed routes and observations from previous fiber-optic projects, complete avoidance of hard-bottom substrate and high-relief, hard-bottom substrate is not possible (see Table 3.3-8 for estimated impact area).
- Minor, local turbidity effects from suspended sediments during burial activities would occur.
- Resuspension of contaminated sediments could occur, although the area of highest concentrations would be avoided.

The proposed Project has the potential to affect designated EFH and the Cow Cod Conservation Area through the following activities: (1) the pre-lay grapnel run; (2) cable installation, including sea-plow and ROV burial of the cable, and direct lay over hard-bottom; (3) cable repair; and (4) cable removal after retirement. Potential impacts from these activities include the short-term disturbance of soft-bottom substrates. Potential impacts over hard-bottom substrates are expected to be longer-term, but the width of impact would be very narrow (Table 3.3-8). The proposed Project would not use the pre-lay grapnel hook or sea-plow where high-relief rocky substrates are present. These areas would have the greatest diversity and significance to groundfish EFH.

During installation, horizontal movement and strumming of the cable has the potential to cause additional damage to organisms in the immediate vicinity of the cable. However, methods and equipment used to install undersea cables have improved over the years to greatly reduce horizontal movement during installation, and for this Project an impact width of only 0.25 feet (3 inches; 7.6 centimeters) is assumed.

Project disturbance is not expected to result in the long-term degradation of designated EFH or Cow Cod Conservation Area. On soft substrates, recovery will likely occur within 1 year based on the

small area of the plow and estimated recovery rates from dredge monitoring conducted in San Diego bay (Merkel, 2010); on hard-bottom substrates, recovery would likely require a longer timeframe, but, because of the small width of the disturbance corridor over hard-bottom substrates, the impact of cable installation would be limited to individuals as opposed to communities. Therefore, it is unlikely that a multiple-year recovery period would lead to any measurable reduction in the capacity of these environments to support fishes identified in the FMPs. Impacts would not be significant (Class III).

Once installed, the cable would be expected to have minimal impacts on the benthic community (see Carter et al., 2009 for a review). Cable maintenance and repair, however, would present potential impacts for benthic communities. Repairing buried cables requires pulling a grapnel hook across the cable route to snag the cable, cutting the cable, and then bringing the cut cable ends to the surface. Repair may include splicing a new section into the cable. The repaired cable is re-laid on the bottom at right angles to the original route to minimize slack from the spliced section. Re-laying the cable requires doing another grapnel run to clear debris and, if over soft-bottom, a sea-plow or ROV to rebury the cable or a direct lay over hard-bottom substrates. Cable repairs at depths that permit use of an ROV may reduce impacts by minimizing the number of grapnel runs needed to retrieve the cable for repairs.

Cables may be removed after they have reached the end of their design life or become redundant due to new technologies. Removal of buried cable would result in disturbance of the seafloor. Removal of cables over hard-bottom portions (direct lay on seafloor) would impact sessile epifauna using the cable as a hard surface. E&E (2001) estimated a disturbance width of 0.2 feet (6 centimeters) for hard-bottom (width of cable) and several feet to pull buried cable from soft-bottom substrates. As with installation, impacts during repair or removal would not be significant (Class III).

Benthic Organisms and Communities

The installation, maintenance, and ultimate abandonment/removal of a subsea fiber-optic cable located in the coastal waters of California could result in disturbances to both soft and hard substrate habitats and would differ according to installation methods, which vary with water depth and substrate type. In shallow water soft-sediment areas, divers or ROVs are typically used to bury the cable using a water jet to create a channel in which the cable is laid. In deeper soft-bottom areas, a cable installation plow is employed that is capable of burying the cable beneath the seafloor to a depth of 3.3 feet (1 meter).

In the event a proposed cable route contains hard substrate features, the final selected routing of the cable would be such that all hard substrate, especially high-relief outcrops, is avoided to the maximum extent feasible. If placement along mixed bottom or low- to moderate-relief habitat is unavoidable, the cable is typically laid onto the seafloor and either a ROV or divers are used to properly position the cable on the seafloor.

Impact BIO-5: Marine cable installation and repair in soft-bottom areas would result in disturbance of benthic organisms.

Any effects to soft sediment biota during cable installation, operation, or abandonment can be expected to be minimal and short term. The use of a cable plow to create a temporary furrow along the seafloor into which the fiber-optic cable is placed and immediately buried would result in a temporary disturbance of benthic infauna (animals living in the sediments of the seafloor) and

epifauna (animals living on the surface of the seafloor). It is estimated that the actual area of disturbance is less than 8 meters wide, the size of the plow itself, with the most severe effects being limited to the 3.3-foot- (1-meter-) wide trench. Most mobile invertebrates and fish can be expected to avoid the plow and return to the area shortly after the plow has left. Any benthic infauna inhabiting the upper biotic sediment layers disturbed by the plow and then replaced into the furrow on top of the cable can be assumed would be smothered and killed. The loss would be minimal, based on the extremely small area of the seafloor affected relative to the surrounding area. As one means of comparison, a conservative estimate of the size of Santa Monica Bay is about 226.5 square miles and the majority of the Bay's seafloor consists of soft sediments. The total distance of the Project's longest proposed marine cable route across the Bay is 11.6 miles, which would result in a direct impact to about 202,118 square feet (3.3 feet wide by 11.6 miles long) of the seafloor, or 0.0032 percent of the Bay's bottom area. In addition to being a relatively small area of disturbance, the benthic infauna that would be affected in the soft-bottom areas are common species that would readily repopulate the disturbed area after the cable is laid. Similarly, Lindholm et al. (2015) found that along the central California outer continental shelf most of the invertebrate groups that they assessed had low densities, and showed high spatial and temporal variability. Recolonization would occur both by migration from adjoining, undisturbed seafloor areas and by natural recruitment.

Studies of offshore sand mining operations in the Gulf of Mexico and Atlantic Ocean have shown that recovery of benthic infauna to comparable productivity levels following burial or complete removal with the mined sand typically occurs within a few years following the disturbance (AMS, 2015). The key factors to the speed of recovery were: (1) when the impact occurred relative to seasonal periods of spawning and recruitment, and (2) the proximity of undisturbed sediment to the disturbed/impacted area. Because the disturbance to benthic infauna during cable installation does not involve sediment removal and the distance between disturbed and undisturbed sediment is typically less than 1.6 feet (0.5 meters), recovery to pre-disturbance conditions is expected to be relatively quick. During the 2007 ROV survey of the AAG S-5 cable route, several other buried telecommunications cables were crossed. No detectable differences in benthic macrofauna were noticeable at these locations. At one cable crossing, a slight depression in the seafloor was detected (AMS, 2015).

Possible effects to sessile, less mobile organisms would include temporary burial by relocated sediment during cable plow operation and possible crushing or dislodgement. Similar to the benthic infauna, recovery can typically be expected to occur within a year. Because of the relatively small area of disturbance, no effect to the general productivity of the area would be expected.

In any coarse sand, shallow water areas of a cable route where divers or ROVs are typically used to bury the cable, the disturbance is expected to be similar to the deeper finer sediment areas of the route where a cable plow is used. In the very nearshore areas of the route, in water depths less than 100 feet (30 meters), the seafloor and associated biota experience frequent and regular disturbance from wave action. As a result of this high energy, constantly changing environment, the associated biological community has adapted to frequent exposure and burial. The infaunal community is typically limited in species diversity and consists primarily of filter feeders (e.g., tube worms, sand dollars, sand anemones) and detrital feeders (e.g., shrimp and crabs). Most of these species are highly mobile and would either avoid the plow or quickly re-colonize the site post disturbance. Because of these factors any effects to the habitat and associated biota would be less than significant and undetectable within a few days or months of cable installation (Class III).

Impact BIO-6: Marine cable installation and repair in hard-bottom areas would result in disturbance of benthic organisms, including crushing and dislodgement.

Impacts from cable installation can potentially be the greatest in hard-bottom habitat within the cable route. The biota associated with hard-substrate habitat is predominantly sessile, slow growing, and susceptible to crushing, dislodgement, and other physical disturbances. High-relief (greater than 3.3 feet [1 meter] in height), hard-substrate areas, because of their higher species diversity, species abundances, and the potential presence of organisms sensitive to physical disturbances such as erect turf species, hard and soft hydrocorals, branching and erect sponges, etc., are generally considered to be more sensitive to impacts than low-relief (less than 3.3 feet [1 meter]), hard-bottom habitat (AMS, 2015). Low-relief, hard-bottom habitat is often subject to higher turbidity and cycles of frequent burial by sand and exposure typically resulting in lower species diversity and abundances. These harsher physical conditions result in an associated biological community that is often more ephemeral and dominated by organisms that are more tolerant of high turbidity and sand scouring, or are able to grow fast enough to avoid complete burial. Typical taxa observed in recent ROV habitat and macrobenthic taxa surveys for fiber-optic cable routes in California include some cup corals, puffball and other similar sponges, gorgonian corals, and some species of anemones, such as *Stomphia* spp. and *Urticina* spp.

The predominant species inhabiting moderate to higher relief hard substrate in water depths over 650 feet (200 meters) include a turf community (mixtures of small hydroids, bryozoans, tunicates, and sponges), cup corals (*Paracyathus* and *Balanophyllia*), seastars (*Asterina* and *Henricia*), brittlestars (*Amphipholis*), various encrusting sponges, tunicates, bryozoans, red algae (at depths to about 100 feet [30 meters]), rockfishes (*Sebastes* spp.), lingcod (*Ophiodon elongatus*), and painted greenling (*Oxylibius pictus*). Additionally, on hard-bottom moderate- to high-relief features in water depths over 300 feet (100 meters), the feather star or crinoid, *Florometra serratissima,* and the large plumose anemone *Metridium* are frequently observed. All of these taxa are capable of withstanding periodic physical impacts. Other species, such as the California hydrocoral, *Stylaster californicus (Allopora californica),* the branching coral *Lophelia*, the colonial anemone, *Corynactis californica,* and large erect sponges are typically more sensitive to physical impact and may require longer time periods to recover. *Metridium* and *Corynactis* are common species on moderate- and high-relief substrate, whereas *Allopora and Lophelia* are only infrequently reported being observed in past cable route surveys.

The potential for post-lay effects is highly dependent on where the cable is located within a hard substrate area and how securely the cable is anchored to the seafloor in order to avoid possible suspension across hard-bottom features. Suspensions often result in continued movement of the cable in response to currents in shallow depths (less than 100 feet [30 meters]), causing abrasion of hard substrate. Based on observations made during past cable route and post-lay surveys in California coastal waters, the impacts to associated biota from post-lay movement appear to be minimal with careful placement of the cable. AMS (2008) reported during their survey of the AT&T Asia-America Gateway (AAG) S-5 cable, that ran parallel to previously laid fiber-optic cables in low-relief hard substrate, that they could not detect any noticeable impacts associated with previously laid cables in the area. Summaries from other surveys indicated large erect sponges were observed growing on or over exposed cables, or small-localized movements up to 4 inches (10 centimeter) in width were observed (AMS, 2015). Recovery of disturbed areas by immigration, asexual propagation, or larval recruitment should begin occurring within months of the disturbance, although a study performed in the Point Arguello area suggests that the small areas of hard bottom habitat that might

be disturbed by cable laying operations could take years to recover (AMS, 2015). It was further estimated that the mean time for recovery to background densities was 23 years for *Paracyathus stearnsi* and 19 years for *Lophogorgia chilensis* in areas disturbed by dragging anchors during pipe-laying operations.

The direct lay of fiber-optic cables over hard-bottom substrate can directly damage benthic organisms during installation and repair. During installation, any horizontal movement (strumming) of the cable has the potential to result in additional damage to organisms in the immediate vicinity of the cable. Methods and equipment used to install undersea cables have improved over the years to greatly reduce horizontal movement during installation, and the impact footprint is expected to be 0.25 feet (3 inches; 7.6 centimeters) wide, and the total estimated area of impact for each phase of the Project is summarized in Table 3.3-8. Direct harm and disturbance to hard-substrate benthic organisms and communities caused by installation, cable horizontal movement, or cable retirement would be a significant adverse impact because of the sensitive nature of these communities and slow recovery (lasting longer than 1 year) following disturbance. However, implementation of Mitigation Measures BIO-6a and BIO-6b would reduce the impact to a less-than-significant level (Class II).

Upon retirement of the Project, it is the applicant's intent to abandon both the marine cable systems in place, meaning they would not be removed (see Section 2.7, *Retirement, Abandonment, or Removal of the Cable Systems*). If the cables are completely abandoned in place, there would be no impacts on biological resources. However, the Coastal Commission has included a condition in past Coastal Development Permits requiring the cable owner to apply for an amendment to the original permit that could require removal of the cable from the waters of the State of California, which extend out three miles from shore. Because the seafloor within three miles of shore consists primarily of soft-bottom sediments, the impacts of cable removal would be generally similar to those of installation. However, if the cables are laid on hard-bottom areas in State waters, the cables would not be buried and would become encrusted with hard-bottom biota over time. As a result, removal of the cable along hard-bottom areas would cause greater habitat disruption than cable installation because the encrusted cable would have become part of the hard-bottom habitat.

Mitigation Measures

BIO-6a **Minimize Crossing of Hard-Bottom Substrate Communities.** The proposed cable routes will be set to minimize crossing of high-relief rocky outcroppings. Sections that cross high-relief rocky outcroppings that may have suitable habitat for sensitive species and communities (e.g., deep-sea coral communities) will be identified during geophysical surveys. Attempts will be made to adjust the cable alignment within boundaries of the surveyed route to avoid or reduce crossing the outcroppings. The applicant will include in the burial report a detailed account of all hard-bottom substrate communities crossed during the cable laying activities, including the measures taken to reduce and/or minimize the amount crossed.

BIO-6b **Compensation to Hard Bottom Mitigation Fund.** The following mitigation is proposed for damage to slow-growing, hard-bottom organisms.

- Areas of impact will be limited to the width of the cable and the potential width of cable movement, for a total of 0.25 feet (7.6 centimeters).
    - CCC compensation fees (based on past projects) will be required that fund the UC Davis Wildlife Health Center's California Lost Fishing Gear Recovery Project,

or other conservation programs at $100,000 per 5,500 square feet of high-relief, hard-bottom substrate impacted by the Project.

A final determination of the amount of high-relief, hard-bottom substrate impacted (used to calculate the total compensation fee) will be determined based on a review of the final burial report from the cable installation. The total assessment and methods used to calculate this figure will be provided to the City for their review and approval. The City will also be provided with documentation of the total amount of mitigation paid, and the activities for which the funds will be used.

Impact BIO-7: Marine cable installation and repair would result in the temporary suspension of sediments and increased turbidity, which would affect filter-feeding organisms or cause disturbance to benthic organisms.

Burial of the cable using the sea-plow or jetting over soft-bottom substrates would result in the suspension of sediments and increased turbidity in the immediate area of the proposed Project, impacting soft-bottom, and nearby hard-bottom organisms. The extent and severity of the suspended sediments would depend on the equipment used, sediment grain size and corresponding settling rates, and bottom currents during construction activities.

Project activities would be expected to suspend sediments and increase turbidity for 4 hours at any one location (E&E, 2001). The greatest concentrations would be in the immediate vicinity of the Project activities. Dilution through dispersion by currents and settling of heavier particles would greatly reduce impacts beyond the immediate vicinity. The duration of increased turbidity would be short, and most suspended sediments would not be visible at the water surface and would also settle out of the water column within hours of any activity.

It was estimated the area of impact could extend 0.9 mile (1.4 kilometers) from the cable route (E&E 2001); however, concentration of suspended sediments and turbidity would decrease with distance from Project activities. Soft-bottom organisms in nearshore areas are accustomed to shifting sediments resulting from currents and storms. Deep-water organisms are more sensitive, and organisms over hard-bottom substrates are the most sensitive. However, no activities that would suspend sediments and increase turbidity are proposed near sensitive hard-bottom communities. Dispersal and settling of sediments is expected to result in low levels of increased turbidity in hard-bottom areas along the proposed routes.

Thus, cable installation and repair would result in the temporary suspension of sediments and increased turbidity, which would affect filter-feeding organisms or cause disturbance to benthic organisms. However, potential impacts would be short term and limited in area and would not be significant (Class III).

Impact BIO-8: Marine cable installation and repair could disturb contaminated sediments and result in the dispersal and potential uptake of these contaminants by benthic and pelagic organisms.

Activities that suspend sediments (sea-plow or jetting) in areas with sediments containing contaminants would result in the dispersal and potential uptake of these contaminants by benthic and pelagic organisms. Sediments are reported to be contaminated with dichlorodiphenyltrichloroethane (DDT), polychlorinated biphenyls (PCBs), and metals in Santa Monica Bay (E&E, 2001). Sampling of

sediments adjacent to the previous fiber-optic sites indicated three of four sites did not exhibit toxicity, while one location reported amphipod toxicity.

The four proposed cable routes would avoid known locations of contaminated sediments. Contaminant levels that might be encountered along a proposed route would likely be low, and construction is expected to result in negligible redistribution of sediments. The activities associated with the proposed Project would not be likely to result in a greater dispersal of contaminants, assuming the proposed Project does not encounter any high concentrations of contaminants. As noted, the cable routes would be planned to avoid known areas of contaminated sediments.

The pre-lay grapnel run, cable installation, and cable repair would result in the temporary suspension and dispersal of potentially contaminated toxic sediments. Impacts on organisms could occur if high levels are encountered, with sub-lethal effects if lower concentrations are encountered, or possibly an increased potential for bioaccumulation of contaminants in organisms through the food chain. Sediments are naturally re-suspended and dispersed by wave action and ocean floor currents throughout very large areas of Santa Monica Bay. The volume of contaminated sediments potentially re-suspended and dispersed via natural processes is far more than that anticipated to be caused by the very small-scale Project construction activities (Table 3.3-8). Project activities are isolated to a very small footprint and, therefore, can only generate very small amounts of re-suspended sediment. Also, the Project avoids heavily contaminated areas and re-suspended sediment in areas of cable laying would be far below levels of re-suspended sediment from natural processes that would occur in larger areas. This impact would not be significant (Class III) because the proposed Project would not add contaminants to the area, the area affected is relatively small, and suspended sediments are expected to disperse within 1 day with a low likelihood of reaching toxic levels to wildlife. The most likely source of mortality to benthic organisms is from contact with the plow. For a more in-depth discussion of the potential impacts of contaminated sediments please see Section 3.7, *Hazards.*

Pelagic Communities and Organisms

Potential impacts on pelagic communities and organisms would occur during Project activities associated with the water column. Pelagic species potentially impacted would include marine mammals, sea turtles, sea birds, and pelagic fishes. Any impacts on these species would be from vessel(s) during the pre-lay grapnel run and cable installation. Vessels may collide with pelagic species, and noise from vessel(s) during the route surveys, pre-lay grapnel run, and cable installation may disturb animals in the immediate area. However, vessel movements would be slow during these activities. Also, cable repairs would require several vessels to locate the fault, retrieve the cable, and relay the cable.

The Project would not occur on or near nesting or spawning areas of common pelagic species, although since the Project occurs over a large area of open ocean, there is the possibility to affect foraging. However, it is expected that pelagic fish and bird species would avoid the area immediately around vessels during installation. Since the Project includes the installation of four cables, each of which would take about 5 weeks to complete, highly mobile pelagic species are expected to move out of the immediate area and would return once activities are complete. Therefore, the Project would not cause reductions in any common pelagic populations, nor would it adversely affect community compositions or ecosystem relationships for species that are recognized for scientific, recreational, ecological, or commercial importance.

Grunion (*Leuresthes tenuis*) are an important biological and recreational resource in the area of the proposed Project. Grunion move onto sandy beaches at night to spawn during the spring and summer months (March through August, occasionally in February and September, and peak spawning late March to early June). Grunion runs occur over 4 consecutive nights, beginning on the nights of the full and new moons. Spawning occurs after high tides and continues for several hours. CDFW closes grunion fishing during the period of highest spawning (April and May). Grunion fishing is allowed on selected nights in March, and from June to August. Any beach excavations during or after grunion spawning would impact spawning, eggs, and larvae. Such activities would require a "take" of a state-regulated species during a closed period and thus would result in a significant impact. The activity would result in an adverse and significant impact because it reduces a species recognized by CDFW for recreational, ecological, or commercial importance. However, the proposed Project would use a directional bore originating outside of the MHW and ending seaward of the surf line, the zone used by spawning grunion. As described in section 2.4.2.1 the directional bores would be buried between 25 and 50 feet below the surface of the ocean floor, and would not impact the zone used by spawning grunion. Grunion eggs could be adversely affected from the inadvertent release of drill fluids should they occur along the path of the drill. However, the proposed Project would not require beach excavation within the intertidal area that grunion use for spawning, and therefore there would be no impact on grunion.

Pelagic fishes may encounter localized areas of suspended sediment during Project activities; however, it is expected that any encounters would be of highly diluted concentrations and short-term in nature. (See Impact BIO-7 for a full discussion.)

Impact BIO-9: Vessel movement and noise could temporarily disturb marine mammals in the area.

Smultea and Jefferson (2014) reported 16 species of whales observed in the SCB during systematic surveys in the region. In addition to whales, other marine mammals that may be encountered during Project activities are southern sea otters, Guadalupe fur seals, California sea lions, and harbor seals.

Vessel movement and noise during each Project activity (geophysical survey, biological survey, pre-lay grapnel run, and cable installation) have the potential to temporarily disturb marine mammals in the area. Many of the potential impacts such as disruption of migration route or increased noise during installation are considered temporary, lasting only hours (along the sea route installation) to a few days (at the cable landfall location) in any one location, and would not cause disruptions substantially different from normal ship traffic (e.g., noise) through the area (AMS, 2015). Although vessel noise could affect the behavior of marine mammals in the immediate area, the impact would not be significant because of the isolated and short-term nature of the noise (Class III).

Impact BIO-10: Marine mammals and sea turtles could be struck by Project vessels.

Marine mammals and sea turtles could be present in the Project area at any time of the year; however, it is expected that they would generally avoid Project vessels and activities because of noise. Ship strikes of whales have become of growing concern for several species, with ship strikes to the highly endangered North Atlantic right whale receiving the most attention off the U.S. east coast (AMS, 2015). In 2007, four blue whales off the coast of California were found dead with direct or indirect indications of having been struck by ships. These four were all found in the vicinity of the Santa Barbara Channel and Los Angeles-Long Beach Harbors. Ship strikes during cable installation is highly unlikely since the speed of the ship during cable laying activities is slower (approximately 0.5

to 1.5 knots while plowing) than migrating whales or the fast-swimming sea lions. According to the Large Whale Ship Strike Database, the majority of strikes were by vessels traveling between 13 and 15 knots, there are no reported collisions below 2 knots (Jenson and Silber, 2003). Nevertheless, there remains a small risk of marine mammals and sea turtles encountering Project vessels and, therefore, there is a potential for collisions. Any collisions or potential for harm to marine mammals and sea turtles would be a significant impact. The very small potential for collisions would be further reduced by implementation of Mitigation Measures BIO-10a through BIO-10c, which require monitoring by a qualified biologist, modification of vessel operations when marine mammals and sea turtles are present, and reporting any collisions to the appropriate federal and state agencies. With mitigation, the impact would not be significant (Class II).

Mitigation Measures

BIO-10a **Include a Biologist for Marine Mammal and Sea Turtle Monitoring During All Vessel Activities.** Monitoring by a biologist familiar with marine mammal and sea turtle behavior will be conducted during all marine cable lay, post lay burial, or inspection activities that occur within the continental shelf of California. In the event that marine mammals or sea turtles are present in the immediate area of the Project vessels or are approaching the work area such that interactions may occur, the biologist will have the authority to halt vessel operations until any risk of collision has passed. A report documenting the monitoring activities including the number of marine mammals or turtles observed and any avoidance actions required will be submitted to the City within 30 days of cable laying operations on the continental shelf.

BIO-10b **Modify Vessel Operations When Marine Mammals and Sea Turtles are Present.** Vessels operating with marine mammals or sea turtles in the area will modify operations to achieve the following to reduce the potential for interactions marine mammals.

- When paralleling whales or sea turtles, support vessels will operate at a constant speed that is not faster than the whales or sea turtles.
- Female whales will not be separated from their calves.
- Support vessels will not be used to herd or drive whales or sea turtles.
- If a whale or sea turtles engages in evasive or defensive action, Project support vessels will drop back until the animal calms or moves out of the area.

BIO-10c **Report Collisions.** Collisions with marine mammals or sea turtles will be reported to the City within 48 hours and to federal and state agencies pursuant to each agency's reporting procedures. Any further compensation or mitigation required by an agency as the result of a collision with marine mammals or sea turtles shall be determined by the respective agency.

- Should an animal collide with a vessel and require assistance, the applicant shall provide all required funds as compensatory mitigation to ensure the recovery and management of the animal as determined by the responsible agency. In the event of a mortality, the applicant shall provide compensatory mitigation for the conservation and management of the species at a rate to be determined by the responsible agency if necessary.

Impact BIO-11: Sections of marine cable suspended above the seafloor present a small risk of marine mammal entanglement.

The long-term presence of the fiber-optic cable along the seafloor would not impede migration since it would be buried along most of the nearshore route where whales transit the coast during migrations and represent a very low profile (e.g., 1 to several inches) in hard-bottom areas as a result of installation and post-lay inspection/adjustment of the cable in these areas. Also, cable slack would be stabilized at a level within the range of 2 to 3 percent in areas where the cable cannot be buried to ensure that the cable conforms to the slopes and peaks of the seabed so that it is not suspended substantially (e.g., more than 1 foot) above the bottom. This would prevent any spans from developing that could potentially entangle marine mammals (e.g., whales). Of the 11 known commercial fiber-optic cable landings in coastal California waters installed since 2000, no known or reported entanglements between whales and fiber-optic cables have occurred (AMS, 2015). While there remains a small risk of marine mammal entanglement (Read et al., 2006), unlike fishing nets and other fishing gear, fiber-optic cables are thicker (approximately 2 inches [5 centimeters] in diameter) and consist of a single strand which reduces the likelihood of entanglement. Any impact would be reduced by implementation of Mitigation Measure BIO-11, which requires burial and inspection of the marine cables to the extent feasible. With mitigation, the impact would not be significant (Class II).

Mitigation Measures

BIO-11 **Bury and Inspect Cable Wherever Feasible.** The marine fiber-optic cable shall be buried to the extent feasible in accordance with the following:

- Bury the cable to the extent practicable in areas with soft bottom substrate and water depths less than 3,936 feet (1,200 meters).
- Inspect the cable following installation to confirm burial and attempt to rebury sections not buried that were intended to be buried.
- The burial report submitted by the applicant after each phase shall include a detailed description of all buried and unburied sections and justification for any unburied or uninspected sections.

Impact BIO-12: An accidental release of fuel or oil may result in fouling of beaches or the sea floor, fouling of birds or marine mammals, and ingestion of oil by marine life.

Accidents on vessels used for Project activities may result in the release of oil for fuel or lubricants. The sea-plow has hydraulic controls and hydraulic oil that may release if damaged. Vessels used for the Project are not transporting large quantities of oil and operate under strict guidelines. The accidental release of oil is extremely unlikely. However, in the case an accident occurs that may release oil, potential impacts on marine life are fouling of beaches or the sea floor, fouling of birds or marine mammals, and ingestion of oil by marine life. Any release of oil and impacts on sensitive species would be adverse. Compliance with Mitigation Measures HAZ-1a, HAZ-1b, HAZ-1c, HAZ-1d, HWQ-1, HWQ-2a, HWQ-2b, and HWQ-2c which require the applicant to develop and implement plans to mitigate and prevent potential accidental releases, implement best management practices to further prevent any accidental release, train all workers on spill prevention and containment, and preform all necessary clean-up activities in the event of a release would reduce the potential impact of an accidental release of fuel or oil to a less-than-significant level (Class II).

3.3.3.4 Cumulative Effects

Introduction

The region of influence for cumulative impacts on biological resources varies by resource. For the terrestrial portion of the proposed Project, the geographical scope for analysis includes the beach landing sites, underground cable routes, and PFE facilities and a 500-foot buffer. Terrestrial Project impacts to biological resources would be minor and localized within an urban environment. However, the marine Project components would have greater and farther-reaching impacts on biological resources, and therefore the geographical scope for the marine portion of the Project is substantially wider.

The Project area is located within a large and gradual bend in the California coastline, regionally called the Southern California Bight (SCB), and is adjacent to the largest urban area on the west coast of the United States. The marine life of the SCB is abundant and diverse because of the various habitats and environmental conditions. The continental shelf within the SCB contains relatively deep nearshore waters and a complex bottom topography resulting in habitats of rapidly changing depths, many hard- and soft-bottom regimes, multiple island outcrops, and deep basins. Interactions between the physiography, currents, and wind contribute to the richness of this body of water.

Anthropogenic inputs associated with urban development and population increase include an extensive and diverse set of stressors such as commercial and recreational fishing, sedimentation, urban runoff, and pollution. For example, one of the impacts to marine habitats is sediment contamination and damage to marine life that the contaminants cause when they are released from the sediment into the food chain. Organic compounds such as DDT, PCBs, polycyclic aromatic hydrocarbons (PAHs), and chlordane, as well as, heavy metals such copper, zinc, and lead are found in sediments in concentrations that are harmful to marine organisms at various locations in the SCB.

Project Contribution to Cumulative Impacts

None of the cumulative projects are expected to have marine construction activities that will coincide with those of the proposed Project; therefore, no cumulative impacts on marine biological resources are anticipated. The closest cumulative projects consist of hotels and other buildings. Impacts to terrestrial biological resources would be similar to those of the proposed Project, and would be limited to disturbance to common birds nesting within the urban environment and possibly displacement of common urban-adapted wildlife species. However, even if construction activities would overlap with construction/installation or operational maintenance activities of the Project, the cumulative projects are not close enough to the terrestrial work areas to overlap with Project activities and create cumulative impacts to biological resources. Therefore, no cumulative impacts on terrestrial biological resources are anticipated.

3.3.3.5 Summary of Impacts, Mitigation Measures, and Significance Conclusions

Table 3.3-9, below, provides a summary of the Project's significant impacts (Class I or Class II) related to biological resources. The table also indicates the mitigation measures proposed to reduce these significant impacts.

Table 3.3-9. Summary of Biological Resources Impacts, Mitigation Measures, and Significance Conclusions

Impact	Mitigation Measures		Significance Conclusion
Impact BIO-1: Project construction/installation and decommissioning may adversely affect western snowy plover and California least tern.	BIO-1	Avoid disturbing roosting western snowy plovers.	Class II
Impact BIO-2: Project construction/installation and decommissioning may adversely affect nesting birds.	BIO-2	Conduct preconstruction surveys for nesting raptors and other birds	Class II
Impact BIO-3: Project construction/installation and decommissioning may conflict with local policies protecting biological resources.	BIO-3	Minimize impacts to common wildlife	Class II
Impact BIO-6: Marine cable installation and repair in hard-bottom areas would result in disturbance of benthic organisms, including crushing and dislodgement.	BIO-6a BIO-6b	Minimize Crossing of Hard-Bottom Substrate Communities. Compensation to Hard Bottom Mitigation Fund.	Class II
Impact BIO-10: Marine mammals and sea turtles could be struck by Project vessels.	BIO-10a BIO-10b BIO-10c	Include a Biologist for Marine Mammal and Sea Turtle Monitoring During All Vessel Activities. Modify Vessel Operations When Marine Mammals and Sea Turtles are Present. Report Collisions.	Class II
Impact BIO-11: Sections of marine cable suspended above the seafloor present a small risk of marine mammal entanglement.	BIO-11	Bury and Inspect Cable Wherever Feasible.	Class II
Impact BIO-12: An accidental release of fuel or oil may result in fouling of beaches or the sea floor, fouling of birds or marine mammals, and ingestion of oil by marine life.	HAZ-1a HAZ-1b HAZ-1c HAZ-1d HWQ-2a HWQ-2b HWQ-2c	Spill Prevention Plan. Worker Training Maintain Equipment Refueling Practices Spill Prevention Plan. Vessel Waste Management Plan. Shipboard Oil Pollution Emergency Plan	Class II

Class I: **Significant impact; cannot be mitigated to a level that is not significant.** A Class I impact is a significant adverse effect that cannot be mitigated below a level of significance through the application of feasible mitigation measures. Class I impacts are significant and unavoidable.

Class II: **Significant impact; can be mitigated to a level that is not significant.** A Class II impact is a significant adverse effect that can be reduced to a less-than-significant level through the application of feasible mitigation measures presented in this EIR.