4.4 Biological Resources – Marine

This section describes marine species and habitats in the Project area that could be affected by decommissioning activities, identifies applicable significance thresholds, assesses the Proposed Project's impacts to marine biological resources and their significance, and recommends measures to avoid or substantially reduce any effects found to be potentially significant. The analysis specifically focused on the Diablo Canyon Power Plant (DCPP site) as the railyards are all located inland away from marine biological resources. The environmental setting for marine biological resources is based on information in the *Diablo Canyon Decommissioning Marine Biological Resources Assessment* (PG&E, 2021a), other technical studies prepared by Pacific Gas and Electric Company (PG&E), and literature review.

Scoping Comments Received. During the scoping comment period for the EIR, written and verbal comments were received from agencies, organizations, and the public. These comments identified various substantive issues and concerns relevant to the EIR analysis. Appendix B includes all comments received during the scoping comment period. The following list provides a summary of scoping comments applicable to this issue area and considered in preparing this section:

- Thoroughly analyze all marine biological resources that are present on-site including species abundance, distribution, and status.
- Conduct protocol surveys for sensitive and federally listed species as soon as possible and fully analyze potential effects of the Project on these species.
- Address all direct, indirect, and cumulative effects of the Proposed Project on biological resources.
- Identify specific and clearly defined mitigation measures for special-status species providing quantifiable and enforceable measures to reduce impacts to less-than-significant levels.
- Consider planning and scheduling deconstruction activities according to the migration of marine species including elephant seals, humpback whales, otters, porpoises, and seals that may be impacted by sounds and vibrations.

4.4.1 Environmental Setting

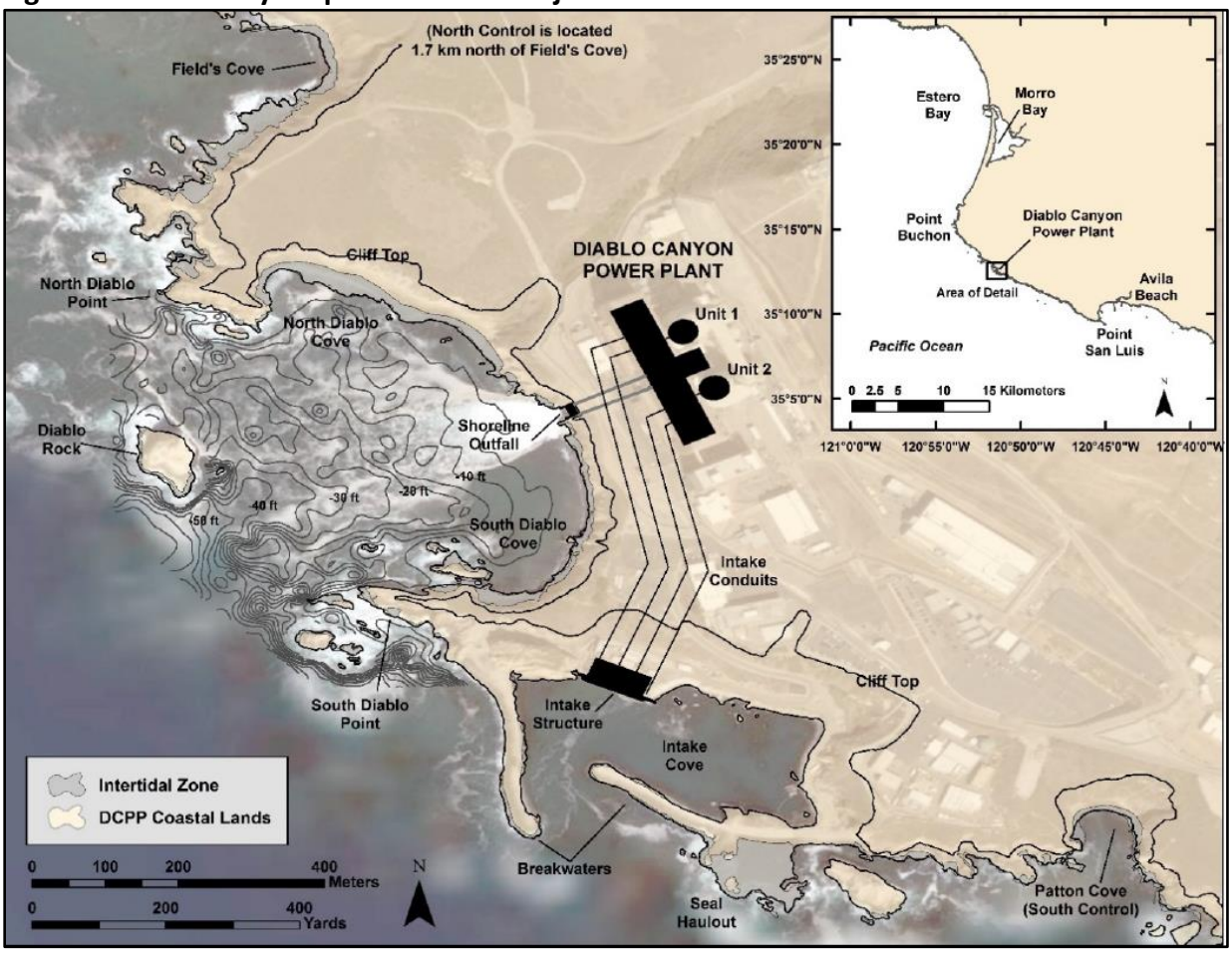
The Project area is located in central California in the eastern Pacific Ocean coastal region, an area influenced by the California Current, which is a cold-water Pacific Ocean current that moves southward along the western coast of North America, beginning off southern British Columbia and ending off southern Baja California. The cold ocean water is highly productive due to the upwelling caused by the prevailing northwesterly winds, which bring nutrient-rich waters to the surface, leading to increased phytoplankton production supporting a diverse and large population of whales, seabirds, and important fisheries.

The approximately 10-mile stretch of shoreline between Point Buchon and Point San Luis consists of wave-exposed rocky headlands along with semi-protected coves.[14] One of these coves is Diablo Cove, where the DCPP Discharge Structure is located, and immediately downcoast of

[14] Headlands are areas of the seaside cliffs that are more resistant to erosion than the areas around them, leaving a portion of rocky land projecting into the sea as portions of the cliffs to either side erode.

Diablo Cove are the existing breakwaters that form the Intake Cove where the DCPP Intake Structure for the plant is located (see Figure 4.4-1).

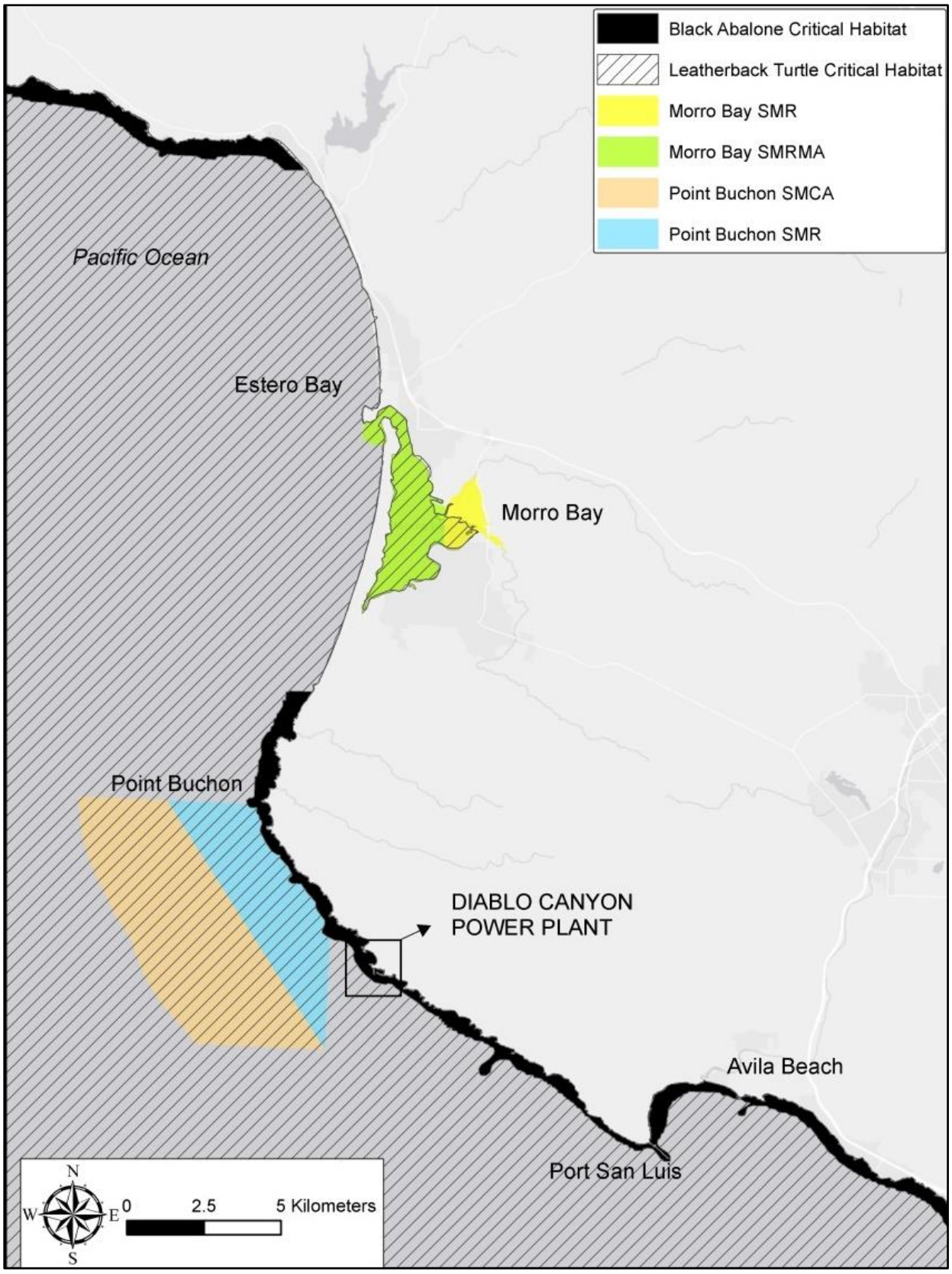
Figure 4.4-1. Vicinity Map and Marine Project Area at the DCPP



Source: PG&E, 2021a - Figure 1.2-1.

While there are no Marine Protected Areas (MPAs) in the Project area, several are in close proximity (California Department of Fish and Wildlife [CDFW], 2018). The nearest MPAs are the Point Buchon State Marine Reserve (SMR) and Point Buchon State Marine Conservation Area (SMCA), located approximately 1 mile offshore and upcoast of the DCPP (Figure 4.4-2). The Morro Bay SMR and Morro Bay State Marine Recreational Management Area (SMRMA) are located approximately 7 miles upcoast of the DCPP (Figure 4.4-2).

Figure 4.4-2. MPAs and Critical Habitat for Leatherback Turtle and Black Abalone Near the DCPP



Source: NOAA, 2011; NOAA, 2012 – Figure 3; CDFW, 2018.

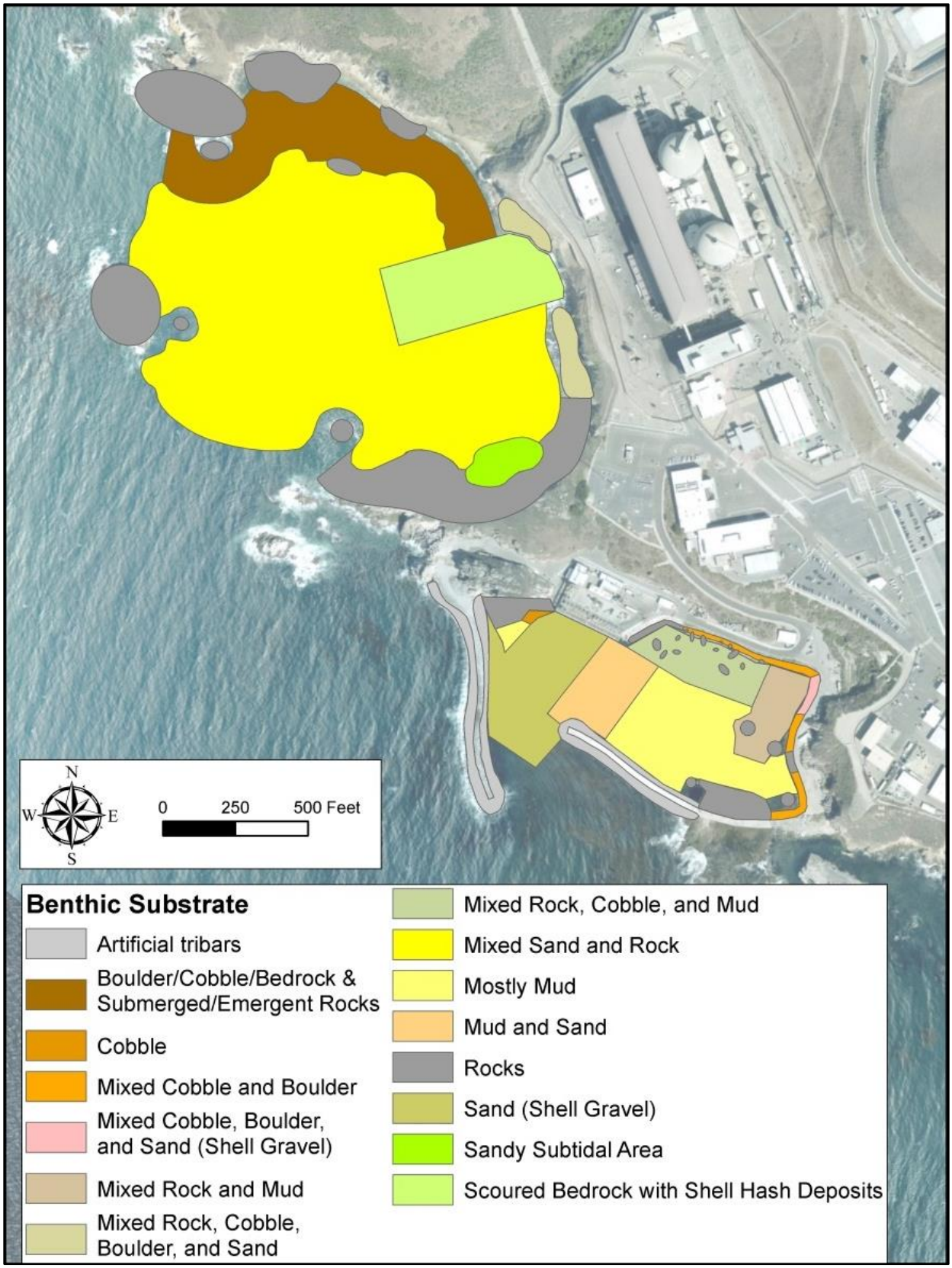
Benthic Habitat and Associated Species

The Project area includes both Diablo Cove and the Intake Cove (see Figure 4.4-1). Diablo Cove has a surface area of approximately 42 acres, and an average depth of approximately -26 feet Mean Lower Low Water (MLLW) with a maximum depth of approximately -60 feet MLLW. The intertidal and subtidal areas of the cove consist predominantly of bedrock, boulder, and cobble fields totaling approximately 41 acres representing 98.3 percent of the cove (see Figure 4.4-3 and Table 4.4-1). Submerged and emergent offshore rocky pinnacles are scattered throughout the cove, while the southern portion of the cove contains approximately 0.7 acres of sandy subtidal habitat. Diablo Creek enters the cove just north of the existing Discharge Structure, providing periodic and seasonal freshwater flow. The northern portion of Diablo Cove has no sandy subtidal areas, and Diablo Rock stands as a prominent feature in the cove, centered at the mouth of the cove. Offshore of the cove, the seabed slopes across the continental shelf for approximately 50 miles to a depth of over 3,000 feet.

The shoreline within the Intake Cove consists of a granite boulder riprap-armored and graded road, a vertical concrete curtain wall forming the ocean-side of the Intake Structure, and some sections of natural rock upcoast of the Intake Structure. The depth of the Intake Cove ranges from -16 feet MLLW in the eastern portion of the cove to -33 feet MLLW adjacent to the Intake Structure. The seabed within the Intake Cove consists of sand and soft sediments totaling approximately 8.1 acres representing 56.8 percent of the cove, while boulder fields, low rock ridges, and emergent rocks constitute approximately 6.2 acres of the cove (see Table 4.4-1). Large areas of the seafloor in the eastern portion of the cove consist of soft, unconsolidated sediments, and the seabed between the Intake Cove entrance and the Intake Structure consists largely of sand (see Figure 4.4-3).

Both the Diablo Cove and Intake Cove have two broad marine benthic habitat areas or zones. The intertidal zone encompasses the area between highest and lowest tides and is subject to varying degrees of tidal submergence. It supports a wide variety of organisms that have adapted to surviving in this challenging, ever-changing environment. The subtidal zone is continually submerged and can encompass the area from the lowest tide zone all the way to the deepest depths of the ocean basins. Within each of these broad zones, more specific habitat types can be delineated based on elevation or water depth, substrate type, or dominant biological community. The following sections discuss the various habitats and associated marine species within the Project area.

Figure 4.4-3. Substrate Types within the Diablo Cove and Intake Cove



Source: PG&E, 2021b.

Table 4.4-1. Substrate Type and Area within Diablo Cove and Intake Cove

Location	Classification	Substrate Type	Area (m^2)	Acres	Percentage
Diablo Cove	Marine: Rock Bottom	Boulder, Cobble/Bedrock, Submerged/Emergent Rock	22,299	5.5	
		Mixed Rock, Cobble, Boulder, and Sand	3,729	0.9	
		Rock	31,226	7.7	
		Scoured Bedrock with Shell Hash Deposit	14,147	3.5	
		Mixed Sand and Rock	94,643	23.4	
		Total	***166,045***	***41.0***	***98.3%***
	Marine: Unconsolidated Bottom	Sandy Subtidal Area	2,867	0.7	
		Total	***2,867***	***0.7***	***1.7%***
Intake Cove	Marine: Rock Bottom	Artificial tribars	7,198	1.8	
		Cobble	225	0.1	
		Mixed Cobble and Boulder	1,795	0.4	
		Mixed Cobble, Boulder, and Sand (Shell Gravel)	405	0.1	
		Mixed Rock and Mud	4,319	1.1	
		Mixed Rock, Cobble, and Mud	5,733	1.4	
		Rock	5,318	1.3	
		Total	***24,993***	***6.2***	***43.2%***
	Marine: Unconsolidated Bottom	Mostly Mud	14,785	3.7	
		Mud and Sand	6,097	1.5	
		Sand (Shell Gravel)	11,959	3.0	
		Total	***32,840***	***8.1***	***56.8%***

Source: PG&E, 2021b.

Intertidal Zone

The rocky intertidal zone along the central coast of California is characterized by a diverse assemblage of algae, invertebrates, and fish (Ricketts et al., 1985; Foster and Schiel, 1985; Schiel and Foster, 2015); the intertidal zone in the Project area predominantly consists of bedrock, boulder, and cobble fields (see Figure 4.4-3). Compliance monitoring of the marine environment within the Project area has been conducted by PG&E since 1976; however, in support of decommissioning activities, supplemental intertidal and subtidal surveys were conducted in 2020 (PG&E, 2021a), and a summary of representative intertidal organisms observed in the Diablo Cove and Intake Cove are provided in Table 4.4-2.

On rocky shores, invertebrates and algae live in zones between the high and low tide marks, with the zones reflecting the ability of species to tolerate the environmental conditions, predation, and competitive pressures at different elevations and locations, and even within the relatively small Project area, variations in substrate type (e.g., bedrock versus boulder and cobble) and wave exposure appear to affect the distribution and abundance of organisms.

Table 4.4-2. Common Intertidal Organisms Observed in Project Area

ALGAE		
Green Algae	Chlorophyta (filamentous green algae)	*Ulva* spp.
	Colpomenia spp.	*Hesperophycus californicus*
Brown Algae	*Egregia menziesii* (feather boa kelp)	*Sargassum muticum*
	Fucus gardneri	
Red Algae	*Centroceras clavulatum*	*Mastocarpus jardinii*
	Corallina vancouveriensis	*Mastocarpus papillatus*
	Endarachne/Petalonia spp.	*Mazzaella affinis*
	Endocladia muricata	*Prionitis lanceolata*
	Gelidium coulteri	non-coralline crust
	Gelidium pusillum	coralline crust
	Grateloupia spp.	
INVERTEBRATES		
Annelida	*Dodecaceria fewkesi* (tube worm)	*Serpulidae polychaetes*
	Phragmatopoma californica (sand tube worm)	*Serpula vermicularis*
	Spirobranchus spinosus (Christmas tree worm)	Spirorbidae
Porifera	Sponges	
Arthropoda	*Balanus* spp. (acorn barnacles)	*Pagurus* spp. (hermit crabs)
	Chthamalus fissus (barnacle)	*Pollicipes polymerus* (leaf barnacle)
	Hemigrapsus nudus (purple shore crab)	*Pugettia producta* (kelp crab)
	Pachygrapsus crassipes (striped shore crab)	*Tetraclita rubescens* (barnacle)
Cnidaria	*Anthopleura elegantissima* (anemone)	*Anthopleura xanthogrammica* (anemone)
Mollusca	*Chlorostoma funebralis* (black turban snail)	*Lottia scabra* (limpet)
	Conus californicus (California cone)	Lottiidae (limpets)
	Cyanoplax hartwegii (chiton)	*Mopalia muscosa* (chiton)
	Fissurella volcano (keyhole limpet)	*Mytilus californianus* (mussel)
	Littorina spp. (periwinkle)	*Mytilus galloprovincialis* (mussel)
	Lottia digitalis (ribbed limpet)	*Nuttallina californica* (chiton)
	Lottia gigantea (owl limpet)	*Serpulorbis squamigerus* (tube snail)
	Lottia pelta (shield limpet)	*Tonicella lineata* (lined chiton)
Echinoderm	*Leptasterias hexactis* (six-rayed star)	*Pisaster ochraceus* (ochre star)
	Parastichopus parvimensis (sea cucumber)	*Patiria miniata* (bat star)
	Strongylocentrotus purpuratus (sea urchin)	

Source: PG&E, 2021a – Appendix 1 - Tables 3.1.1-1, 3.1.2-1, 3.2.1-1, and 4.2.2-1; Appendix 2 – Tables 3.1.1-1, 3.1.3-1, and 3.1.4-1; Appendix 3 – Table 3-1.

For example, in Diablo Cove, upcoast of the Discharge Structure, the substrata includes a mix of rock, boulder, and cobble, with pockets of interspersed sand. The substrate is mostly devoid of macroalgae, with a diatom film covering much of the rocky substrate (PG&E, 2021a). The green alga *Ulva* spp. and red alga *Gelidium coulteri* were commonly observed, with coralline algae less common (PG&E, 2021a). Common sessile invertebrates included the barnacle (*Chthamalus fissus)*, the California mussel (*Mytilus californianus*), and the anemone (*Anthopleura elegantis-*

sima). Limpets such as owl limpets (*Lottia gigantea*), the rough limpet (*L. scabra*), and the shield limpet (*L. pelta*) were also commonly observed.

Conversely, the intertidal zone downcoast of the Discharge Structure consists of a wide bench reef interspersed with some boulder and cobble. The area is comparatively more diverse than the area upcoast of the Discharge Structure, with juvenile articulated coralline algae, crustose coralline algae, and the articulated coralline (*Corallina vancouveriensis)* abundant in the area. In addition, much of the area supports California mussels and the anemone (*A. elegantissima)*. Other invertebrates such as acorn barnacles (*Balanus* spp.) and a variety of limpet species (*L. scabra L. limatula, L. pelta*) were also abundant. No black abalone (*Haliotis cracherodii*), eelgrass (*Zostera* spp.), surfgrass (*Phyllospadix* spp.), or the invasive brown alga *Sargassum horneri* were observed in the intertidal zone downcoast of the Discharge Structure. Black abalone are listed as endangered under the Federal Endangered Species Act (FESA) and discussed in greater detail in the *Listed Species and Critical Habitat* section below.

The intertidal invertebrate assemblage at the wave exposed area of South Diablo Point was different from the invertebrate assemblages found within Diablo Cove, with a higher abundance of mussels and barnacles compared to other areas (PG&E, 2021a). The anemone (*A. elegantissima*), purple sea urchin (*Strongylocentrotus purpuratus*), and the limpet (*L. scabra)* were also abundant, along with encrusting invertebrates such sandcastle worms (*Phragmatopoma californica*) and acorn barnacles (*Balanus* spp.).

In the Intake Cove, upcoast of the Intake Structure, the intertidal zone is predominantly a natural rock face. Non-crustose coralline algae are common in addition to the red algae *Mazaella flaccida* and *Mastocarpus papillatus*. The barnacles *Balanus* spp., *C. fissus*, and *Tetraclita rubescens* were also common, as was the rough limpet *L. scabra*. A total of 22 red abalone (*Haliotis rufuscens*) were observed in this area during the 2020 survey (PG&E, 2021a). Unlike black abalone, red abalone are not protected under the FESA. Downcoast of the Intake Structure, the area was dominated by non-coralline crust and coralline crust, in addition to the red alga *M. papillatus*. Common invertebrates included the rough limpet *L. scabra*, the barnacle *T. rubescens*, other limpet species, and the shore crab *Pachygrapsus crassipes* (PG&E, 2021a). Similar to the Discharge Structure area, no black abalone, eelgrass, surfgrass, or the invasive seaweed *S. horneri* were observed in the area adjacent to the Intake Structure.

The existing East and West Breakwaters, which are constructed of concrete tribars (i.e., concrete blocks in a complex, three-point geometric shape weighing up to 37 tons), protect the Intake Cove. Intertidal surveys noted that the red algae *M. jardinii* and *M. papillatus* were the most abundant species along both Breakwaters inside the Intake Cove. Other abundant algal taxa included non-coralline crust, feather boa kelp (*Egregia menziesii*) and the red alga *Prionitis lanceolata*. Other common algal species included *M. flaccida*, *C. vancouveriensis*, and a complex of articulated coralline red algae (*Calliarthron* spp. and *Bossiella* spp.). Also, giant kelp (*Macrocystis pyrifera*) was present along the East Breakwater but was not present along the West Breakwater (PG&E, 2021a). The most common invertebrates along both Breakwaters included barnacles (*T. rubescens*, *C. fissus*, and *Balanus* spp.) and the limpets (*L. pelta* and *L. scabra)*. Along the East Breakwater, the tube snails *Serpulorbis squamigenus* and *Spirobranchus spinosus*, and the chiton *Mopalia muscisa* were more frequently observed than they were at the West Breakwater (PG&E, 2021a). Fourteen red abalone were observed in the intertidal zone along the

inside of the East Breakwater, while no abalone were observed along the riprap or on the West Breakwater. One black abalone was found during the survey on the East Breakwater and three black abalone were found on the West Breakwater. All four abalone were observed on the intertidal transects on the outside of the Intake Cove. No eelgrass, surfgrass, or the invasive seaweed *S. horneri* were observed.

Subtidal Zone

Similar to the rocky intertidal zone, the rocky subtidal zone along the central coast of California is characterized by a diverse assemblage of algae, invertebrates, and fish (Ricketts et al., 1985; Foster and Schiel, 1985; Schiel and Foster, 2015), and compliance monitoring of the marine environment within the Project area has been conducted by PG&E since 1976. Supplemental subtidal surveys were conducted in 2020 to support decommissioning activities (PG&E, 2021a), and a summary of representative subtidal organisms observed in the Diablo Cove and Intake Cove are provided in Tables 4.4-3 and 4.4-4.

The subtidal algal assemblage within Diablo Cove includes canopy-forming and understory kelps (brown algae) providing habitat for a variety of invertebrates and fishes. *Cystoseira osmundacea* and *Sargassum muticum* are abundant canopy-forming kelps at the shallow water monitoring stations in Diablo Cove, while other kelps observed in Diablo Cove included giant kelp and subcanopy kelps such as *Pterygophora californica* and *Laminaria setchellii*. Approximately 21 acres of kelp were mapped within Diablo Cove (see Figure 4.4-4 and Table 4.4-5) (PG&E, 2021b). Understory algae also consists of a complex of articulated coralline red algae (*Calliarthron* spp. and *Bossiella* spp.), and understory red algae including *Rhodymenia* spp., *Acrosorium ciliolatum*, *Chodracanthus corymbiferus*, a complex of *Farlowia* spp. and *Pikea* spp., *Cryptopleura violacea*, and *Prionitis* spp. (PG&E, 2021a).

At the shallower stations in Diablo Cove, the most abundant macroinvertebrates include the sandcastle worm *P. californica*, purple sea urchins, boring clams (Bivalvia), and the brittle star *Ophiactis simplex*, while at the deeper stations, the most abundant invertebrates were purple sea urchins. Other common invertebrates at the deeper stations include the anemone *A. elegantissima*, the ornate tubeworm *Diopatra ornata*, the marine snail *Chlorostoma brunnea,* and the limpet *Acmaea mitra*. Small or colonial invertebrates commonly observed included bryozoans, sponges (Porifera) including the cobalt sponge *Acanthancora cyanocrypta*, and the orange cup coral *Balanophyllia elegans* (PG&E, 2020a).

Table 4.4-3. Common Subtidal Organisms (Algae and Fish) Observed in Project Area

Green Algae	*Ulva* spp.		*Artedius* spp.
	Chlorophyta (filamentous algae)		*Aulorhynchus flavidus* (tubesnout)
Brown Algae	*Colpomenia* spp.		*Brachyistius frenatus* (kelp surfperch)
	Desmarestia spp.		*Cebidichthys violaceus* (monkeyface prickleback)
	Ectocarpales		*Embiotoca jacksoni* (black surfperch)
	Laminaria setchellii		*Embiotoca lateralis* (striped surfperch)
	Laminariales		*Gibbonsia* spp. (kelpfish)
	Macrocystis spp.		*Girella nigricans* (opaleye)
	Nereocystis luetkeana		*Hypsurus caryi* (rainbow surfperch)
	Pleurophycus gardneri		*Orthonopias triacis* (snubnose sculpin)
	Pterygophora californica		*Oxyjulis californica* (senorita)
	Sargassum muticum		*Oxylebius pictus* (painted greenling)
	Stephanocystis osmundacea	**Fish**	*Paralabrax clathratus* (kelp bass)
Red Algae	non-coralline crust		*Rhacochilus vacca* (pile surfperch)
	coralline crust		*Rhinogobiops nicholsii* (blackeye goby)
	Ahnfeltiopsis linearis		*Scorpaenichthys marmoratus* (cabezon)
	Calliarthron/*Bossiella* spp.		*Sebastes atrovirens* (kelp rockfish)
	Callophyllis spp.		*Sebastes caurinus* (copper rockfish)
	Chondracanthus corymbiferus		*Sebastes chrysomelas* (black and yellow rockfish)
	Cryptopleura ruprechtiana		*Sebastes melanops* (black rockfish)
	Gastroclonium subarticulatum		*Sebastes miniatus* (vermilion rockfish)
	Gracilariaceae		*Sebastes mystinus* (blue rockfish)
	Halymenia/*Schizymenia* spp.		*Sebastes rastrelliger* (grass rockfish)
	Nienburgia andersoniana		*Sebastes serranoides* (olive rockfish)
	Phycodrys isabelliae		*Semicossyphus pulcher* (California sheephead)
	Pikea californica		
	Plocamium pacificum		
	Prionitis lanceolata		
	Rhodymenia spp.		
	Sarcodiotheca gaudichaudii		

Source: PG&E, 2021a – Appendix 4 -Table 3.1-1; Appendix 5 – Tables 3.1-1, 3.2-1, and 3.2.2-1.

Table 4.4-4. Common Subtidal Organisms (Invertebrates) Observed in Project Area

Porifera	encrusting sponge		*Ceratostoma foliatum* (leafy hornmouth)
Cnidaria	*Anthopleura artemisia* (anemone)		*Chlorostoma montereyi* (turban snail)
	Corynactis californica (strawberry anemone)		*Conus californicus* (California cone)
	Pachycerianthus fimbriatus (tube anemone)		*Crassadoma gigantea* (rock scallop)
	Paracyathus stearnsii (stony coral)		*Cryptochiton stelleri* (gumboot chiton)
Annelida	Cirratulidae/Terebellidae (polychaete)		*Diodora aspera* (rough keyhole limpet)
	Diopatra ornata (polychaete)		*Doriopsilla albopunctata* (salted dorid)
	Eudistylia polymorpha (polychaete)		*Doris montereyensis* (sea lemon)
	Myxicola infundibulum (polychaete)		*Flabellina iodinea* (Spanish shawl)
	Serpula vermicularis (polychaete)		*Haliotis rufescens* (red abalone)
	Serpulidae (polychaete)	**Mollusca**	*Hermissenda crassicornis* (nudibranch)
Ascidian	*Boltenia villosa* (stalked tunicate)		*Kelletia kelletii* (Kellet's whelk)
	Cnemidocarpa finmarkiensisT tuninate)		*Mitra idae* (half-pitted miter)
	Didemnum/*Tridemnum* spp. (tunicate)		*Mytilus californianus* (California mussel)
	Styela montereyensis (stalked tunicate)		*Phidiana hiltoni* (Hilton's aeolis)
Echino-derm	*Amphiodia occidentalis* (serpent star)		*Pododesmus cepio* (abalone jingle)
	Cucumaria spp. (sea cucumber)		*Polinices* spp. (white moon snail)
	Eupentacta quinquesemita (sea cucumber)		*Pomaulax gibberosa* (red turban snail)
	Ophiothrix spiculata (spiny brittle star)		*Pteropurpura festiva* (festive murex)
	Parastichopus californicus (sea cucumber)		*Serpulorbis squamigerus* (tube snail)
	Parastichopus parvimensis (sea cucumber)		*Tresus nuttallii* (Pacific gaper)
	Patiria miniata (bat star)	**Arthro-poda**	*Balanus*/*Tetraclita* spp. (Barnacle)
	Pisaster giganteus (giant-spined sea star)		*Loxorhynchus crispatus* (moss crab)
	Pisaster ochraceus (ochre star)		Paguridae (hermit crab)
	Strongylocentrotus franciscanus (red urchin)		*Pagurus* spp. (hermit crab)
	Strongylocentrotus purpuratus (purple urchin)		*Pandalus danae* (dock shrimp)
Ectoproct	Bryozoa (bryozoan)		*Pugettia richii* (cryptic kelp crab)
	Watersipora spp. (bryozoan)		*Romaleon antennarius* (brown rock crab)

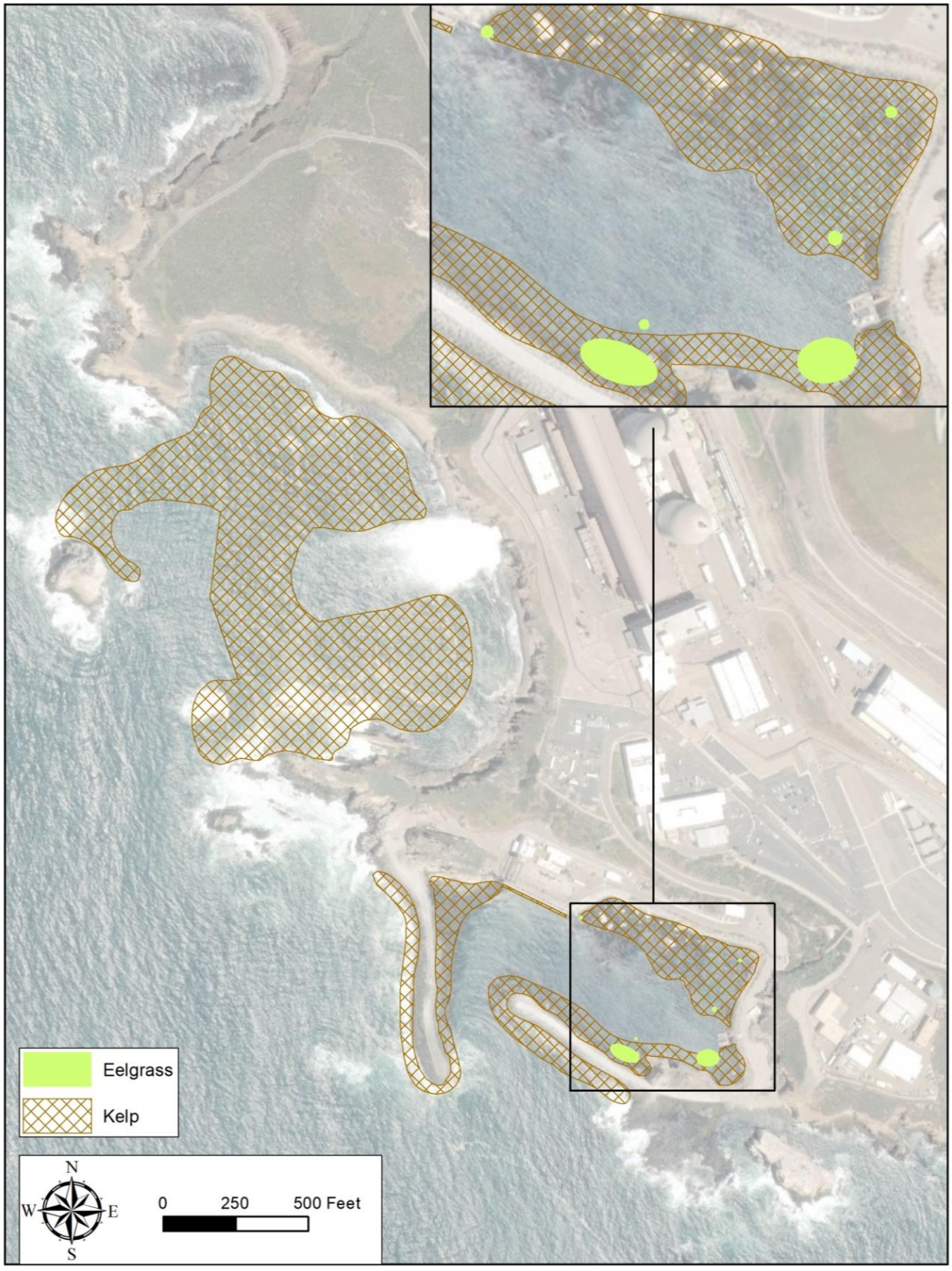
Source: PG&E, 2021a – Appendix 4 -Table 3.1-1; Appendix 5 – Tables 3.1-1, 3.2-1, and 3.2.2-1.

Table 4.3-5. Kelp and Eelgrass Acreage in Diablo Cove and Intake Cove

Location	Classification	Acres
Diablo Cove	Kelp Canopy	20.93
Intake Cove	Kelp Canopy	6.85
Intake Cove	Eelgrass	0.21

Source: PG&E, 2021b.

Figure 4.4-4. Kelp and Eelgrass Distribution in Diablo Cove and Intake Cove



Source: PG&E, 2021b; PG&E, 2021a – Figure 3.1.2.8-3.

Fishes observed within Diablo Cove include senorita (*Oxyjulis californica*) and silversides (*Atherinopsidae*), which were the most abundant fishes observed (PG&E, 2021a). Other common fishes include a complex of black-and-yellow (*Sebastes chrysomelas*) and gopher (*S. carnatus*) rockfishes and painted greenling (*Oxylebius pictus*), while common demersal fishes include black surfperch (*Embiotoca jacksoni*), pile perch (*Racochilus vacca*), blackeye goby (*Rhinogobiops nicholsii*), and blue rockfish (*S. mystinus*). Midwater species commonly observed include a complex of olive (*S. serranoides*) and yellowtail rockfish (*S. flavidus*), and the tubesnout (*Aulorhynchus flavidus*) (PG&E, 2021a).

It should be noted that the seafloor directly offshore of the Discharge Structure is heavily disturbed and scoured due to the turbulent action of the existing discharge plume, and consists mainly of shallow, flat, bedrock interspersed by shallow channels running roughly northwest to southeast (PG&E, 2021a). Pockets of shell hash and fine sediments from the once-through cooling system accumulate between the channels, and biological resources in the immediate area are sparse. However, fishes such as striped mullet (*Mugil cephalus*), leopard shark (*Triakis semifasciata*), and white seabass (*Atractoscion nobilis*) have been observed in this area (PG&E, 2021a).

While the seabed within Diablo Cove is predominantly rock (approximately 98 percent), the seabed within the Intake Cove consists of approximately 57 percent sand and soft sediments (see Table 4.4-1). On the rocky substrate in the Intake Cove, the red algae *Sarcodiothaeca gaudichaudii*, *Rhodymenia* spp., Gracilariaceae, and *C. corymbiferus* were common throughout the survey area (PG&E, 2021a). The green alga *Ulva* spp. was also common, while giant kelp and acid kelp (*Desmerestia* spp.) occurred on all survey transects. Approximately 7 acres of kelp were mapped within the Intake Cove, while on the eastern half of the Intake Cove, the soft bottom habitat supports approximately 0.21 acres of eelgrass (*Zostera* spp.) (see Figure 4.4-4 and Table 4.4-5). Most of the eelgrass beds were confined to the eastern areas of the Intake Cove, but one small patch occurred near the downcoast edge of the Intake Structure. Note that the survey was not conducted in accordance with California Eelgrass Mitigation Policy (CEMP), and therefore it's anticipated that surveys in conformance with the CEMP would be conducted prior to construction to delineate eelgrass beds and potential Project-related impacts (National Oceanic and Atmospheric Administration [NOAA], 2014).

Invertebrate assemblages varied between transects in the Intake Cove, with transects along the western portion of the cove largely colonized by the tube worm *Diopatra ornata*, while tube anemones (*Pachycerianthus fibriatus*) and bat stars (*Patiria miniata*) were present on every transect along with California cone snails (*Conus californicus*) (PG&E, 2021a). A total of four red abalone were observed along the transects in the Intake Cove.

Subtidal surveys along the Breakwaters of the Intake Cove recorded the red algae *Rhodymenia* spp., Turkish towel (*C. corymbiferus*), and the calcareous algae *Calliarthron*/*Bossiella* spp. Some kelps such as *L. setchellii* and *Nereocystis luetkeana* were more common on the exposed offshore sides of the Breakwaters, as well as the red alga *Cryptopleura ruprechtiana*. The brown alga *Dictyoneurum californicum* was observed exclusively on the East Breakwater transects, while giant kelp was less common on the offshore face of the West Breakwater (PG&E, 2021a). Invertebrates found on all transects included the sessile tube snail *S. squamigerus* and purple urchins. Bat stars were more common on the inshore than offshore transects, while the stalked

tunicate *Styela montereyensis* and other tunicate species were more commonly observed in the offshore areas.

A total of 29 fish taxa were recorded during the Breakwater surveys, with blue rockfish and striped surfperch (*Embiotoca lateralis*) being the most commonly observed fishes. Other commonly observed fishes observed included the black and yellow rockfish, olive rockfish (*S. serranoides*), and California sheephead (*S. pulcher*). Senorita and juvenile striped surfperch were only observed on the outside of the Breakwaters, while blackeye gobies were only observed inside of the Breakwaters (PG&E, 2021a).

Forty-seven (47) red abalone were observed along the Breakwaters with most located on the inshore face of the West Breakwater (PG&E, 2021a). Black abalone and the invasive seaweed *S. horneri* were not observed in areas sampled along the Intake Cove transects (PG&E, 2021a).

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA) as amended by the Sustainable Fisheries Act of 1996 requires the National Marine Fisheries Service (NMFS), regional Fishery Management Councils (FMCs), and other federal agencies to identify and protect important marine, estuarine, and anadromous fish habitat. Regional FMCs, such as the Pacific FMC (PFMC), prepare Fishery Management Plans (FMPs) to identify, protect, and enhance Essential Fish Habitat (EFH) for federally "managed species." EFH is defined as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity" (16 United States Code [U.S.C.] 1802 (10)). NMFS further clarified EFH with the following definitions:

- "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish.
- "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities.
- "Necessary" includes the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (PFMC, 2020).

Table 4.4-6 identifies fish species that are likely to occur in the Project area that are covered under four FMPs: Coastal Pelagic Species (CPS), Pacific Coast Groundfish (PCG), Pacific Coast Salmon (PCS), and Highly Migratory Species (HMS) (PFMC, 2018, 2019, 2020, 2021). Not all these species have been recorded in surveys reviewed for this assessment; their likelihood of occurrence depends on the habitat type present in the area and each species life history, including range and habitat use. Species that have not been observed but may occur at the site based on their known distribution are included as having a low likelihood of occurrence. Adult, juvenile, and larval distribution patterns (where applicable) have been considered as part of the likelihood of occurrence assessment (PG&E, 2021a).

The Pacific Coast Groundfish FMP also identifies canopy kelp, seagrass, and rocky reefs as a Habitat of Particular Concern (HAPC) for a variety of fishes and macroinvertebrates (PFMC, 2020). HAPCs are subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. HAPCs are not afforded any additional regulatory protection under the MSA; however, federal actions with

potential adverse impacts to HAPC will be more carefully scrutinized during the consultation process and will be subject to more stringent EFH conservation recommendations.

Table 4.4-6. Taxa Managed under FMPs likely to Occur at the Project Area

Taxa	Fishery Management Plan				Likelihood of Occurrence
	HMS	PCG	CPS	PCS	
Nearshore benthic – hard substrate					
Cabezon (*Scorpaenichthys marmoratus*)		X			High
Rockfishes (*Sebastes* spp.)		X			High
Lingcod (*Ophiodon elongatus*)		X			High
Kelp greenling (*Hexagrammos decagrammus*)		X			High
Nearshore benthic – soft substrate					
English sole (*Parophrys vetulus*)		X			High
Starry flounder (*Platichthys stellatus*)		X			High
Big skate (*Raja binoculata*)		X			High
California skate (*Raja inornata*)		X			High
Curlfin sole (*Pleuronichthys decurrens*)		X			Low
Pacific sanddab (*Citharichthys sordidus*)		X			Low
Sand sole (*Psettichthys melanostictus*)		X			Low
Dover sole (*Microstomus pacificus*)		X			Low
Petrale sole (*Eopsetta jordani*)		X			Low
Nearshore pelagic/water column					
Leopard shark (*Triakis semifasciata*)		X			High
Pacific sardine (*Sardinops sagax*)			X		High
Pacific mackerel (*Scomber japonicas*)			X		High
Northern anchovy (*Engraulis mordax*)			X		High
Jack mackerel (*Trachurus symmetricus*)			X		High
Jacksmelt (*Atherinopsis californiensis*)			X		High
Market squid (*Doryteuthis opalescens*)			X		High
Silversides (Atherinopsidae)		X	X		High
Chinook salmon (*Oncorhynchus tshawytscha*)				X	High
Hake (*Merluccius productus*)		X			Low
Sablefish (*Anoplopoma fimbria*)		X			Low
Round herring (*Etrumeus teres*)	X	X	X	X	Low
Common thresher shark (*Alopias vulpinus*)	X				Low
Pacific herring (*Clupea pallasii*)			X		Low
Pacific saury (*Cololabis saira*)	X	X	X	X	Low
Krill or Euphausiids			X		Low

Source: PG&E 2021c – Table 3.4-2.
Acronyms: HMS = Highly Migratory Species, PCG = Pacific Coast Groundfish, CPS = Coastal Pelagic Species, PCS = Pacific Coast Salmon.

Canopy Kelp HAPC

Of the habitats associated with the rocky substrate on the continental shelf, kelp forests are of primary importance to the ecosystem and serve as important groundfish habitat. Kelp stands provide nurseries, feeding grounds, and shelter to a variety of groundfish species and their prey (Foster and Schiel, 1985). Foster and Schiel (1985) reported that the net primary productivity of

kelp beds may be the highest of any marine community. The defining characteristics of canopy kelp HAPC includes those waters, substrate, and other biogenic habitat associated with canopy-forming kelp species (e.g., *Macrocystis* spp. and *Nereocystis* sp.). Both *Macrocystis* spp. and *Nereocystis sp.* have been observed in the Project area (see Figure 4.4-4).

Seagrass HAPC

Seagrass species found on the West Coast of the US include eelgrass species (*Zostera* spp.), widgeon grass (*Ruppia maritima*), and surfgrass (*Phyllospadix* spp.). These grasses are vascular plants, not seaweeds, forming dense beds of leafy shoots year-round in the lower intertidal and subtidal areas. Eelgrass is found on soft-bottom substrates in intertidal and shallow subtidal areas of estuaries and occasionally in nearshore areas. Surfgrass is found on hard-bottom substrates along higher energy coasts. Studies have shown seagrass beds to be among the areas of highest primary productivity in the world (PFMC, 2020). The defining characteristics of seagrass HAPC includes those waters, substrate, and other biogenic features associated with eelgrass species, widgeon grass, or surfgrass. Surfgrass has been regularly recorded in the lower intertidal zone within Diablo Cove; however, it was not observed during the 2020 surveys conducted immediately around the Discharge Structure and was not observed within the Intake Cove (PG&E, 2021a). Eelgrass beds occur in the shallow subtidal habitat within the eastern half of the Intake Cove (see Figure 4.4-4).

Rocky Reef HAPC

Rocky habitats are generally categorized as either nearshore or offshore in reference to the proximity of the habitat to the coastline. Rocky habitat may be composed of bedrock, boulders, or smaller rocks, such as cobble and grave, and is one of the least abundant benthic habitats, yet are among the most important habitats for groundfish. The rocky reefs HAPC includes those waters, substrates and other biogenic features associated with hard substrate (bedrock, boulders, cobble, gravel, etc.) to Mean Higher High Water (MHHW). Rocky habitat is prevalent in the Project area (see Figure 4.4-3).

Plankton

An organism is considered plankton if it is carried by tides and currents and cannot swim well enough to move against these forces. Some plankton drift for their entire life while others are only classified as plankton when they are young, but they eventually grow large enough to swim against the currents. Plankton are usually microscopic, often less than one inch in length, but can also include larger species like some crustaceans and jellyfish. They are generally divided into two groups: phytoplankton (plants) and zooplankton (animals). Phytoplankton are microscopic plants that perform photosynthesis to convert the sun's rays into energy and take in carbon dioxide and produce oxygen. Zooplankton include microscopic animals (krill, sea snails, pelagic worms, etc.), the young of larger invertebrates and fish, and weak swimmers like jellyfish. Most zooplankton eat phytoplankton, and most are, in turn, eaten by larger animals or by each other. For example, krill may be the most well-known type of zooplankton and is a major component in the diet of many animals including whales. During the daylight hours zooplankton generally drift in deeper waters to avoid predators, but at night these creatures venture up to the surface to feed on phytoplankton.

The phytoplankton community off the California coast primarily consists of diatoms, dinoflagellates, silicoflagellates, and coccolithophores (Bolin and Abbott, 1963). Long-term studies indicate that the phytoplankton community is similar in species composition along the entire coast of California, with the diatom *Chaetoceros* being the most abundant species found along the coast (Bolin and Abbott, 1963). Other dominant species included the diatoms *Skeletonema*, *Nitzschia*, *Eucampia*, *Thalassionema*, *Rhizosolenia* and *Asterionella*, and the dinoflagellates *Ceratium*, *Peridinium*, *Noctiluca*, and *Gonyaulax* (Bolin and Abbott, 1963). Different genera of phytoplankton reached peaks of relative abundance at different times of the year, and it appears that some genera may be indicators of the initial stages of upwelling or of influxes of oceanic surface water (Bolin and Abbott, 1963).

Major zooplankton groups off the California coast include copepods, euphausiids, chaetognaths, molluscs, thaliaceans, and fish larvae, and McGowan and Miller (1980) reported a high degree of variability in species composition in offshore waters and that dominant species vary widely. Loeb et al. (1983) suggested that zooplankton and ichthyoplankton abundances were found to be independent of each other, and that zooplankton abundance decreased from north to south and inshore to offshore and appeared to be related to distribution of surface nutrient levels. The greatest ichthyoplankton abundance occurred off southern California and northern Baja California and was due to large spawning stocks of migratory species such as anchovy, hake, and jack mackerel (Loeb et al., 1983). Seasonal zooplankton abundance fluctuations along the coast appeared to follow the northward seasonal progression of coastal upwelling, with maximum ichthyoplankton abundance associated with periods of relatively stable water conditions prior to the onset of intense coastal upwelling. An entrainment study for DCPP noted 18 taxa comprised 90 percent of the specimens collected, with the most abundant taxa being sculpins (Cottidae, *Artedius* spp., and *Orthonopias triacis*), rockfishes (*Sebastes* spp.), monkeyface eel (*Cebidichthys violaceus*), kelp blennies (*Gibbonsia* spp.), blennies/zoarcoids (unidentified pricklebacks), and blackeye goby (*R. nicholsi*) (PG&E, 2016).

Sea Turtles

Based on their natural distribution, four species of sea turtle may occur in the Project area: green (*Chelonia mydas*), loggerhead (*Caretta caretta*), leatherback (*Dermochelys coriacea*), and olive ridley (*Lepidochelys olivacea*). All are protected under the FESA, with the leatherback turtle also protected under the California Endangered Species Act (CESA). Although sea turtles are not common to the Project area, they have occasionally been reported. According to the California Marine Mammal Stranding Network Database, 12 sea turtles were reported between Morro Bay and Pismo Beach during the 1982 to 1995 period, and of the 12 sightings, 10 were leatherbacks, and one each was a loggerhead and green turtle (Aspen, 2005). Olive ridley, green, and loggerhead sea turtles are tropical residents of the eastern Pacific, but move into temperate waters, particularly during the summer months. A population of green turtles has been documented in south San Diego Bay feeding within the eelgrass beds (US Navy, 2013). Leatherback turtles migrate for 10 to 12 months from nesting areas in the western and central Pacific to reach coastal waters on the eastern Pacific, including southern California where they feed. Table 4.4-7 summarizes the status of sea turtle species and the likelihood of occurrence in the Project area.

Table 4.4-7. Sea Turtle Species Status and Potential to Occur at the Project Area

Species and Management Unit (ESU, DPS, or stock)	Scientific Name	FESA	CESA	Likelihood of Occurrence
Green turtle - East Pacific DPS	*Chelonia mydas*	FT	NL	Low
Leatherback turtle	*Dermochelys coriacea*	FE	SE	Low
Loggerhead turtle - North Pacific DPS	*Caretta caretta*	FE	NL	Very Low
Pacific Olive Ridley turtle - Mexico's Pacific Coast breeding population - All other populations	*Lepidochelys olivacea*	 FE FT	 NL NL	Very Low

Source: PG&E, 2021a – Table 3.2.2-1.
Acronyms: CESA = California Endangered Species Act, ESU = Evolutionarily Significant Units, FESA = Federal Endangered Species Act, NL = Not Listed, DPS = Distinct Population Segment, FE = FESA Endangered, FT = FESA Threatened, SE = CESA Endangered

Critical habitat for leatherback turtle was designated in 2012, and includes waters adjacent to the states of California, Oregon, and Washington (NOAA, 2012). In California, the critical habitat encompasses coastal waters from the shoreline to the 10,000 feet depth contour between Point Arena in Mendocino County and Point Arguello in Santa Barbara County and overlaps the Project area (see Figure 4.4-2).

Seabirds

Seabirds occur year-round in the Project area and the species present vary according to the season with the highest density of seabirds during the summer and autumn due to the presence of migrants, winter visitors, and nesting residents at the same time (Dohl et al., 1983). During a three-year study of seabirds off central and northern California, Dohl et al. (1983) reported up to 35 common species and 34 rare species, and also found that the seabird fauna of central California was dominated by cool-water species but also includes subtropical species during the late summer and autumn. Table 4.4-8 lists the seabird species likely to occur in the Project area. In the case of species that have a listing status, that status is related to their nesting habitats. None of the listed species are known to nest in the Project area; therefore, both listed and non-listed species are addressed. Nesting sites in the vicinity of the Project area include Morro Rock, Pillar Rock, Spooner's Cove, Point Buchon, Lion Rock, and several unnamed rocks. Nesting species include the pelagic cormorant, Brandt's cormorant, western gull, and the pigeon guillemot (PG&E, 2021c).

Table 4.4-8. Common Seabird Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Listing Status	Likelihood of Occurrence
Pigeon Guillemot	*Cepphus columba*	-	High (foraging and nesting*)
Rhinoceros Auklet	*Cerorhinca monocerata*	WL (nesting colony)	High (foraging)
Common Loon	*Gavia immer*	CSC (nesting)	High (foraging)
Gull-billed Tern	*Gelochelidon nilotica*	BCC, CSC (nesting colony)	Low (foraging)
Caspian Tern	*Hydroprogne caspia*	BCC (nesting colony)	Low (foraging)
California Gull	*Larus californicus*	WL (nesting colony)	High (foraging)
Western Gull	*Larus occidentalis*	-	High (foraging and nesting*)

Table 4.4-8. Common Seabird Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Listing Status	Likelihood of Occurrence
Ashy Storm-petrel	*Oceanodroma homochroa*	BCC, CSC (nesting colony)	Medium (foraging)
Black Storm-petrel	*Oceanodroma melania*	CSC (nesting colony)	Medium (foraging)
American White Pelican	*Pelecanus erythrorhynchos*	CSC (nesting colony)	Low (foraging)
California Brown Pelican	*Pelecanus occidentalis californicus*	FP (nesting colony & communal roosts)	High (foraging)
Double-crested Cormorant	*Phalacrocorax auritus*	WL (nesting colony)	High (forging)
Pelagic Cormorant	*Phalacrocorax pelagicus*	-	High (foraging and nesting*)
Brandt's Cormorant	*Phalacrocorax penicillatus*	-	High (foraging and nesting*)
Pied-billed Grebe	*Podilymbus podiceps*	-	Medium (foraging)
Cassin Auklet	*Ptychoramphus aleuticus*	CSC, BCC (nesting colony)	Medium (foraging)
Black Skimmer	*Rynchops niger*	BCC, CSC (nesting colony)	Medium (foraging)
California Least Tern	*Sternula antillarum browni*	FE, SE, FP (nesting colony)	Low (foraging)
Scripps's Murrelet	*Synthliboramphus scrippsi*	FC, ST, BCC (nesting colony)	Low(foraging)
Elegant Tern	*Thalasseus elegans*	WL (nesting colony)	Low(foraging)

Sources: PG&E, 2022a – Table 4.4-1; PG&E, 2021c -Table 3.4-3.
Acronyms: BCC = USFWS Bird of Conservation Concern, CSC = State Species of Special Concern, FC = Federal Candidate, FE = Federal Endangered, FP = State Fully Protected, FT = Federal Threatened, SE = State Endangered, ST = State Threatened, WL = State Watch List
Note(s): *Species that nest on the DCPP site are addressed in Section 4.3, *Biological Resources – Terrestrial*.

Marine Mammals

All marine mammals are protected under the Marine Mammal Protection Act of 1972 (MMPA), which prohibits, with certain exceptions, the "take" of marine mammals in US waters. "Take" means to harass, feed, hunt, capture, or kill any marine mammal, or to attempt to do so (50 Code of Federal Regulations [CFR] 216.3). In a comprehensive marine mammal census program, Dohl et al. (1983) reported 27 marine mammal species in central California and created three categories of marine mammal species in central California, which include: (1) migrants that pass through the area on their way to calving or feeding grounds, (2) seasonal visitors that remain for a few weeks to feed on a particular food source, and (3) residents of the area. Of the 27 species, 20 were cetaceans (i.e., whales, dolphins, and porpoises), six were pinnipeds (i.e., seals and sea lions), and one was a fissiped (the sea otter). Some species, like the southern sea otter, are endemic to coastal central California and occur year-round, while several species are largely restricted to the waters of the California Current and occur in high numbers off central California. These species include the California sea lion, northern elephant seal, and during its migration, the California gray whale (Dohl et al., 1983). Table 4.4-9 lists the marine mammal species likely to occur in the Project area.

Table 4.4-9. Marine Mammals with Potential to Occur in the Project Area

Common Name	Scientific Name	Listing Status	Likelihood of Occurrence
Guadalupe fur seal	*Arctocephalus townsendi*	FT/ST	Low
Northern fur seal	*Callorhinus ursinus*		Low
Southern sea otter	*Enhydra lutris nereis*	FT/S-FP	High
Stellar sea lion	*Eumetopias jubatus*	FE	Low
Northern elephant seal	*Mirounga angustirostris*	S-FP	Medium
Harbor seal	*Phoca vitulina richardii*		High
California sea lion	*Zalophus californianus*		High
Minke whale	*Balaenoptera acutorostrata*		Low
Blue whale	*Balaenoptera musculus*	FE	Low
Fin whale	*Balaenoptera physalus*	FE	Low
Sei whale	*Balaenoptera borealis*	FE	Low
California gray whale	*Eschrichtius robustus*		Medium
Long-beaked common dolphin	*Delphinus capensis*		Low
Short-beaked common dolphin	*Delphinus delphis*		Low
Risso's dolphin	*Grampus griseus*		Low
Pacific white-sided dolphin	*Lagenorhynchus obliquidens*		Medium
Harbor porpoise	*Phocoena phocoena*		Low
Dall's porpoise	*Phocoenoides dalli*		Low
Killer whale	*Orcinus orca*		Low
Common bottlenose dolphin	*Tursiops truncatus*		Medium

Source: PG&E, 2021a – Table 3.2.1-1; PG&E, 2022a – Table 4.1-1; PG&E 2021c – Table 3.4-4.
Acronyms: CESA = California Endangered Species Act, FESA = Federal Endangered Species Act, FE = Federally listed endangered species, FT = Federally listed threatened species, S-FP – State Fully Protected, ST = State Threatened

Invasive and Non-Native Marine Species

A survey for the invasive seaweed *Caulerpa* spp. was completed along the Intake Structure and offshore areas in 2020, and no *Caulerpa* was detected. In addition, the invasive alga *S. horneri* was not observed during any of the surveys conducted in 2020 in the Diablo Cove and Intake Cove (PG&E, 2021a).

Listed Species and Critical Habitat

This section includes a discussion of species listed under the FESA and the CESA that have not been noted in previous sections and have been observed in the Project area or determined to have potential to occur due to presence of suitable habitat (Table 4.4-10).

Black Abalone

Critical habitat for black abalone was designated in 2011 and encompasses over 139 square miles of intertidal and shallow subtidal rocky habitat in California from Del Mar Landing Ecological Reserve to the Palos Verdes Peninsula (NOAA, 2011). Within these geographical boundaries, the designation encompasses all rocky intertidal and subtidal habitats from the mean higher high-water line to a depth of 20 feet MLLW, as well as coastal marine waters overlying this zone. During development of the Final Rule, critical habitat was divided into 20 specific areas of roughly equal area that may require special management considerations or protection. The Project area

occurs within Specific Area 10 and includes rocky intertidal and subtidal habitats from Montaña de Oro, San Luis Obispo County to just south of Government Point, Santa Barbara County (see Figure 4.4-2).

Tidewater Goby

The tidewater goby (*Eucyclogobius newberryi*) is a small (less than 2.5 inches) benthic fish species that inhabits coastal lagoons and streams between Del Norte County in northern California to Agua Hedionda Lagoon in northern San Diego County, southern California. The species is currently listed as federally endangered (59 FR 5494) and has been proposed for down listing to threatened status since 2014 (79 FR 14340). Critical habitat for tidewater goby in San Luis Obispo County was designated in 2013 (78 FR 8746), but areas are restricted to creeks. The closest creeks to the Project area join Morro Bay to the north and San Luis Bay to the south, neither of which are in the Project area. No records of adult tidewater goby presence, historical or recent, were found for drainages on the DCPP site (PG&E, 2020a). No suitable habitat is present in Diablo Creek as the creek has no estuary and ascends steeply over naturally occurring rocky substrate from the mouth upstream, precluding the occurrence of gobies. Coon Creek, approximately 4 miles upcoast from the Project area, presents very limited and marginal habitat for the tidewater goby at the mouth of the stream; however, no adult gobies are currently or historically known to inhabit this stream and the stream is not listed in the habitats occupied in the designated critical habitat (USFWS, 2013).

Green Sturgeon

Green sturgeon (*Acipenser medirostris*) is an anadromous species, and the oceanic range encompasses the Project area. A distinct population segment (DPS) is the smallest division of a taxonomic species permitted to be protected under the FESA, and two DPSs are recognized for the green sturgeon based on genetic information and spawning site fidelity (NMFS, 2018a). The southern DPS, which includes fish that spawn in rivers, is listed under the FESA as endangered (68 FR 4433) but not listed under the CESA. Green sturgeon spawn on the west coast of North America in the Rogue, Klamath, and Sacramento rivers. During their oceanic phase they range from the Bering Sea, Alaska to Mexico, although tagging studies and patterns of coastal abundance indicate that green sturgeon are more likely to migrate north towards Washington. They are typically observed in bays and estuaries with notable populations in the Columbia River estuary, Willapa Bay, and Grays Harbor during the late summer. In California, green sturgeon are incidentally collected in the white sturgeon trammel net monitoring program in San Francisco Bay. Juveniles spend 1 to 3 years in river systems before entering the ocean. No green sturgeon have been observed at DCPP, despite decades of scientific surveys and an impingement study, therefore they are highly unlikely to occur at the Project area (PG&E, 2021a).

Steelhead Salmon

Steelhead salmon (*Oncorhynchus mykiss irideus*) is an anadromous fish that spawns in freshwater streams and spends part of its life in the ocean. Under the FESA and the CESA, anadromous steelhead salmon are divided into several DPSs with each DPS associated with a stretch of coastline containing several spawning habitats (see Table 4.4-10). The south-central California coast DPS encompasses streams upcoast and downcoast of the Project area, from the Pajaro

River (Santa Cruz County) to, but not including the Santa Maria River (Santa Barbara County) (61 FR 41541). This steelhead salmon DPS is listed as threatened under the FESA and is not listed under the CESA. No critical habitat occurs at the Project area. The distribution of steelhead salmon from each DPS during their ocean phase is not well documented; therefore, while locally spawning steelhead salmon may be more likely to have originated from the south-central California coast DPS, steelhead salmon that occur at the Project area may belong to any of the West Coast DPS designated under the FESA.

Diablo Creek runs through the center of the Project area and meets the ocean approximately 330 feet upcoast of the Discharge Structure. While *O. mykiss irideus* have been documented in Diablo Creek, the studies did not determine whether these fish were migratory steelhead or resident rainbow trout (Aspen, 2005). The mouth of Diablo Creek is assumed to be impassible to steelhead salmon in the creek due to migration barriers located near the mouth of the creek, and therefore it was assumed that these fish did not migrate to the ocean. Steelhead salmon may occur at the Project area because their oceanic distribution overlaps the area; however, they have not been recorded in the countless diver surveys at the DCPP, so are highly unlikely to occur.

Chinook Salmon

Chinook salmon (*Oncorhynchus tshawytscha*) is an anadromous fish that spawns in freshwater streams and spends part of its life in the ocean. Under the FESA and the CESA, chinook salmon are divided into management units called Evolutionarily Significant Units (ESUs). Each ESU is associated with a river catchment that contains spawning habitat and is sometimes further broken down into seasonal ESUs. Within California there are three listed, one experimental, and one candidate ESU. These ESUs are shown in Table 4.4-10 alongside their current listing status. San Francisco Bay is the most southerly river mouth that Chinook salmon migrate through in California. These include fish that are part of the Sacramento River and Central Valley/San Joaquin River ESUs. Chinook salmon do not use rivers and streams adjacent to the Project area to spawn but may occur within the Project area because their oceanic distribution overlaps the Project area; however, they have not been recorded in the countless diver surveys at the DCPP, so are highly unlikely to occur (PG&E, 2021a).

Table 4.4-10. Species Listed under FESA or CESA with Potential to Occur in the Project Area

Species and Management Unit (ESU, DPS, or stock)	Scientific Name	FESA	CESA	Likelihood of Occurrence
Black abalone	*Haliotus cracherodii*	FE	NL	Occurs
Tidewater goby	*Eucyclogobius newberryi*	FE	NL	Very Low[1]
Green sturgeon	*Acipenser medirostris*	FE	NL	Very Low
White Sturgeon	*Acipenser transmontanus*		SSC	Very Low
Steelhead salmon				
- Southern California DPS		FE	C	
- California Central California DPS		FT	NL	
- Northern California DPS	*Oncorhynchus mykiss irideus*	FT	NL	Low
- Summer run		NL	cCE	
- Central California coast DPS		FT	NL	
- South-central California coast DPS		FT	NL	

Table 4.4-10. Species Listed under FESA or CESA with Potential to Occur in the Project Area

Species and Management Unit (ESU, DPS, or stock)	Scientific Name	FESA	CESA	Likelihood of Occurrence
Chinook salmon				
- Upper Klamath and Trinity rivers ESU		C	CT	
- California coastal ESU	*Oncorhynchus tshawytscha*	FT	NL	
- Sacramento River winter-run ESU		FE	CE	Low
- Central Valley spring-run ESU		FT	CT	
- Central Valley spring-run in San Joaquin River		e	NL	

Source: PG&E, 2021a – Table 3.2.2-1.
Acronyms: C = Candidate, cCE = Candidate CESA Endangered, CESA = California Endangered Species Act, CT = CESA Threatened, DPS = Distinct Population Segment, ESU = Evolutionarily Significant Unit, e = FESA Experimental Population, FE = FESA Endangered, FESA = Federal Endangered Species Act, FT = FESA Threatened, NL = Not Listed, SSC = Species of Special Concern
[1] Likelihood refers to encountering adult tidewater goby in the marine environment, not an assessment of their presence in brackish streams in the Project area.

4.4.2 Regulatory Setting

Relevant federal and state laws, regulations, and policies that pertain to marine biological resources are summarized here as well as in Appendix C. Also, pertinent local regulations are summarized below.

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 the CWA. Waters of the United States currently include the territorial seas and traditional navigable waters, perennial and intermittent tributaries to those waters, certain lakes, ponds, and impoundments, and wetlands adjacent to jurisdictional waters (33 C.F.R. § 328.3). Important applicable sections of the CWA are discussed below:

- 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 State Water Resources Control Board (SWRCB) or RWQCB would be required for issuance of a permit by the US Army Corps of Engineers (USACE).
- Section 404 authorizes the USACE to issue permits for the discharge of dredged or fill material into waters of the US, including wetlands, streams, rivers, lakes, coastal waters or other water bodies or aquatic areas that qualify as waters of the US.

Rivers and Harbors Appropriation Act

The Rivers and Harbors Appropriation Act of 1899 (33 USC 403 et seq.), commonly known as the Rivers and Harbors Act (RHA), prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. Under RHA Section 10, the USACE is authorized to permit structures in or over navigable waters. Building or modifying wharves, piers, jetties, and other structures in or over the waters of the United States requires USACE approval through the Section 10 permit process. In addition, Section 14 (33 U.S.C. §408), requires that any proposed occupation or use of an existing USACE civil works project be authorized by the Secretary of the Army. An alteration refers to any action by any entity other than the USACE that builds upon, alters, improves, moves, occupies, or otherwise affects the usefulness, or the structural or ecological integrity of a USACE project.

Endangered Species Act

The FESA protects plants and wildlife that are listed as endangered or threatened by the US Fish and Wildlife Service (USFWS) and NMFS. FESA Section 9 prohibits the taking of endangered wildlife, where taking is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 Code of Federal Regulations [CFR] 17.3). The term “harm” is defined as an “act which actually kills or injures wildlife,” including through “significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife.” The term “harass” means an act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding or sheltering (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land, as well as removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law. Under FESA Section 7, lead federal agencies are required to consult with the USFWS or NMFS if the lead agency determines that its actions, including permit approvals or funding, may adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS or NMFS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity, provided the action will not jeopardize the continued existence of the species. In cases where the federal agency determines its action may affect, but would be unlikely to adversely affect, a federally listed species, the agency may choose to informally consult with the USFWS and/or NMFS. This informal consultation typically involves incorporating measures intended to ensure effects would not be adverse. Concurrence from the USFWS and/or NMFS concludes the informal process. Without such concurrence, the federal agency may formally consult to ensure full compliance with the FESA.

Marine Mammal Protection Act

The 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. Under the MMPA, “take” is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" (16 U.S.C. 1362) and further defined by regulation (50 CFR 216.3) as "to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal”. NMFS administers

the MMPA. Under the 1994 Amendments to the MMPA, harassment is statutorily defined as any act of pursuit, torment, or annoyance which:

- (Level A Harassment) has the potential to injure a marine mammal or marine mammal stock in the wild; or,
- (Level B Harassment) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits take of nearly every bird for which members of the bird's taxonomic family are considered to be migratory. This results in the inclusion of most species of birds afforded protection. Under the MBTA, take means only to kill, directly harm, or destroy individuals, eggs, or nests, or to otherwise cause failure of an ongoing nesting effort.

Magnuson-Stevens Fishery Conservation and Management Act

The MSA was established to promote domestic and commercial fishing under sound conservation and management principles. NMFS, as a branch of the NOAA, implements the act via eight regional Fisheries Management Councils (FMCs). The FMCs in turn prepare and implement Fishery Management Plans (FMPs) in accordance with local conditions. The Pacific FMC is responsible for the Pacific region, in which the study area is located. The FMPs also establish EFH for the species they manage and require consultation by a lead agency with NMFS for actions that may adversely affect EFH. Following receipt of an EFH Assessment, NMFS will provide EFH Conservation Recommendations to the lead agency detailing measures that may be taken by the agency to conserve EFH. Within 30 days of receipt of EFH Conservation Recommendation, the project lead agency must respond in writing, including a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. These measures will be incorporated into the final project.

California Coastal Act

The California Coastal Act (CCA) is intended to provide protection of the unique nature and public interest values of the state's coastal fringe. Development activities, which are broadly defined by the CCA to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal development permit. The CCA is administered by the California Coastal Commission (CCC) or by local jurisdictions operating under adopted Local Coastal Programs that have been approved by the CCC.

California Endangered Species Act

The CESA authorizes the California Fish and Game 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. Unlike the FESA, the CESA does not include harassment within its take definition and as such, has a statutorily higher threshold standard for take than does the FESA. The California Fish and Game Commission also designates fully protected or protected species as those that may not be taken or possessed without a permit from the California Fish and Game Commission and/or CDFW. Species designated as fully protected or protected may or may not be listed as endangered or threatened. When a species is both state- and federally-listed, an expedited request for consistency with the USFWS biological opinion may be issued through a request for Section 2080.1 consistency determination, if take authorization under the CESA is required. The CDFW is charged with implementing and enforcing the regulations set by the FGC, as well as providing biological data and expertise to inform the California Fish and Game Commission's decision-making process.

California Fish and Game Code

The FGC is implemented by the California Fish and Game Commission, as authorized by Article IV, Section 20, of the Constitution of the State of California. 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. As defined in the Fish and Game Code, "take" means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (Fish and Game Code Section 86). 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.

San Luis Obispo County Code Title 23 Coastal Zone Land Use Ordinance

The Coastal Zone Land Use Ordinance was created to protect and enhance the significant natural resources within the County and applies to all land use and development activities within the unincorporated areas of the County that are located within the California Coastal Zone established by the California Coastal Act of 1976. The ordinance includes the following sections pertaining to marine biological resources:

- Section 23.07.170 (Environmentally Sensitive Habitats) - Applies to development proposed within or adjacent to (within 100 feet of the boundary of) an ESHA. The County ordinance separates ESHAs into two categories:
  - Mapped ESHA – Includes wetlands, coastal streams, and riparian vegetation, terrestrial and marine habitats and are mapped as Land Use Element combining designations.
  - Unmapped ESHA – Includes, but are not limited to, known wetlands, coastal streams and riparian vegetation, terrestrial and marine habitats that may not be mapped as Land Use Element combining designations. The existence of an Unmapped ESHA is determined by the County at or before the time of application acceptance and shall be based on the best available information.

- Section 23.07.178 (Marine Habitats) - The provisions of this section are intended to preserve and protect habitats for marine fish, mammals and birds. Development within or adjacent to marine habitats is subject to the provisions of this section.

  a. Protection of kelp beds, offshore rocks, reefs and intertidal areas. Development shall be sited and designed to mitigate impacts that may have adverse effects upon the habitat, or that would be incompatible with the continuance of such habitat areas.

  b. Siting of shoreline structures. Shoreline structures, including piers, groins, breakwaters, seawalls and pipelines shall be designed or sited to avoid and to minimize impacts on marine habitats.

  c. Coastal access. Coastal access shall be monitored and regulated to minimize impacts on marine resources. If negative impacts are demonstrated, then the appropriate agency shall take steps to mitigate these impacts, including limitations of the use of the coastal access.

4.4.3 Significance Criteria

The significance criteria used to evaluate the Project impacts to biological resources are based on Appendix G of the State CEQA Guidelines. A significant impact would occur if the Project would:

- Result in temporary or permanent disturbance to, or destruction of, marine habitat (or its functional habitat value) that is recognized as biologically or economically significant in federal, state, or local policies, statutes, or regulations, result in a net loss in the functional habitat value of an Environmentally Sensitive Habitat Area (ESHA), or result in the temporary or permanent loss or degradation of Essential Fish Habitat (EFH) Habitat Areas of Particular Concern (HAPC).
- Result in the loss or decline in the local population of a federal- or state-listed threatened, endangered, or candidate species, or loss or disturbance to federally designated critical habitat; result in the potential loss or decline in the local population of any other regulated, fully protected, candidate, sensitive or special-status species identified under federal, state, local, or regional plans, policies and regulations, or by CDFW and USFWS; or result in any “take” of an endangered, threatened, or candidate species, CDFW fully protected species, or other special-status species.
- Result in a Level A or Level B Harassment, which is defined under the Marine Mammal Protection Act as, any act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering of a marine mammal or marine mammal stock in the wild.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- Create an adverse effect on waters of the US defined under Section 404 of the Clean Water Act; waters of the State defined under Section 404 of the Clean Water and the Porter-Cologne Water Quality Control Act; jurisdictional features defined under Section 30233 of the Coastal

Act; jurisdictional features defined under Section 1600 *et seq.* of the California Fish and Game Code; or other jurisdictional waters through direct removal, filling, hydrological interruption, or other means.

- Conflict with any local policies or ordinances protecting biological resources, such as marine habitats.

4.4.4 Environmental Impact Analysis and Mitigation

Proposed Project activities that may affect marine biological resources under Phase 1 include waste transportation, Discharge Structure removal and restoration, and water management. Under Phase 2, Proposed Project activities that may affect marine biological resources include Intake Structure closure and continuation of Discharge Structure removal and restoration activities (see Table 2-1, Decommissioning Project Activities Summary).

The removal and restoration of the Discharge Structure requires the construction of a cofferdam within Diablo Cove to isolate the work area from the ocean and allow for dewatering of the work area to accomplish the demolition work under dry conditions. Following demolition, restoration activities would occur. Restoration activities are anticipated to last for 14 months. Actions that may affect marine biological resources include increased vessel activity, which may result in fuel or oil spills, ship strikes, or behavioral avoidance by sensitive species; direct impacts to sensitive rocky habitat that may support kelp or other sensitive species from cofferdam construction and removal; and changes in water quality as a result of increased turbidity associated with vessel activity, cofferdam construction and removal, and dewatering.

DCPP currently utilizes a once-through cooling (OTC) water system to cool plant components. Total OTC flow during routine full power operations is 1,772,000 gallons per minute (gpm), equivalent to 2.55 billion gallons of seawater circulated per day. Once both DCPP reactor units are shutdown, the amount of OTC water flow will substantially decrease; however, ocean water would still be needed to support existing and new functions during the remainder of the decommissioning process, such as freshwater production via the seawater reverse osmosis (SWRO) facility, sanitary wastewater, dilution of waste streams, dust control, and watering for site restoration. Changes in the flow and discharges may alter the mixing characteristics of the various discharge constituents, which may affect marine biological resources.

Intake Structure closure would occur during Phase 2 of the Proposed Project and would entail sealing the structure with concrete bulkheads comprised of ECOncrete (textured on the outside face) to enhance the biological productivity of the concrete surface. The bulkheads would be installed prior to filling of the Intake Structure.

Post-decommissioning activities may include Marina improvements and reuse of the Marina by a third party (under separate County land use and Building permits) for recreational, educational, or commercial purposes. These activities may affect marine biological resources. While no in-water construction or dock improvements are proposed, boats may seek to anchor in the Marina.

Each activity could affect water column habitat, benthic habitats (intertidal and subtidal), eelgrass, kelp, plankton (phytoplankton, zooplankton, and larvae of marine organisms), and larger species, including invertebrates, fish, marine mammals, birds, and sea turtles. The introduction

or spread of invasive and non-native aquatic species (NAS) is also an area of concern. Potential impacts to marine biological resources associated with each of these Project activities are discussed below. The impact analysis briefly summarizes the activity, addresses both direct and indirect impacts to marine biological resources from each activity, and provides a description of the nature and magnitude of the impact and its level of significance. If applicable, mitigation measures are provided. Impacts to marine habitat(s) including habitat of state- or federally listed endangered, threatened, rare, protected, or candidate species, or a Species of Special Concern or federally listed critical habitat are discussed under Impact MBIO-1, while impacts to special-status species are discussed under Impact MBIO-2. In-water noise impacts are discussed under Impact MBIO-3, and impacts to water column marine habitat (i.e., receiving waters) including potential runoff from storm water or other Project-related discharges such as increased turbidity or increased vessel traffic that may result in oil or fuel spills are discussed under Impact MBIO-4. Potential impacts regarding the introduction of NAS are discussed under Impact MBIO-5.

Impact MBIO-1: Destroy or degrade marine habitat(s) during decontamination and dismantlement activities including habitat of state- or federally listed endangered, threatened, rare, protected, or candidate species, or a Species of Special Concern or federally listed critical habitat, which would also conflict with local policies or ordinances protecting biological resources, such as marine habitats (Class I: Significant and Unavoidable).

Phase 1

DCPP Project Site

Waste Transportation Activity

Waste transportation includes transporting waste from the DCPP site using ocean-going tugs and barges. A pair of barges would be used, with one barge moored to the Intake Structure and the other in a dedicated anchorage within the Intake Cove. Once both barges are loaded, a tugboat would transport the waste to either Portland or Boardman, Oregon for offloading. It was estimated that a total of 28 loading cycles (55 barges) would be needed over a three-year period (2030 to 2033). Actions associated with this activity that may affect marine biological resources include: increased vessel activity, which may result in fuel or oil spills, ship strikes, or behavioral avoidance by sensitive species; changes in water quality within the Intake Cove, as a result of increased turbidity associated with vessel activity; and potential impacts to sensitive rocky habitat that may support kelp, or soft-bottom habitat that may support eelgrass associated with vessel operations and storage.

The increase in vessel traffic, primarily tugboats used for moving and transporting barges within the Intake Cove increases the possibility of resuspending sediments from propeller wash. Given the relatively shallow water within the Intake Cove and the high percentage of soft bottom habitat (see Figure 4.4-3 and Table 4.4-1), the use of tugboats to maneuver barges could result in a localized increase in turbidity within the Intake Cove that could result in reducing primary production for marine flora such as algae, kelp, and eelgrass, and possibly smothering sensitive rocky habitats. Given the anticipated frequency of barges trips (estimated to be 27 loading cycles over three years, with each operation lasting approximately four days), it is anticipated that any turbidity would be short-term and temporary, and given the tidal exchange within the Intake

Cove, any turbidity that was generated would not persist for an extended period of time. However, any impact to sensitive rocky habitat and eelgrass beds is considered significant and would be reduced to a less-than-significant level (Class II) through implementation of MM MBIO-1 (*Eelgrass Monitoring Plan*). MM MBIO-1 would require surveys conducted in conformance with the CEMP which would delineate eelgrass beds in the Intake Cove, and while not specified in the CEMP, surveys would also delineate rocky habitat. Once habitats were identified actions could be taken to avoid impacts to these sensitive habitats.

Canopy kelp (approximately 6.85 acres) persists along the perimeter of the Intake Cove, and several eelgrass beds were identified (approximately 0.21 acres) in the Intake Cove (Table 4.4-5 and Figure 4.4-4). As proposed, two empty barges would be temporarily moored offshore in Avila Bay/Port San Luis. During the loading of waste containers, one barge would be moved to the face of the Intake Structure by a tugboat and secured for loading, while the other barge would remain moored in Avila Bay/Port San Luis. Once loaded, the first barge would be transferred to the anchorage area within the Marina with anchor lines attached to the Breakwater and shoreline (see Figure 2-34), while the remaining empty barge would be moved to the Intake Structure for loading. No subtidal mooring or anchors would be used, and when not in use, the mooring lines would be stored on shore or on the Breakwater. When being used, mooring lines would have attached floats to avoid dragging the lines on the sea floor. The loading process was estimated to take approximately four (4) days, and once both barges are filled, they would be tied together, and the tugboat would transport them to the out-of-state waste disposal facility.

While barges and tugboats would not use subtidal moorings or anchors, which would eliminate potential direct impacts to sensitive rocky, kelp bed, or eelgrass habitat, the storage of tugs and barges may result in shading impacts within the Intake Cove that could potentially affect kelp or eelgrass beds reducing the quality or quantity of these habitats. Both canopy kelp and eelgrass are perennial species with an active growing season that extends from the spring through the fall and are designated Essential Fish Habitat (EFH) Habitat of Particular Concern (HAPC). Due to the short-term nature of the activity, no shading impacts would be expected for kelp since kelp plants can have large surface canopies and are less susceptible to shading impacts than seagrasses or other types of submerged marine vegetation. However, eelgrass beds may be affected by barge shading and any impact would be considered significant. Implementation of MM MBIO-1 (*Eelgrass Monitoring Plan*) and MM MBIO-2 (*Marine Safety and Anchoring Plan*) would reduce the potential for impacts to eelgrass to a less-than-significant level (Class II). PG&E developed a preliminary Discharge Demolition Anchoring Plan (PG&E, 2022b) for decommissioning activities associated with the demolition and removal of the Discharge Structure and restoration activities, which includes information regarding operational limits, mooring systems, and conceptual mooring locations. An Intake Structure and Barge Loading Plan (PG&E, 2021d) was also developed, which includes information on options for loading barges from the Intake Structure, but the plan does not include specifics for mooring in the Intake Cove. MM MBIO-2 (*Marine Safety and Anchoring Plan*) would require preparation of a Marine Safety and Anchoring Plan to include a pre-construction seafloor habitat mapping survey to delineate eelgrass beds and to develop an anchoring system that would avoid impacts to eelgrass from Project-related actions. Any mooring or anchoring within Port San Luis would be coordinated by the Port San Luis Harbor District, occurring only in authorized mooring and anchorage areas to avoid any impacts to sensitive rocky, kelp bed, or eelgrass habitat.

Discharge Structure Removal and Restoration Activity

Intertidal and subtidal habitats around the Discharge Structure would be directly impacted during cofferdam installation/removal, dewatering, and Discharge Structure removal, and would result in the temporary loss of benthic habitat and mortality to all sessile species, species with limited mobility, and species trapped within the cofferdam area for the duration of the activity which is estimated to be 14 months.

The intertidal and shallow subtidal habitat immediately upcoast of the Discharge Structure where the cofferdam would join the shoreline consists of cobble, boulder, and rock fields overlying bedrock interspersed with sandy pockets. The area is heavily impacted by its proximity to the warm-water discharge, which generates thermal stresses that exceed most organisms' capacity to survive. It also produces consistent and strong offshore currents that restrict propagules such as algal spores and invertebrate larvae from reaching this location. This habitat supports relatively low-quality intertidal and subtidal communities that consist primarily of diatom film, fast-growing algae such as the green alga *Ulva* spp. and some red algae (PG&E, 2021a).

Immediately downcoast of the Discharge Structure where the cofferdam would join the shoreline, the intertidal and shallow subtidal habitat consists of emergent bedrock that forms a rocky bench typical of high-quality habitat found elsewhere along the coastline and includes mussel beds and intertidal algal assemblages. This habitat also represents black abalone critical habitat, although no black abalone were observed in this area during recent surveys (PG&E, 2021a). It is also an area that includes crustose coralline algae, an important resource for juvenile abalone, and is likely to accumulate drift kelp, an important food for adult abalone.

Table 4.4-11 summarizes the habitat types that would be affected within the various Project footprints (i.e., cofferdam footprint, dewatered area, anchorage area, and restoration area). Approximately 0.58 acres of intertidal and subtidal marine habitat would be directly impacted from cofferdam construction (this includes a 25-foot buffer on the offshore edge), with the majority consisting of scoured bedrock (0.46 acres) and approximately 0.12 acres of mixed sand and rocky habitat (see Figure 4.4-5). The dewatered area consists of approximately 0.12 acres of scoured bedrock and mixed sand and rocky habitat (see Table 4.4-11). Therefore, cofferdam construction would directly impact approximately 0.70 acres (0.58+0.12) of both water column and benthic marine habitat, some of which would be considered EFH HAPC (rocky reef and surfgrass), as well as approximately 0.47 acres of black abalone critical habitat. Following removal of the Discharge Structure, approximately 0.13 acres of 1-ton quarry rock would be placed within and on both sides of the void to provide bluff erosion protection, as well as new intertidal and subtidal habitat (see Figure 2-31). These impacts would be temporary in nature lasting approximately 14 months, but the direct impact to marine habitat (EFH and black abalone critical habitat) associated with the cofferdam and Discharge Structure removal, as well as loss of marine organisms would be considered significant. Implementation of MM MBIO-3 (*Water Quality Monitoring Plan*), MM MBIO-4 (*Cofferdam Installation and Dewatering Plan*), MM MBIO-5 (*Preconstruction Survey for Black Abalone*), and MM MBIO-6 (*Marine Habitat Restoration and Monitoring Plan*) would reduce the impacts to marine habitats; however, because of the uncertainty associated with the success of relocation of black abalone (MMs MBIO-4 and MBIO-5), impacts would remain significant and unavoidable (Class I). Note that after the Discharge

Structure ceases operation, the cofferdam removed, and the area restored, the area would provide improved quality critical habitat for black abalone and other marine organisms.

PG&E developed a Turbidity Monitoring Plan for decommissioning activities associated with the demolition and removal of the Discharge Structure and restoration activities, including placement and removal of the cofferdam (PG&E, 2022c). The Turbidity Monitoring Plan calls for receiving water turbidity monitoring to ensure turbidity levels are acceptable based on permit requirements. MM MBIO-3 (*Water Quality Monitoring Plan*) requires PG&E to update the Turbidity Monitoring Plan to include permit requirements for monitoring for turbidity and other water quality parameters such as dissolved oxygen to ensure that Project-related activities are not contributing to conditions that could degrade sensitive marine habitats. If water quality monitoring detected persistent and elevated levels of turbidity, Best Management Practices (BMPs) would be implemented to avoid turbidity impacts to receiving waters and adjacent habitats. MM MBIO-4 (*Cofferdam Installation and Dewatering Plan*) requires PG&E to develop a plan to avoid impacts to marine biological resources, receiving waters, sensitive habitats, and potentially protected species from all aspects associated with cofferdam construction and removal. The plan would require tasks such as a pre-construction habitat and biological survey, an approach to relocate marine life, agency authorization and permitting, and dewatering controls to minimize turbidity, and inspection schedule to ensure compliance. MM MBIO-5 (*Preconstruction Survey for Black Abalone*) requires PG&E to conduct a pre-construction survey for black abalone, and if black abalone are discovered, an approach to relocate them to predetermined areas located outside the immediate impact area. MM MBIO-6 (*Marine Habitat Restoration and Monitoring Plan*) requires updating the Marine Habitat Restoration and Monitoring Plan (PG&E, 2020a) to include specific methods, procedures, goals, and performance standards for the restoration effort.

Impacts may also occur to approximately 4.16 acres of leatherback turtle critical habitat due to the inadvertent release of hazardous materials such as fuel or oil from construction equipment and support vessels (Table 4.4-11). However, implementation of MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) and MM MBIO-8 (*Oil Spill Response Plan*) would reduce the impacts to leatherback turtle critical habitat to a less-than-significant level (Class II). MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) requires updating PG&E's Marine Wildlife Contingency Plan (PG&E, 2020b) to ensure that no harassment of marine mammals or other marine life occurs during offshore Project activities and would require a description of the work activities; a risk analysis; qualifications, number, location, and roles/ authority of marine wildlife observers (MWOs); exclusion zones; and monitoring and reporting requirements. MM MBIO-8 (*Oil Spill Response Plan*) requires updating PG&E's Oil Spill Response Plan (PG&E, 2022e) to include at a minimum, a description of the Project scope-of-work and geographic area, pre-work planning needed to prepare for a possible nearshore oil spill, initial response procedures including agency notifications and on-site team communications, how waste from an oil spill would be handled and disposed of, and a description of how the area would be decontaminated and how any contaminated materials handled.

Another direct impact associated with the Discharge Structure removal activities includes potential degradation of marine habitat due to anchoring of vessels and barges in Diablo Cove. The proposed anchorage area consists of approximately 3.57 acres of mixed sand and rock

habitat, while the barge footprint consists of approximately 0.39 acres of scoured bedrock with mixed sand and rock (see Table 4.4-11 and Figure 4.4-5). Spuds, anchors, and chain used to moor vessels and barges may damage or degrade rocky reef habitat and canopy kelp (both EFH HAPC), including approximately 4.23 acres of black abalone critical habitat (see Table 4.4-11). These impacts would be considered significant; however, implementation of MM MBIO-2 (*Marine Safety and Anchoring Plan*) would reduce the impacts to a less-than-significant level (Class II). PG&E has developed a Discharge Demolition Anchoring Plan (PG&E, 2022b) and an Intake Structure Closure and Barge Loading Plan (PG&E, 2021d); however, MM MBIO-2 (*Marine Safety and Anchoring Plan*) requires preparation of a Marine Safety and Anchoring Plan to include a pre-construction seafloor habitat mapping survey to delineate EFH HAPC (i.e., rocky reef and canopy kelp) and to develop an anchoring system that would avoid impacts from Project-related actions.

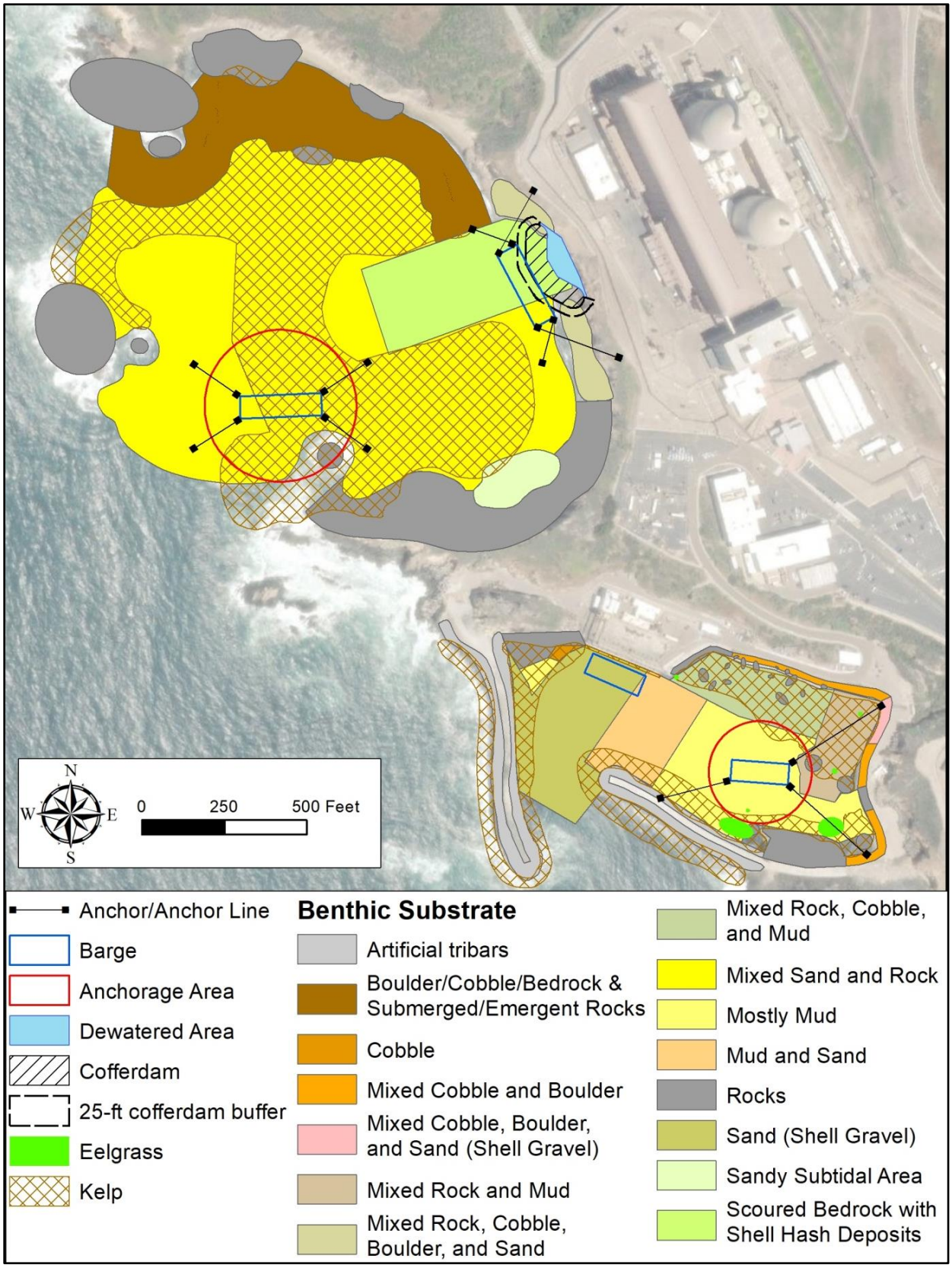
Shading impacts were discussed in the *Waste Transportation Activity* (discussed above), and while the Diablo Cove anchorage supports approximately 2.99 acres of canopy kelp (see Table 4.4-10 and Figure 4.4-4), no shading impacts would be expected since kelp plants can have large surface canopies and are less susceptible to shading impacts than seagrasses or other types of submerged marine vegetation. Therefore, no impacts to canopy kelp HAPC are expected due to barge or vessel anchoring in Diablo Cove. Eelgrass is not present in Diablo Cove.

Table 4.4-11. Diablo Cove Habitat Impact Summary

Location	Area	Habitat Type	Area (m^2)	Acres
Diablo Cove	Coffer Dam w/ 25' Buffer	Mixed Rock, Cobble, Boulder, and Sand	387	0.10
		Mixed Sand and Rock	86	0.02
		Scoured Bedrock with Shell Hash Deposits	1,869	0.46
		Total	**2,342**	**0.58**
	Dewatered Area	Mixed Rock, Cobble, Boulder, and Sand	60	0.01
		Scoured Bedrock with Shell Hash Deposits	461	0.11
		Total	**521**	**0.12**
	Coffer Dam w/ 25' Buffer and Dewatered Area	Black Abalone Critical Habitat	1,883	0.47
	Barge and Anchorage Area		17,120	4.23
	Barge Footprint	Mixed Sand and Rock	439	0.11
		Scoured Bedrock with Shell Hash Deposits	1,115	0.28
		Total	**1,553**	**0.39**
	Anchorage Area and Anchor Footprints	Mixed Sand and Rock	14,116	3.49
		Rocks	333	0.08
		Total	**14,449**	**3.57**
	Anchorage Area	Kelp	12,118	2.99
	Barge and Anchorage Area	Leatherback Turtle Critical Habitat	16,843	4.16
	Discharge Structure Restoration Area	Quarry Rock Fill*	509	0.13

*Fill will create new rocky habitat.

Figure 4.4-5. Marine Habitat Impact Map in the Project Areas



Source: PG&E, 2021b.

Water Management Activity

Brine and wastewater discharges associated with current operation of the SWRO and Wastewater Treatment facilities are currently diluted and discharged through the OTC flows from the Discharge Structure (see Figure 2-35). As OTC flows decrease during decommissioning (i.e., Phase 1), salinity levels near the discharge area could increase and result in reduced dissolved oxygen concentrations, potentially resulting in areas of hypoxia that could impact receiving waters and adjacent marine habitats.

A modeling study evaluated the potential impacts from brine and wastewater discharges associated with the decommissioning activity using multiple scenarios, including two ambient temperature simulation time periods under six (6) different combinations of cooling water discharge rates for a total of twelve (12) modeling scenarios. The six conditions included full operations, interim steps in cooling water flow reductions (75%, 50%, 25%), total pump shutdown (22,000 gallons gpm), and the minimum cooling water flow rate required to meet the requirements (7,000 gpm) while the desalination plant operated at capacity (PG&E, 2021e). All scenarios consistently predicted a larger plume at the surface layer than at the bottom layer attributed to the heated and buoyant behavior of the discharge, and that as discharge flow rates decreased, dilution also decreased. However, the model suggested that no adverse effects from brine discharges would be expected even under the lowest discharge volume of 7,000 gpm, as the discharge of excess brine from the desalinization facility would be expected to increase background salinity by less than 0.5 parts per thousand (ppt) at the point of discharge in the Diablo Cove, and was further diluted with distance from the outfall, quickly dropping to background levels (PG&E, 2021e). This 0.5 ppt difference is within normal fluctuations in seawater salinity and has been observed during receiving water monitoring at DCPP (PG&E, 2021a). When the cofferdam is in place, a temporary 8- to 10-inch diameter PVC pipe would be installed over or adjacent to the cofferdam (see Figure 2-36), and a diffuser would be installed on the end, further increasing dilution within Diablo Cove. Specific wastewater contaminants were not considered in the modeling study; however, the relative dilution results can be applied to other constituents of concern (PG&E, 2021e).

Based on results of this study, reduced OTC flows are not expected to result in salinity concentrations from the brine stream or wastewater that would negatively affect the receiving environment or exceed California Ocean Plan numeric standards (PG&E, 2021e). The primary discharge (Discharge Point 001) is regulated under the National Pollutant Discharge Elimination System (NPDES) program (Permit CA0003751) by the Central Coast RWQCB, and the permit has published effluent limitations and is routinely monitored and reported by PG&E. Based on recent discharge monitoring reports, it would not be expected that ancillary discharges occurring through Discharge Point 001 would be found in concentrations that would violate the permit condition (PG&E, 2021e). Therefore, impacts from brine and wastewater discharge during decreased OTC flows would be less than significant (Class III).

Another direct effect of flow reduction during the period of reduced OTC would be the change in circulation patterns within the Intake Cove. This change in circulation is not expected to affect the presence of any rocky reef habitat within the Intake Cove, and the ability to serve as substrate and support sessile organisms such as algae or invertebrates. The reduced flow may result in competitive interactions and changes in community composition to species that are more

tolerant to lower flow conditions but overall, the rocky reef community within the Intake Cove is not expected to change dramatically as differences in community structure on the Breakwaters have already been documented (PG&E, 2021a). For example, the number of intertidal algal species was higher on the East Breakwater than on the West Breakwater; however, the West Breakwater had higher percent cover, which may have been a result of higher water motion due to exposure to the open ocean (PG&E, 2021a). For invertebrates, the limpets *Lottia. scutum, L. limatula*, and *Fissurella volcano* were more frequently observed on the West Breakwater than the East Breakwater, while on the East Breakwater, the tube snails *Serpulorbis squamigenus* and *Spirobranchus spinosus* and the chiton *Mopalia muscisa* were generally more frequently observed (PG&E, 2021a). Similar observations were recorded in the subtidal habitat with kelps such as *Laminaria setchellii* and bull kelp (*Nereocystis leutkeana*), which were more commonly observed on the more exposed West Breakwater than giant kelp (*Macrocystis pyrifera*) and were observed in calmer conditions on the inner side of the East Breakwater (PG&E, 2021a).

In addition, the reduced intake flows are not expected to result in other indirect effects such as changes in nutrient levels or increased turbidity within the Intake Cove. The cove would continue to be partially exposed to the open ocean, diurnal tidal cycles, and storm activity, and it would be expected that nutrient concentrations, turbidity levels, and other water quality parameters such as dissolved oxygen, temperature, salinity, and hydrogen ion concentration (pH) inside the cove would be similar to ambient conditions outside the cove. Therefore, impacts to marine habitats from decreased flows within the Intake Cove during decreased OTC flows would be less than significant (Class III), and as discussed below, would actually result in a net benefit (when considering both the Intake and Diablo Coves).

During full power operations approximately 2.55 billion gallons of seawater is circulated through DCPP per day, and a direct benefit associated with the proposed reduced flows is the reduction and eventual elimination of heated seawater into Diablo Cove, which in turn would eliminate any thermal stress on marine organisms, as well as the highly disturbed and scoured area within Diablo Cove. In addition, the flow reduction would proportionately reduce entrainment of fish and invertebrates that occurs during normal operations. PG&E (2016) provides results from entrainment sampling of marine plankton at the DCPP and calculates an estimate of the mortality due to entrainment on the populations of larvae in the source water; mortality that would eventually be eliminated with cessation of the OTC flows.

Phase 2

Discharge Structure Removal and Restoration Activity

Discharge Structure removal and restoration activities are anticipated to extend into Phase 2 and conclude in 2033. Impacts associated with this activity are discussed under Phase 1 and are expected to be similar in Phase 2 and would be mitigated to the extent feasible through implementation of MM MBIO-5 (*Preconstruction Survey for Black Abalone*) and MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*). However, because of the uncertainty associated with the success of relocation of black abalone (MM MBIO-5), impacts would remain significant and unavoidable (Class I).

Intake Structure Closure Activity

Intake Structure closure would entail sealing the structure with precast concrete bulkheads that would be installed on the existing structure and backfilling the void with controlled low strength material (CLSM). Construction is anticipated to occur from on top of the Intake Structure with no in-water equipment. Direct impacts to benthic habitat would occur at the base of the Intake Structure where the bulkhead would rest on or penetrate the seafloor. The estimated impact footprint (assuming bulkhead is 1 foot thick, 220 feet long, and 36 feet high) would be approximately 220 square feet (21 square meters), and the substrate in the vicinity of the Intake Structure consists of mixed cobble, boulder, and sand (see Figure 4.4-3). All sessile invertebrates within the impact footprint would be lost. No special-status species are anticipated to occur in the area, and since this area does not support EFH HAPC (rocky reef, kelp, seagrass), impacts to marine habitat from the Intake Structure Closure Activity would be less than significant (Class III).

Intake Structure closure also would result in shutting down the SWRO, and on-site water needs for decommissioning would be met via groundwater extraction and/or trucked in water. This means the full cessation of intake flows, which could indirectly affect circulation patterns in the Intake Cove. The cove would still continue to be exposed to the open ocean, diurnal tidal cycles, and storm activity, and it is expected that nutrient concentrations, turbidity levels, and other water quality parameters inside the cove would be similar to ambient conditions outside the cove. As noted above, this change in circulation is not expected to affect the presence of any rocky reef habitat within the Intake Cove, and the ability to serve as substrate and support sessile organisms such as algae or invertebrates. The change in flow may result in competitive interactions and changes in community composition to species that are more tolerant to lower flow conditions, but overall, the rocky reef community within the Intake Cove is not expected to change dramatically as differences in community structure on the Breakwaters have already been documented. No impacts are anticipated to eelgrass beds due to cessation of flows, as most beds are located at the eastern end of the Intake Cove. Therefore, impacts to the cessation of flows within the Intake Cove would be less than significant (Class III).

A benefit of Intake Structure Closure is the creation of habitat since the bulkhead would be textured on the outside face (ECOncrete) to enhance the biological productivity of the concrete surface. Approximately 7,920 square feet (736 square meters) of artificial vertical marine habitat would be created from the Intake Structure Closure Activity using the estimated dimensions of the bulkhead resulting in a beneficial impact (Class IV). If necessary, bulkhead installation and habitat enhancement would be coordinated with CDFW.

Post-Decommissioning Operations

New Facility Operations. Following Phase 2, activities at the DCPP site associated with the Proposed Project include operation of the new GTCC Storage Facility, Security Building, indoor Firing Range, and Storage Buildings. Since no in-water operations are anticipated, no impacts to benthic marine habitats or EFH HAPC would occur.

Future Actions. Marina improvements include paving of the Intake Structure, installation of a boat hoist, and construction of ancillary structures such as maintenance buildings and restrooms. All construction is anticipated to occur on top of the Intake Structure or upland with no in-water

construction. Since there is no in-water construction element (e.g., dock improvements), impacts to benthic marine habitats or EFH HAPC would be less than significant.

However, a potential impact to marine biological resources would be from operational activities associated with vessel anchoring. It is anticipated that vessel tie-up at the dock would be limited in duration with no overnight tie-up, and therefore, vessels staying overnight would have to anchor in the Marina. While anchors falling on unvegetated soft bottom habitat may result in mortality to benthic epifauna and infauna, given the small footprint and opportunistic nature of the organisms, impacts would be less than significant. However, anchors repeatedly falling on rocky reef habitat or eelgrass habitat (i.e., EFH HAPC) could result in long-term impacts or damage and would be considered significant. MM MBIO-9 (*Mooring Placement Habitat Survey*) would reduce the potential for impacts to rocky reef and eelgrass habitat to a less than significant level (Class II). MM MBIO-9 (*Mooring Placement Habitat Survey*) prohibits all non-emergency anchoring and that up to five mooring buoys be installed in the Marina prior to commencing overnight use by private vessels. It also requires a pre-construction habitat survey be conducted prior to mooring installation to delineate sensitive habitats such as eelgrass beds and rocky reefs. Moorings would be installed and include a buffer zone to avoid impacts to these habitats from the mooring anchor, as well as potential chain scour.

Mitigation Measures for Impact MBIO-1.

MBIO-1 **Eelgrass Monitoring Plan.** During Phase 1 and at least 90 days prior to submittal of construction permits related to any in-water construction activity within the Intake Cove, the Applicant or its designee shall prepare an Eelgrass Monitoring Plan to provide protection to eelgrass beds that are present in the Intake Cove. The plan shall be consistent with the California Eelgrass Mitigation Policy (CEMP) that includes specific guidelines for monitoring, as well as appropriate responses and measures for activities that threaten eelgrass vegetated habitats (NOAA, 2014). The goal of CEMP is to have no loss and to accomplish greater eelgrass habitat than is lost (NOAA, 2014). Any loss will be compensated at a minimum ratio of 1.2:1 consistent with CEMP guidelines. The Monitoring Plan shall be submitted to County Planning and Building and reviewed and approved by the County, National Oceanic and Atmospheric Administration (NOAA) Fisheries, and California Department of Fish and Wildlife (CDFW) prior to issuance of construction permits for any in-water construction activity within the Intake Cove.

In accordance with the requirements of the CEMP and as identified in Appendix J Marine Biological Resources Assessment of PG&E's application (PG&E, 2021a), both pre- and post-construction surveys shall be described in the Eelgrass Monitoring Plan and implemented according to the approved plan. The pre-construction eelgrass survey shall be completed within 60 days prior to initiation of construction activities at the project and reference sites. This survey shall confirm both area and density characterization of the eelgrass beds. Based on the pre-construction survey, existing eelgrass beds shall be protected from equipment such as vessel operations, barge anchoring and mooring, or increased turbidity; protective measures shall be identified in the plan and implemented. A post-construction survey shall be performed within 30 days following project completion to quantify eelgrass at both the project and

reference sites. A comparison of pre- and post-construction survey results shall be documented and submitted to the County within 15 days following completion of surveys.

MBIO-2 **Marine Safety and Anchoring Plan.** During Phase 1 and prior to submittal of any permits related to any in-water construction activity in the Intake Cove and Diablo Cove, the applicant or its designee shall prepare a Marine Construction Activity Plan, comprised of updates to the Discharge Demolition Anchoring Plan (PG&E, 2022b) and the Intake Structure and Barge Loading Plan (PG&E, 2021d) and supplemented with a Marine Safety and Anchoring Plan to avoid or minimize, as feasible, impacts to Essential Fish Habitat (EFH) Habitat of Particular Concern (HAPC) such as rocky reef habitat, canopy kelp, or eelgrass beds. The Marine Safety and Anchoring Plan component would be developed following the analysis of a pre-construction seafloor habitat and bathymetric survey performed after the Discharge Structure flow ceases. Additionally, a confirmation or ground truthing survey shall be conducted to ensure that all pre-determined anchor locations are positioned in sedimentary habitats and avoid impacts to rocky substrata, kelp, or eelgrass beds. The Marine Safety and Anchoring Plan shall also include the types and sizes of vessels to be anchored, anchoring and mooring systems that may be utilized, and general anchoring procedures. The Marine Construction Activity Plan composed of the three elements noted above shall be submitted to County Planning & Building, California State Land Commission (CSLC), California Coastal Commission (CCC), CDFW, and NOAA Fisheries for review prior to the commencement of Project activities and shall be approved prior to County issuance of any marine-related construction permits for implementation. The Marine Construction Activity Plan shall be incorporated into any permits related to barge loading, Discharge Structure demolition, and Intake closure. Documentation of the mooring system installation shall be submitted to the County within 30 days of installation to document compliance with this measure.

MBIO-3 **Water Quality Monitoring Plan.** During Phase 1 and prior to issuance of any permits related to any in-water construction activity in the Intake Cove and Diablo Coves, the Applicant or its designee shall update the Turbidity Monitoring Plan (PG&E, 2022c) to provide protection to receiving waters, adjacent sensitive habitats, and protected species primarily from turbidity during activities associated with any in-water construction activities and shall comply with any Clean Water Act (CWA) permit requirements. The plan shall provide specific information about the equipment, reporting procedures, and methodology to measure and record water quality parameters such as turbidity and dissolved oxygen during Project activities, exceedance criteria, and protocols that could be implemented to avoid impacts to water quality in accordance with standards set in the Ocean Plan (SWRCB, 2019). The plan shall be submitted to the County, Regional Water Quality Control Board (RWQCB), CSLC, CCC, NOAA Fisheries, and CDFW for review and approval prior to the issuance of County/agency permits for in-water construction or commencement of Project activities in marine waters, and implemented throughout construction. The Plan shall include a reporting schedule to report results of water quality monitoring during construction. A Final Compliance Summary report shall be prepared at completion of

construction and shall be submitted to the County and RWQCB within 30 days following completion of the work subject to surveys.

MBIO-4 **Cofferdam Installation and Dewatering Plan.** During Phase 1 and at least 90 days prior to, or concurrent with, submittal of initial construction permits related to Discharge Structure demolition or cofferdam installation, the Applicant or its designee shall develop a Cofferdam Installation and Dewatering Plan to avoid impacts to marine biological resources, receiving waters, sensitive habitats, and potentially protected species from all aspects associated with cofferdam construction and removal. Lesson-learned from previous installations have been identified and summarized in PG&E's Preliminary Discharge Structure Demolition Plan – 30% Design Level (PG&E, 2022d). The plan, at a minimum shall include an organizational chart, a pre-construction habitat and biological survey, an approach to relocate/salvage marine life, tracking and management of agency authorization and permitting, dewatering controls to minimize turbidity, water quality monitoring that shall comply with any CWA permit requirements, and inspection schedule to ensure compliance. The plan shall be submitted to the County, CSLC, CCC, CDFW, and NOAA Fisheries for review and approval prior to issuance of any permits for the commencement of Project activities related to decommissioning the Discharge Structure. Plan measures and requirements shall be included in the construction permits. Relocation of black abalone would require a biologist with a scientific collection permit, and obtaining a Project incidental take permit and letter of authorization from CDFW. Results of the pre-construction habitat and biological survey, animal relocation efforts, and water quality monitoring shall be submitted to the County, NOAA Fisheries, and CDFW within 30 days following completion of surveys. Within 60 days following completion of the Discharge Structure removal and restoration and cofferdam removal, a final summary report on the dewatering and cofferdam plan shall be prepared and submitted to the County and agencies.

MBIO-5 **Preconstruction Survey for Black Abalone.** During Phase 1 and prior to installation of the cofferdam, dewatering, cofferdam removal, or any other construction activity that may affect black abalone, the Applicant or its designee shall conduct a survey by a qualified biologist (i.e., certified/approved by NOAA Fisheries and CDFW) within the area of impact to determine if black abalone are present. This pre-construction survey requirement shall be included in every County (or other agency) construction permit affecting Diablo Cove marine waters. If black abalone are discovered in the work area, they shall be relocated by a qualified biologist with appropriate authorization from NOAA Fisheries and CDFW to predetermined suitable habitat areas located outside the immediate impact area. Relocation of black abalone would require a biologist with a scientific collection permit, and obtaining a project incidental take permit and letter of authorization from CDFW. Monitoring shall also be conducted to assess the effectiveness of relocation for a duration as prescribed by NOAA Fisheries, and CDFW. Results of each such survey and relocation monitoring event shall be submitted to the County, NOAA Fisheries, and CDFW within 30 days following completion of surveys, and a final summary report submitted within 60 days following completion of construction activity.

MBIO-6 **Marine Habitat Restoration and Monitoring Plan.** During Phase 1 and prior to submittal of County applications for permits related to Discharge Structure Removal and Restoration, the Applicant or its designee shall update the Marine Habitat Restoration and Monitoring Plan to outline the restoration and subsequent monitoring specifically associated with the restoration of the Discharge Structure. This does not include monitoring for other aspects of the Project such as anchoring, cofferdam installation and dewatering, or black abalone monitoring. The plan shall provide specific methods, procedures, goals, and performance standards, and is expected to be an extension of the current marine monitoring program (see PG&E, 2021a). A Marine Habitat Restoration and Monitoring Plan was developed for the Project (PG&E, 2020a), but the plan requires updating to be consistent with the final restoration construction plans. The current plan's objectives are the removal and filling of foundations and voids and regrading to natural contour status; evaluation of existing biological resources and restoration of marine resources along the coastline of the property; and updating and/or development of various plans that apply to marine areas, including the Mitigation Monitoring Plan. The Marine Habitat Restoration and Monitoring Plan approach is based on several case studies of marine restoration projects and is built around a monitored natural attenuation approach. The implementation portion of the plan includes an initial hydrographic survey, pre-restoration biological survey, site restoration and habitat enhancements, post-restoration hydrographic surveys, and post-restoration biological surveys. Ongoing monitoring, including sampling and data analysis, is also included. Performance metrics for the restoration of marine habitat are based on the re-establishment of natural communities similar to those found in surrounding areas that have not been altered or affected by construction or operation of the power plant.

When the Marine Habitat Restoration and Monitoring Plan is updated, the plan shall be reviewed by various agencies including, at a minimum, the County, CSLC, CCC, CDFW, and NOAA Fisheries and shall be approved prior to issuance of any permits related to the Discharge Structure demolition and restoration activities. Monitoring and reporting requirements shall be followed, and a summary Final Compliance Report shall be submitted to the permit agency(ies) within 60 days of project completion.

MBIO-7 **Marine Mammal and Sea Turtle Mitigation and Monitoring Plan.** During Phase 1, prior to submittal of any County permits related to Discharge Structure removal and restoration, the Applicant or its designee shall develop a Marine Mammal and Sea Turtle Mitigation and Monitoring Plan to ensure that no harassment of marine mammals or other marine life occurs during both offshore and onshore Project activities. The approved Plan shall be updated and resubmitted at Phase 2 concurrent with submittal of County permits related to Intake Structure closure activities. A draft plan was developed for the Project (PG&E, 2020b), but a final plan shall be developed and approved by the County as part of NOAA Fisheries, CDFW, and USFWS consultation under the Marine Mammal Protection Act, and shall include:

- A description of the work activities including vessel size, activity types and locations, and proposed Project schedule.

- Incorporate results of noise impact assessment (PG&E, 2022a) on effects to marine mammals and sea turtles based on the most current activity plans.
- For nearshore activities, the qualifications, number, location, and roles/authority of dedicated marine wildlife observers (MWOs). MWO tasks may include:
  - Establishing an exclusion zone for eliminating risk of impacts to marine wildlife.
  - Keeping a daily monitoring log detailing the marine mammals or sea turtles observed during the day and Project activities undertaken during those observations.
  - Digital photographs taken during the monitoring.
  - Training of crew, recording survey data, and providing a final report on the results of the monitoring.
  - Instructing vessel operators to observe low vessel speeds within the Discharge and Intake Coves and always maintain awareness of marine wildlife.
- For offshore activities, the distance, speed, and direction transiting vessels shall maintain when in proximity to a marine mammal or turtle, as follows:
  - Vessel operators shall make every effort to maintain a distance of at least 300 feet from sighted whales, and 150 feet or greater from sea turtles or smaller cetaceans whenever possible.
  - When small cetaceans are sighted while a vessel is underway (e.g., bow-riding), vessel operators shall attempt to remain parallel to the animal's course. When paralleling whales, vessels shall operate at a constant speed that is not faster than the whales' and shall avoid excessive speed or abrupt changes in direction until the cetacean has left the area.
  - When safety permits, vessel speeds shall not exceed 11.5 miles per hour (10 knots) when mother/calf pairs, groups, or large assemblages of cetaceans (greater than five individuals) are observed near an underway vessel. A single cetacean at the surface may indicate the presence of submerged animals in the vicinity; therefore, prudent precautionary measures, such as decreasing speed and avoiding sudden changes in direction, should be exercised. The vessel shall route around the animals, maintaining a minimum distance of 300 feet.
  - Support vessels (i.e., barge tows) shall not cross directly in front of migrating whales, other threatened or endangered marine mammals, or sea turtles.
  - Vessels shall not separate female whales from their calves or herd or drive whales. If a whale engages in evasive or defensive action, support vessels shall drop back until the animal moves out of the area.
- For pile driving activities, measures shall be incorporated to reduce underwater noise and minimize potential impacts to fish, sea turtles, and marine mammals. The following noise reduction measures include:
  - Vibratory pile driving shall be used to the extent practicable.

  - During construction activities involving pile driving or extraction, the contractor, under direction of a qualified biologist (i.e., certified/approved by NOAA Fisheries or CDFW), shall conduct monitoring within the applicable Zone of Influence (ZOI). The contractor shall halt in water pile driving or extraction work if any observations of marine mammals or sea turtles are made within the defined ZOI. Work shall not re-commence until it has been determined that the mammal(s) or turtle(s) have left the area or have not been seen on the surface within the ZOI for a period of 15 minutes.
  - A soft start or "ramp-up" procedure shall be utilized to provide nearby wildlife with an opportunity to respond by avoiding the sound source and vacating the area. When performing vibratory pile driving, the contractor shall commence work with a few short pulses followed by a 1-minute period of no activity, prior to commencing full activities. The purpose of this activity is to encourage turtles or marine mammals in the area to leave the project site prior to commencement of work. The contractor, under the direction of a qualified biologist, shall then commence monitoring as described above to determine if turtles or mammals are in the area. This process should be repeated if pile driving ceases for a period of greater than an hour.

- Observation recording procedures and reporting requirements in the event of an observed impact to marine wildlife. Collisions with marine wildlife shall be reported promptly to the NOAA Fisheries, CDFW, CCC, USFWS, and CSLC pursuant to each agency's reporting procedures.
- A final report summarizing daily reports and any actions taken shall be submitted to the County, NOAA Fisheries, CDFW, CCC, CSLC, and USFWS within 60 days following completion of monitoring.

MBIO-8 **Oil Spill Response Plan.** During Phase 1 and prior to submittal of permits for authorization of any in-water construction activities, the Applicant or its designee shall update the Oil Spill Response Plan to outline initial response and procedures to be followed in the event of an inadvertent release of hazardous materials such as fuel or oil as a result of Project activities. The plan shall include at a minimum, a description of the Project scope-of-work and geographic area; pre-work planning needed to prepare for a possible nearshore oil spill; initial response procedures including agency notifications and on-site team communications; how the waste from the oil spill will be handled and disposed of; and a description of how the area will be decontaminated and how any contaminated materials will be handled. The plan shall be reviewed and approved by various agencies including, at a minimum, the County, CSLC, CDFW, NOAA Fisheries, and the CDFW Office of Spill Prevention and Response (OSPR). (PG&E, 2022e)

Each Project vessel shall have a copy of the plan and shall maintain the required spill response equipment. Additional shore-based response equipment shall be onsite, which can be used for first-response containment and collection of petroleum that reaches the shoreline. If necessary, additional personnel and equipment shall be deployed to assist in the recovery and disposal of spilled petroleum.

MBIO-9 **Mooring Placement Habitat Survey.** Prior to Marina reuse, the Applicant or third-party lessee shall prohibit overnight anchoring except for emergency situations, and that up to five mooring buoys be installed in the Marina prior to commencing overnight use by private vessels (except vessels at dock). The Mooring Plan shall include the following:

1. Prior to mooring installation, a pre-construction habitat survey shall be conducted to delineate sensitive habitats such as eelgrass beds and rocky reefs.
2. Mooring locations would be identified and include a buffer zone to avoid impacts to these habitats from each mooring anchor, as well as potential chain scour.
3. Results of the pre-construction habitat survey and proposed mooring locations shall be submitted to the County and CCC, CSLC, and CDFW as required.
4. Upon County and agency approval, the construction permits would specify installation of the mooring buoys in the approved locations.
5. The County Development Plan/Coastal Development Permit approval will require that the Applicant or third-party operator provide the means and methods for managing and monitoring the number of vessels and length of stay.

Documentation of the mooring buoy installation shall be submitted to the County within 30 days of installation to document compliance with this measure. Mooring buoys shall be maintained and used as permitted over the course of Marina operations.

Residual Impacts. Due to the uncertainty associated with the success of relocation of black abalone (MMs MBIO-4 and MBIO-5), impacts associated with Discharge Structure removal and restoration activities in Phases 1 and 2 of the Proposed Project and the potential to destroy or degrade marine habitat(s) would remain significant and unavoidable (Class I).

Impact MBIO-2: Harm or disturb marine special-status invertebrate, fish, reptile, bird, or mammal (Class I: Significant and Unavoidable).

Phase 1

DCPP Project Site

Waste Transportation Activity

Waste transportation activities include transporting waste from the DCPP site using ocean-going tugboats and barges. Actions associated with this activity that may affect special-status species such as marine mammals, sea turtles, seabirds, and other marine life include increased vessel activity that may result in ship strikes, entanglement in anchor lines, behavioral avoidance, acoustic effects, or release of pollutants, or introduction of non-native aquatic species (NAS) by Project-related vessels (see Impact MBIO-5 for NAS analysis).

Marine mammals and sea turtles may be struck and killed or seriously injured by support vessels and vessels used for Project-related offshore barging activities or may display behavioral avoidance to vessels (PG&E, 2021d). Per the MMPA (see Section 4.4.2, *Marine Mammal*

Protection Act), harassment means any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or that has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering, but does not have the potential to injure a marine mammal or marine mammal stock in the wild (Level B harassment).

Although unlikely, impacts due to vessel collision and entanglement could result in serious injury or mortality and would be considered a significant impact. In addition, behavioral avoidance could also be considered a direct effect, which may indirectly result in reducing foraging or breeding success. For example, within the Intake Cove, groups of up to approximately thirty southern sea otters typically rest overnight and disperse to offshore foraging areas during the day (PG&E, 2021c). Since female sea otters can nurse pups for six to 12 months there is a high probability that a female with a pup could be present in the construction area, and while vessel collision is unlikely, possible separation or displacement may occur, which would be considered a significant impact.

PG&E has included special-status species training as part of the Proposed Project. AC BIO-1 (*Worker's Environmental Awareness Training – Biological Resources*) provides environmental awareness training and documentation for all construction personnel prior to start of any Project activities. The training would include photographs and a description of the ecology of all special-status species known, or with potential, to occur on site, as well as other sensitive resources requiring avoidance near the Project site. The training would also include an overview of the required avoidance, minimization, and mitigation measures and Project boundaries and avoidance area. AC BIO-2 (*General Marine Operations and Wildlife Protection*) and AC BIO-5 (*General Wildlife Protection*) would implement measures that minimize impacts to all wildlife species during construction and would include reporting and documentation procedures in the event of an inadvertent "take" of federal or state-listed species.

However, without mitigation impacts would be potentially significant. MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) would reduce impacts to sensitive species from Project-related vessel activities to a less than significant level (Class II). MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) requires updating PG&E's Marine Wildlife Contingency Plan (PG&E, 2020b) to ensure that no harassment of marine mammals or other marine life occurs during offshore Project activities and would require a description of the work activities; qualifications, number, location, and roles/authority of MWOs; exclusion zones; and monitoring and reporting requirements.

Seabirds may also be disturbed from their natural foraging and resting activities due to Project-related vessel activities. No listed seabirds are known to nest in the Project area, however, black oystercatcher (*Haematopus bachmani*), a USFWS Bird of Conservation Concern, along with pelagic cormorant (*Phalacrocorax pelagicus*), cliff swallow (Petrochelidon pyrrhonota), western gull (*Larus occidentalis*), and Brandt's cormorant (*Phalacrocorax penicillatus*) have been observed nesting along the coastal bluff and offshore rocks adjacent to the main facility at the DCPP site (PG&E, 2021c). However, seabirds are highly mobile, and would be able to adjust to the direct, short-term effects of vessel activities by moving to other nearby foraging and resting locations. Project activities also take place over a relatively small area, leaving other accessible areas for

foraging and resting. Therefore, no significant direct or indirect effects are expected for seabirds from vessel activities (Class III).

Listed fish species have a low likelihood of occurrence within the Project area, and Project-related vessel activities are not expected to have any direct or indirect effects on listed fish species, as it is assumed that fish could actively avoid ship strikes or entanglement in anchor lines (Class III).

Discharge Structure Removal and Restoration Activity

Similar to the waste transportation activities, Discharge Structure removal activities includes increased vessel activity, and therefore similar impacts to special status species such as marine mammals, sea turtles, and seabirds would occur, and MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) would apply.

Intertidal and subtidal habitat around the Discharge Structure would be directly impacted during cofferdam installation, dewatering, and removal, and would result in the temporary loss of benthic habitat and mortality to all sessile species, species with limited mobility, and species trapped within the cofferdam area. The only special status species that may occur in the vicinity of the Discharge Structure and potentially affected by this activity would be black abalone. Immediately downcoast of the Discharge Structure where the cofferdam would join the shoreline, the intertidal and shallow subtidal habitat consists of emergent bedrock that forms a rocky bench typical of the high-quality habitat found elsewhere along the coastline. This bench habitat also represents reasonably promising black abalone habitat, although no black abalone were observed in this area during recent surveys (PG&E, 2021a). Black abalone were only observed along the ocean side of the West Breakwater (PG&E, 2021a). If black abalone were present around the Discharge Structure during Project implementation, they may be crushed or killed during cofferdam installation and dewatering. This impact to black abalone would be considered significant. Implementation of MM MBIO-5 (*Preconstruction Survey for Black Abalone*) would reduce this impact to the extent feasible; however, because of the uncertainty associated with the success of relocation of black abalone (MM MBIO-5), impacts would remain significant and unavoidable (Class I). No other special status species are expected to occur in the Discharge Structure project footprint.

Water Management Activity

As discussed under Impact MBIO-1, modeling results indicate that no adverse effects from brine discharges would be expected, and that the salinity would quickly drop to background levels a short distance from the discharge point (PG&E, 2021e). The primary discharge (Discharge Point 001) is regulated under the NPDES program (Permit CA0003751) by the Central Coast RWQCB, and the permit has published effluent limitations and is routinely monitored and reported by PG&E. No special-status species occur within the current discharge area, and therefore impacts from brine and wastewater discharge to special status species during decreased OTC flows would be less than significant (Class III). In addition, no special-status species are known to occur within the current Intake Structure project footprint; therefore, impacts from the Intake Structure Closure Activity including cessation of flows to special status species would be less than significant (Class III).

Phase 2

Discharge Structure Removal and Restoration Activity

Discharge Structure removal and restoration activities are anticipated to extend into Phase 2 and conclude in 2033. Impacts associated with this activity are discussed under Phase 1 and are expected to be similar in Phase 2, and would be mitigated to the extent feasible through implementation of MM MBIO-5 (*Preconstruction Survey for Black Abalone*) and MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*). However, because of the uncertainty associated with the success of relocation of abalone (per MM MBIO-5), impacts would remain significant and unavoidable (Class I).

Intake Structure Closure Activity

No special-status species are known to occur within the Intake Structure project footprint; therefore, impacts from the Intake Structure Closure Activity including reduction and cessation of flows to special status species would be less than significant (Class III).

Post-Decommissioning Operations

New Facility Operations. Following Phase 2, activities at the DCPP site associated with the Proposed Project include operation of the new GTCC Storage Facility, Security Building, indoor Firing Range, and Storage Buildings. Since no in-water operations are anticipated, no impacts to special status species would occur.

Future Actions. No special-status species occur within the Marina area footprint (i.e., Intake Structure and existing boat dock), and therefore impacts from Marina activities to special status species would be less than significant (Class III).

Mitigation Measures for Impact MBIO-2.

MBIO-5 Preconstruction Survey for Black Abalone

MBIO-7 Marine Mammal and Sea Turtle Mitigation and Monitoring Plan

Residual Impacts. Due to the uncertainty associated with the success of relocation of black abalone (MMs MBIO-4 and MBIO-5), impacts associated with Discharge Structure removal and restoration activities in Phases 1 and 2 of the Proposed Project and the potential to harm or disturb special-status invertebrate would remain significant and unavoidable (Class I).

Impact MBIO-3: Generate noise or vibration levels above or below the water surface that could result in disturbance or injury to marine life (Class II: Less than Significant with Mitigation).

Decommissioning activities would generate noise above and below the water surface that could impact marine life. The anticipated main sources of noise from in-water decommissioning activities would be from vessels (both construction and support) and vibratory pile driving. Both of these sources are considered non-impulsive that is more tonal and broadband, can be intermittent or continuous, and does not have a high peak pressure. This is contrasted with an impulsive sound source (e.g., impact pile driving, seismic air guns, and explosives), which

generally has a high peak pressure with rapid rise and decay time and short duration time. Regardless of source, impacts from noise to marine organisms are generally defined as those causing permanent hearing loss and loss of hearing sensitivity (permanent threshold shift [PTS]); those causing a temporary impact to an organism's hearing abilities with a return to normal hearing (temporary threshold shift [TTS]), and those causing a change in an organism's behavior. The response can vary based on the hearing capabilities of the organism.

PG&E prepared an Underwater Noise Impact Assessment (PG&E, 2022a), which provides a detailed analysis of underwater noise impacts on marine organisms associated with decommissioning activities. Noise generating activities (i.e., vessel activity and vibratory pile driving) were modeled to calculate distances to PTS and behavioral shift for receptor groups that included marine mammals, sea turtles, fish, and seabirds. The distances were mapped to visually show the acoustical impact zones for each in-water construction related activity and the associated receptor group. The methodology for the impact assessment followed accepted standards, and species in each receptor group were evaluated for ecological sensitivity, prevalence in the area, likelihood of occurrence (see Tables 4.4-6 through 4.4-10), and biological significance. Some receptor groups did not have commonly occurring species in the Project area; however, a sensitive receptor was still chosen to represent that hearing group. Analysis was performed to understand the linkage on Project-related activities and resources affected. Sensitivity of each receptor was considered, and largely depended on abundance, ecological range, and status, with sensitivity criteria for ecological receptors outlined in Table 4.4-12.

Table 4.4-12. Sensitivity Criteria for Ecological Receptors

Sensitivity	Definitions
Low	Ecological receptors are abundant, common or widely distributed and are generally adaptable to changing environments. Species are not endangered or protected.
Medium	Some ecological receptors have low abundance, restricted ranges, are currently under pressure or are slow to adapt to changing environments. Species are valued locally/regionally and may be endemic, endangered or protected.
High	Some ecological receptors in the area are rare or endemic, under significant pressure and/or highly sensitive to changing environments. Species are valued nationally/globally and are listed as endangered or protected.

Source: PG&E, 2022a - Table 10.2-1.

Magnitude was considered as a function of the duration, frequency, scale, and extent of Project activities. It also included any uncertainty about the occurrence of scale of the impact, expressed as ranges, confidence limits, or likelihood. The impact assessment described the actual change that was predicted to occur to the receptor (e.g., the degree and probability of impact on marine life). Magnitude criteria for ecological receptors are outlined in Table 4.4-13. Impact was determined based on the synthesis of sensitivity of receptors and magnitude of impact (Tables 4.4-12 and 4.4-13), and were determined to be negligible, low, moderate, or high (PG&E, 2022a).

Table 4.4-13. Magnitude Criteria for Ecological Receptors

Sensitivity	Definitions
Negligible	Immeasurable, undetectable or within the range of normal natural variation.
Low	Affects a specific group of localized individuals within a population over a short time period (one generation or less) but does not affect other trophic levels or the population itself.
Medium	Affects a portion of a population and may bring about a change in abundance and/or distribution over one or more generations but does not threaten the integrity of that population or any population dependent on it.
High	Affects an entire population or species in sufficient magnitude to cause a decline in abundance and/or change in distribution beyond which natural recruitment (reproduction, immigration from unaffected areas) would not return that population or species, or any population or species dependent upon it, to its former level within several generations.

Source: PG&E, 2022a - Table 10.3-1.

Phase 1

DCPP Project Site

Waste Transportation Activity

The waste transportation activity includes transporting waste from the DCPP site using ocean-going tugboats and barges. Therefore, the main source of noise is from vessel operations. The impact analysis in PG&E's Underwater Noise Impact Assessment (PG&E, 2022a) depicts noise impact distances with the source emanating from Diablo Cove and not the Intake Cove where barge loading is expected to occur. However, model results would be the same regardless of the source location, as the model cannot account for many factors such as water depth, temperature, salinity, pressure, or obstructions. For the Intake Cove, it would be expected that impact distances outside the cove would be reduced from any noise-generating activity due to the presence of the breakwaters, and for vessel movement, it's expected that the sound source would not be stationary but would vary based on vessel activity and movement.

For marine mammals, the PTS threshold was calculated using the NOAA User Calculation Spreadsheet for non-impulsive stationary continuous noise, and behavioral shifts were calculated using the formula for transmission loss (PG&E, 2022a). The distance (one meter from the source) to the marine mammal isopleth threshold was calculated for each hearing group, which included:

- Low-frequency cetaceans (e.g., minke whale, gray whale)
- Mid-frequency cetaceans (e.g., Risso's dolphin, Pacific white-sided dolphin, Common bottlenose dolphin)
- High-frequency cetaceans (e.g., harbor porpoise)
- Otariid pinnipeds or eared seals (e.g., California sea lion, Steller sea lion)
- Phocid pinnipeds (e.g., Northern elephant seal, harbor seal)

Table 4.4-14 indicates that the PTS distance would not exceed 2 meters from the source for all hearing groups, and that behavioral distance was generally higher at 398 meters from the source

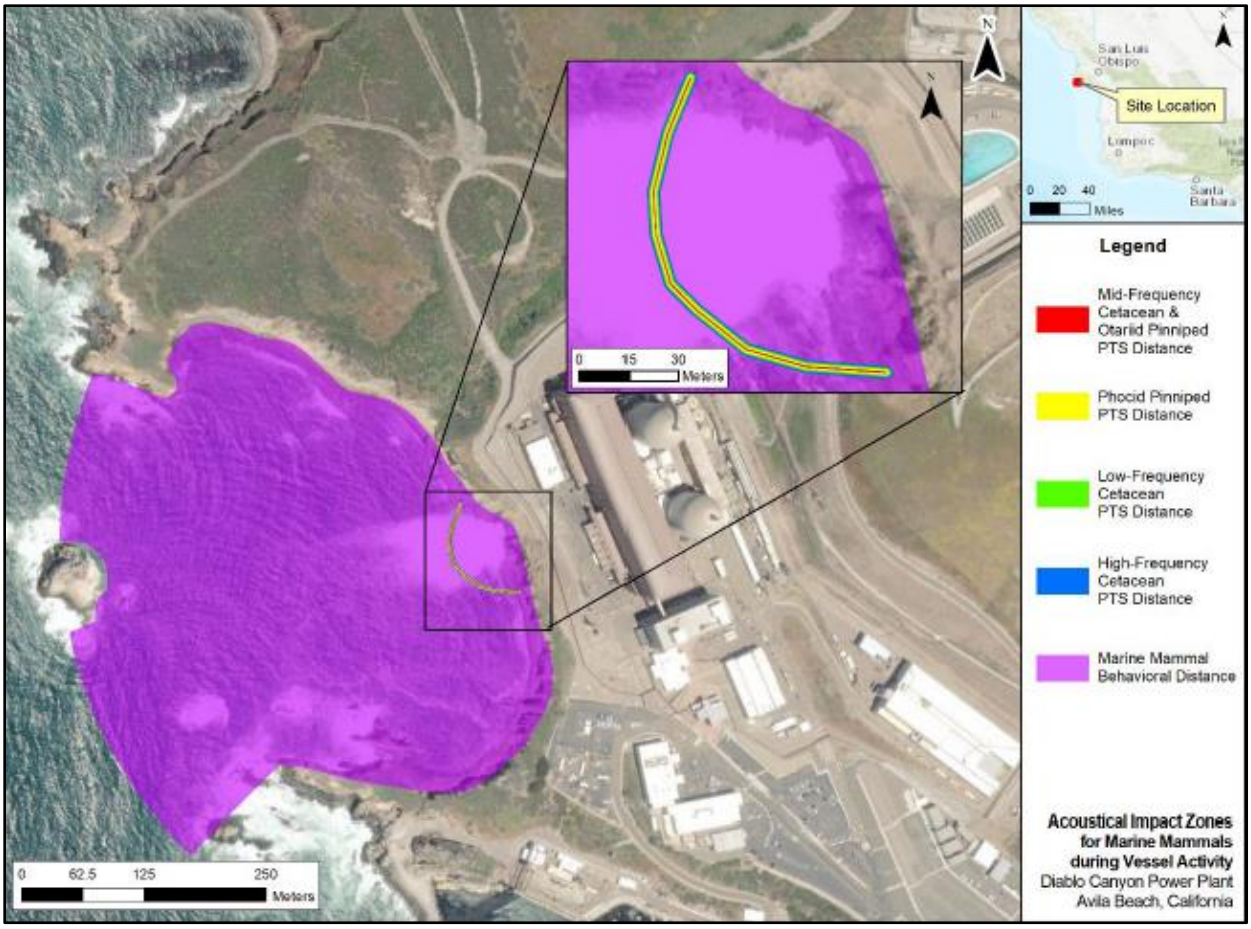
(PG&E, 2022a). Figure 4.4-6 illustrates the modeled impact zones for each marine mammal receptor group for vessel activity.

Table 4.4-14. Distances to the PTS and Behavioral Onset Acoustic Thresholds for Marine Mammals during Vessel Activity

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Otariid Pinnipeds	Phocid Pinnipeds
PTS Distance, SEL_{cum} (meters)	1.3	0.1	1.9	0.1	0.8
Behavior Distance (meters)	398	398	398	398	398

Source: PG&E, 2022a - Table 11.3.1-1.
Acronyms: PTS-Permanent Threshold Shift; SEL_{cum} - Cumulative Sound Exposure Level - takes into account both received level and duration of exposure.

Figure 4.4-6. Acoustical Impact Zones for Marine Mammals during Vessel Activity



Source: PG&E, 2022a - Figure 11.3.1-5.

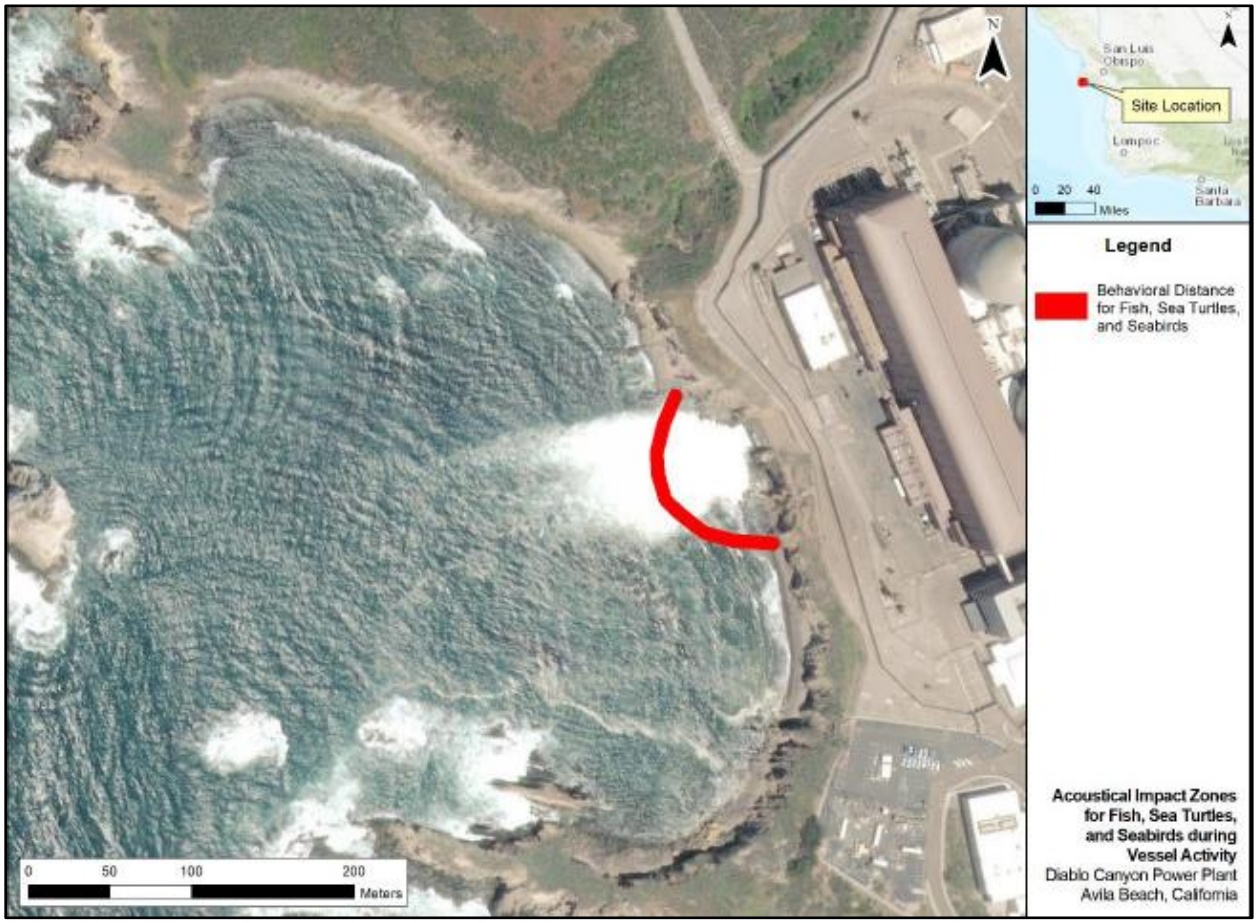
Due to lack of PTS data for vessel activity, only behavioral shift was evaluated for fish, sea turtles, and seabirds, with results indicating a behavioral shift at 4 meters from the sound source (Table 4.4-15 and Figure 4.4-7).

Table 4.4-15. Distances to Behavioral Onset Acoustic Thresholds for Fish, Sea Turtles, and Seabirds during Vessel Activity

Hearing Group	Fish < 2 grams	Fish ≥ 2 grams	Sea Turtles	Seabirds
Behavior Shift Distance (meters)	4.0	4.0	4.0	4.0

Source: PG&E, 2022a - Table 11.2.2-1.

Figure 4.4-7. Acoustical Impact Zones for Fish, Sea Turtles, and Seabirds during Vessel Activity



Source: PG&E, 2022a - Figure 11.3.2-6.

Table 4.4-16 summarizes the sensitivity, magnitude of impact for vessel activity, and impact category for each sensitive receptor. While vessel activity would not pose a high impact to any species; it would pose a moderate impact to the humpback whale and harbor porpoise; a minor impact to the gray whale and harbor seal, and a negligible impact to the 12 remaining species. Per the MMPA (see Section 4.4.2.2, *Marine Mammal Protection Act*), harassment means any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or that has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering, but does not have the potential to injure a marine mammal or marine mammal stock in the wild (Level B harassment). While mortality is unlikely due to Project-related activities, behavioral changes could occur that would be considered a significant impact (Level B harassment) for any

marine mammal or sea turtle (protected under FESA) that would be present within the impact zone.

Table 4.4-16. Summary of Sensitive Receptors with Sensitivity Ranking, Magnitude of Impact, and Impact Category for Vessel Activity

Scientific Name	Common Name	Hearing Group	Sensitivity Ranking	Magnitude of Impact	Impact Category
Megaptera novaeangliae	Humpback whale	Low-Frequency Cetacean	High	Small	Moderate
Eschrichtius robustus	California Gray Whale	Low-Frequency Cetacean	Medium	Small	Minor
Lagenorhynchus obliquidens	Pacific White-sided Dolphin	Mid-Frequency Cetacean	Low	Small	Negligible
Phocoena phocoena	Harbor Porpoise	High-Frequency Cetacean	High	Small	Moderate
Enhydra lutris nereis	Southern Sea Otter[1]	Otariid Pinniped	Low	Small	Negligible
Zalophus californianus	California Sea Lion	Otariid Pinniped	Low	Small	Negligible
Phoca vitulina richardii	Harbor seal	Phocid Pinniped	Medium	Small	Minor
Sebastes chrysomelas	Black and yellow rockfish	Fish	Low	Negligible	Negligible
Sebastes carnatus	Gopher rockfish	Fish	Low	Negligible	Negligible
Oxylebius pictus	Painted greenling	Fish	Low	Negligible	Negligible
Sebastes mystinus	Blue rockfish	Fish	Low	Negligible	Negligible
Embiotoca lateralis	Lined surfperch	Fish	Low	Negligible	Negligible
Oxyjulis californica	Señorita	Fish	Low	Negligible	Negligible
Chelonia mydas	Green Sea Turtle	Sea Turtle	Medium	Negligible	Negligible
Pelecanus occidentalis	California Brown pelican	Seabird	Low	Negligible	Negligible

Source: PG&E, 2022a - Table 11.3.3-1.
[1]Southern Sea Otters are technically fissipeds; however, their hearing most resembles otariid pinnipeds and were therefore classified as such in the impact analysis.

As part of the Proposed Project, PG&E would provide environmental awareness training and documentation for all construction personnel prior to start of any Project activities (AC BIO-1, *Worker's Environmental Awareness Training – Biological Resources*). The training would include photographs and a description of the ecology of all special-status species known, or with potential, to occur on site, as well as other sensitive resources requiring avoidance near the Project site. The training would also include an overview of the required avoidance, minimization, and mitigation measures and Project boundaries and avoidance area. Additionally, PG&E would implement measures that minimize impacts to all wildlife species during construction and complete reporting and documentation in the event of an inadvertent "take" of federal or state-listed species (AC BIO-2, *General Marine Operations and Wildlife Protection*, and AC BIO-5, *General Wildlife Protection*). To reduce impacts from Project-related vessel activities, MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) is recommended, which requires updating PG&E's Marine Wildlife Contingency Plan (PG&E, 2020b) to ensure that no harassment of marine mammals or other marine life occurs during offshore Project activities and

would require a description of the work activities; qualifications, number, location, and roles/ authority of MWOs; exclusion zones; and monitoring and reporting requirements. As such, impacts would be less than significant (Class II).

Discharge Structure Removal and Restoration Activity

The removal of the Discharge Structure requires construction of a cofferdam within Diablo Cove to isolate the work area from the ocean. Vibratory pile driving would be used for cofferdam construction activities. Noise modeling for two pile types (24-inch sheet piles and 24-inch pipe piles) was conducted for all receptor groups (PG&E, 2022a). The PTS threshold was calculated using the NOAA User Calculation Spreadsheet for vibratory pile driving. Behavioral shifts were calculated using the formula for transmission loss.

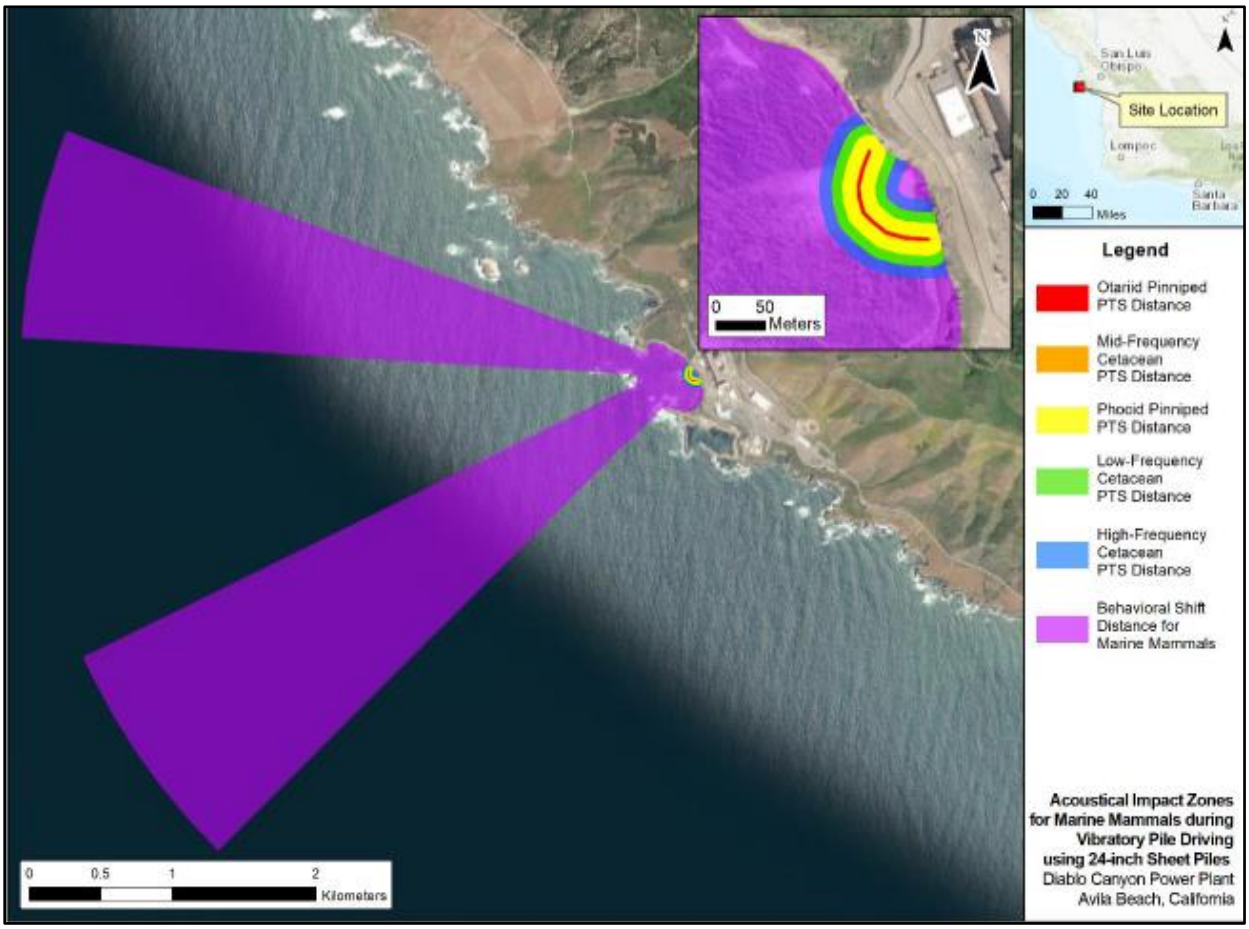
Table 4.4-17 presents the distance (one meter from the source) to the marine mammal isopleth threshold for each hearing group for sheet piles. The PTS distance ranged from 1.2 meters for Otariid pinnipeds to 40.2 meters for high-frequency cetaceans. Behavioral distances were generally higher at 4,642 meters from the source (PG&E, 2022a). Figure 4.4-8 illustrates the modeled impact zones for each marine mammal receptor group for vibratory pile driving using 24-inch sheet piles.

Table 4.4-17. Distance to the PTS and Behavioral Onset Acoustic Threshold for Marine Mammals during Vibratory Pile Driving Using 24-inch Sheet Piles

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Otariid Pinnipeds	Phocid Pinnipeds
PTS Distance, SEL_{cum} (meters)	27.2	2.4	40.2	1.2	16.5
Behavior Distance (meters)	4,642	4,642	4,642	4,642	4,642

Source: PG&E, 2022a - Table 11.2.1.1.
Acronyms: PTS-Permanent Threshold Shift; SEL_{cum} – Cumulative Sound Exposure Level

Figure 4.4-8. Acoustical Impact Zones for Marine Mammals during Vibratory Pile Driving Using 24-inch Sheet Piles



Source: PG&E, 2022a – Figure 11.2.1-1

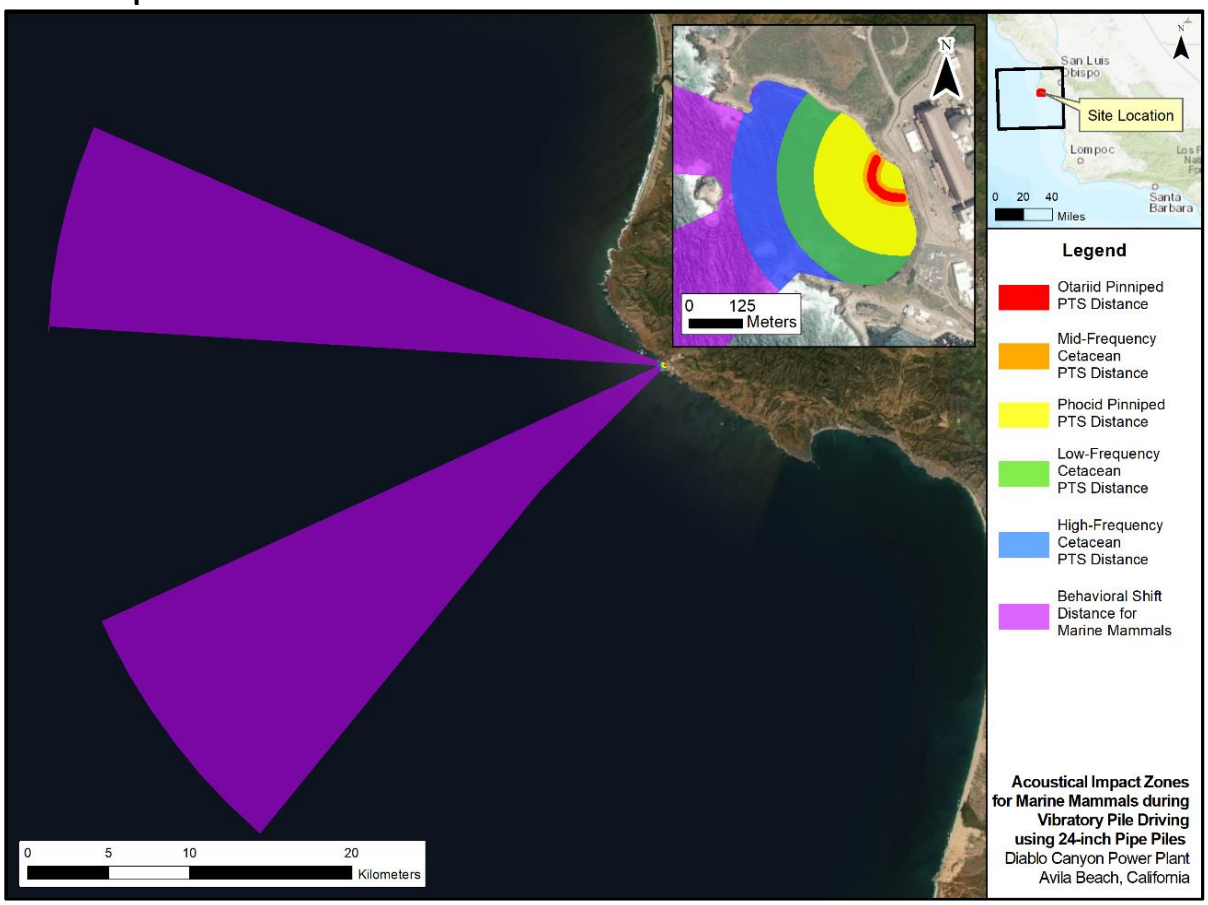
Table 4.4-18 presents the distance (one meter from the source) to the marine mammal isopleth threshold for each hearing group for pipe piles. The PTS distance ranged from 9.5 meters for Otariid pinnipeds to 329.7 meters for high-frequency cetaceans. Behavioral distances are generally higher at 38,072 meters from the source (PG&E, 2022a). Figure 4.4-9 illustrates the modeled exclusion zones for each marine mammal receptor group for vibratory pile driving using 24-inch pipe piles.

Table 4.4-18. Distance to the PTS and Behavioral Onset Acoustic Threshold for Marine Mammals during Vibratory Pile Driving Using 24-inch Pipe Piles

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Otariid Pinnipeds	Phocid Pinnipeds
PTS Distance, SEL_{cum} (meters)	223.0	19.8	329.7	9.5	135.6
Behavior Distance (meters)	38,072	38,072	38,072	38,072	38,072

Source: PG&E, 2022a - Table 11.2.1.2.
Acronyms: PTS-Permanent Threshold Shift; SEL_{cum}=Cumulative Sound Exposure Level

Figure 4.4-9. Acoustical Impact Zones for Marine Mammals during Vibratory Pile Driving Using 24-inch Pipe Piles



Source: PG&E, 2022a – Figure 11.2.1-2.

For fish, both the SEL_{cum} and peak Sound Pressure Level (SPL) for vibratory sheet pile driving have an impact zone of less than 0.3 meters from the sound source, while behavioral shifts would be observed 46 meters from the sound source (Table 4.4-19). For pipe pile driving, behavioral shifts would be observed 381 meters from the sound source (Table 4.4-19).

Table 4.4-19. Distance to the PTS and Behavioral Onset Acoustic Threshold for Fish during Vibratory Pile Driving Using 24-inch Sheet Piles and 24-inch Pipe Piles

	24-inch Sheet Piles		24-inch Pipe Piles	
Hearing Group	**Fish < 2 grams**	**Fish ≥ 2 grams**	**Fish < 2 grams**	**Fish ≥ 2 grams**
Onset of Physical Injury, Peak SPL (meters)	<0.3	<0.3	-	-
Onset of Physical Injury, SEL_{cum} (meters)	<0.3	<0.3	-	-
Behavior Distance (meters)	46	46	381	381

Source: PG&E, 2022a – Table 11.2.2-1.
Acronyms: SPL = Sound Pressure Level; SEL_{cum}=Cumulative Sound Exposure Level
- = No Peak or SEL_{cum} SPL for pipe piles

For sea turtles, thresholds were categorized as the onset of mortality or shift in behavior due to lack of existing data (PG&E, 2022a). Table 4.4-20 shows the distance for mortal injury or a behavior shift from the sound source for vibratory sheet pile driving, with an impact zone of less

than 0.005 meters from the sound source. Behavioral shifts would be observed 46 meters from the sound source (Table 4.4-20). For pipe pile driving, behavioral shifts would be observed 381 meters from the sound source (Table 4.4-20).

Table 4.4-20. Distances to Mortality and Behavioral Onset Acoustic Thresholds for Sea Turtles during Vibratory Pile Driving Using 24-inch Sheet Piles and 24-inch Pipe Piles

Hearing Group	24-inch Sheet Piles	24-inch Pipe Piles
	Sea Turtles	Sea Turtles
Mortality, Potential Mortal Injury Distance (meters)	<0.005	--
Behavioral Shift Distance (meters)	46	381

Source: PG&E, 2022a - Table 11.2.2-3.
- = No SEL_{cum} SPL for pipe piles

For seabirds, thresholds were categorized as auditory and non-auditory with regards to impact pile driving (PG&E, 2022a). Table 4.4-21 show the distance for mortal auditory injury, non-auditory injury, and behavioral shift from the sound source for vibratory sheet pile driving with an impact zone of less than 0.01 meters from the sound source. Behavioral shifts would be observed at 46 meters from the sound source (Table 4.4-21). For pipe pile driving, behavioral shifts would be observed 381 meters from the sound source (Table 4.4-21).

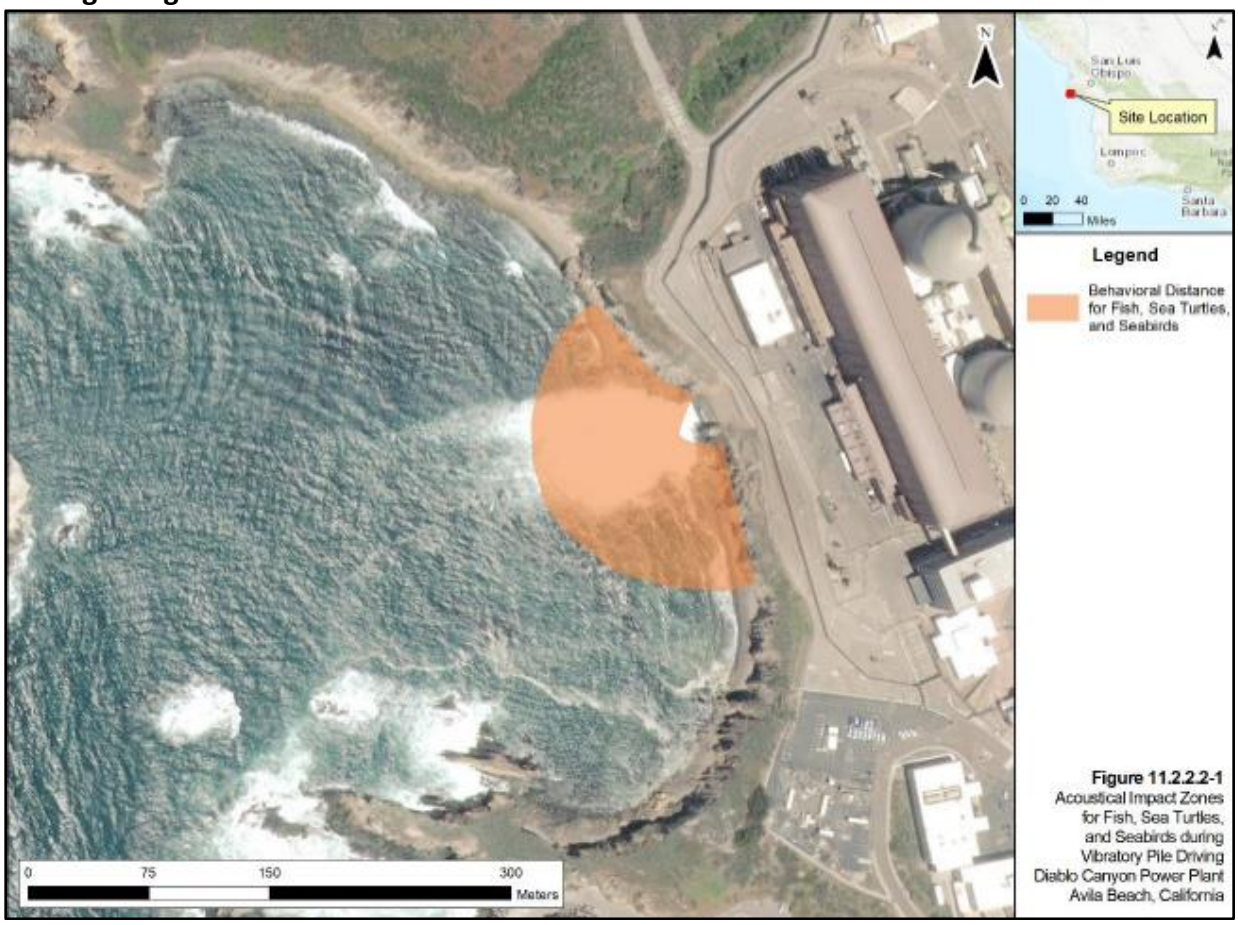
Table 4.4-21. Distances to Mortality and Behavioral Onset Acoustic Thresholds for Seabirds during Vibratory Pile Driving Using 24-inch Sheet Piles and 24-inch Pipe Piles

Hearing Group	24-inch Sheet Piles	24-inch Pipe Piles
	Seabirds	Seabirds
Auditory Injury Threshold Distance (meters)	<0.01	--
Non-auditory Injury Threshold Distance (meters)	<0.01	
Behavioral Distance (meters)	46	381

Source: PG&E, 2022a – Table 11.2.5-5.
- = No SEL_{cum} SPL for pipe piles

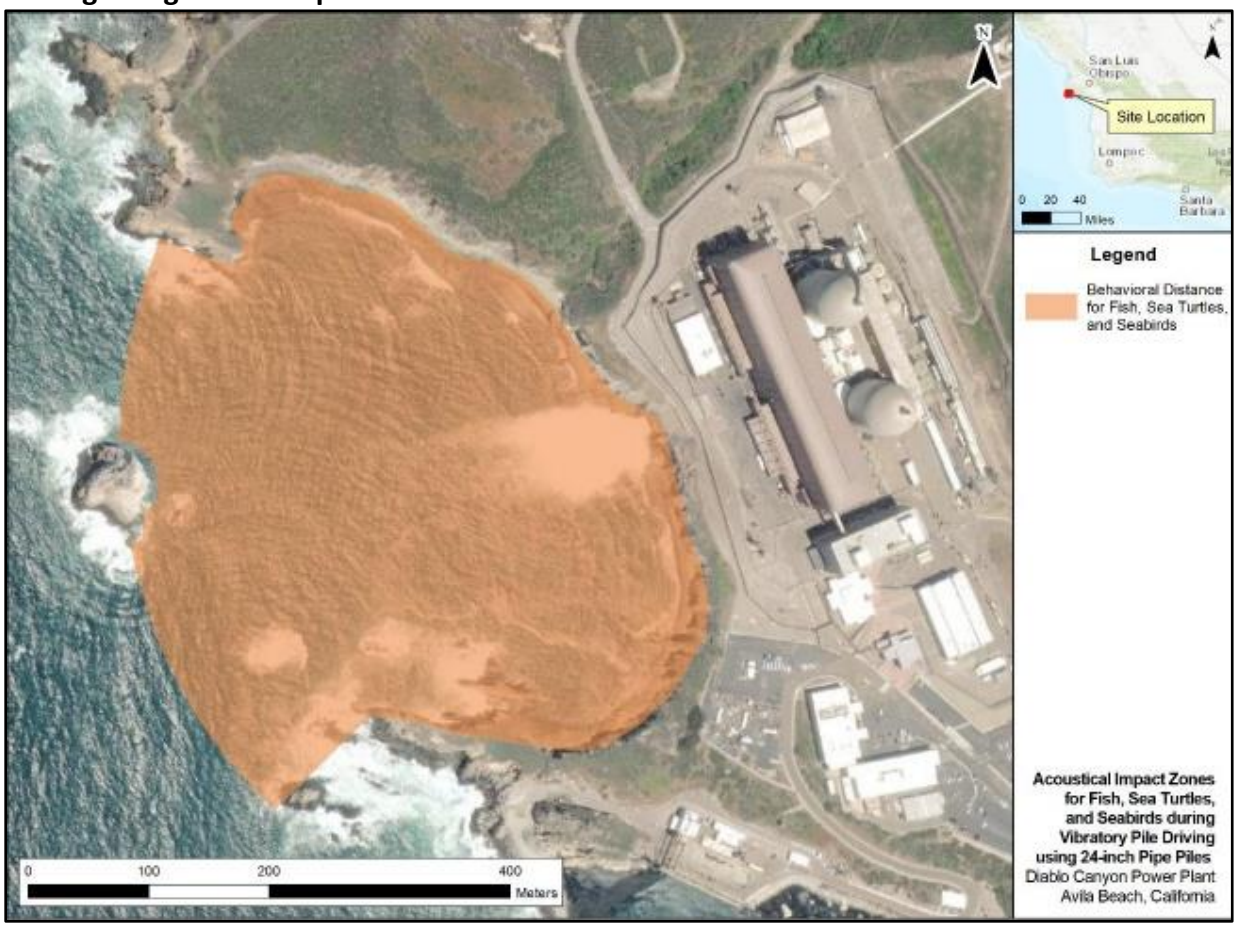
Figure 4.4-10 illustrates the acoustical impact zones for fish, sea turtles, and seabirds for 24-inch sheet piles, while Figure 4.4-11 illustrates the acoustical exclusion zones for fish, sea turtles, and seabirds for 24-inch pipe piles.

Figure 4.4-10. Acoustical Impact Zones for Fish, Sea Turtles, and Seabirds during Vibratory Pile Driving Using 24-inch Sheet Piles



Source: PG&E, 2022a – Figure 11.2.2-3.

Figure 4.4-11. Acoustical Impact Zones for Fish, Sea Turtles, and Seabirds during Vibratory Pile Driving Using 24-inch Pipe Piles



Source: PG&E, 2022a – Figure 11.2.2-4.

Table 4.4-22 summarizes the sensitivity, magnitude of impact for vibratory pile driving for both pile types, and impact category for each sensitive receptor. Vibratory pile driving using 24-inch sheet piles would: (1) not pose a major impact to any species, (2) pose a moderate impact to the humpback whale and harbor porpoise, (3) pose a minor impact to the gray whale and harbor seal, and (4) pose a negligible impact to the 11 remaining species listed in Table 4.4-22. Vibratory pile driving using 24-inch pipe piles would: (1) not pose a major impact to any species; (2) pose a moderate impact to the humpback whale and harbor porpoise; and (3) pose a minor impact to the gray whale, harbor seal, black/yellow rockfishes, gopher rockfishes, painted greenlings, blue rockfishes, lined surfperch, senoritas, green sea turtles, and the California brown pelican. While fishes and seabirds may be disturbed from their natural activities due to Project-related activities, they are generally mobile organisms, and would be able to adjust to the short-term effects of noise-generating activities by moving to other locations. Similar to the waste transportation activities, while mortality is unlikely due to Project-related activities, behavioral changes could occur that would be considered a significant impact (Level B harassment) for any marine mammal or sea turtle (protected under FESA) that would be present within the impact zone.

Table 4.4-22. Summary of Sensitive Receptors with Sensitivity Ranking, Magnitude of Impact, and Impact Category for Vibratory Pile Driving for Both Pile Types

Scientific Name	Common Name	Hearing Group	Sensitivity Ranking	Magnitude of Impact	Impact Category
Megaptera novaeangliae	Humpback whale	Low-Frequency Cetacean	High	Small	Moderate
Eschrichtius robustus	California Gray Whale	Low-Frequency Cetacean	Medium	Small	Minor
Lagenorhynchus obliquidens	Pacific White-sided Dolphin	Mid-Frequency Cetacean	Low	Small	Negligible
Phocoena phocoena	Harbor Porpoise	High-Frequency Cetacean	High	Small	Moderate
Enhydra lutris nereis	Southern Sea Otter[1]	Otariid Pinniped	Low	Small	Negligible
Zalophus californianus	California Sea Lion	Otariid Pinniped	Low	Small	Negligible
Phoca vitulina richardii	Harbor seal	Phocid Pinniped	Medium	Small	Minor
Sebastes chrysomelas	Black and yellow rockfish	Fish	Low	Negligible (SP) Small (PP)	Negligible (SP) Minor (PP)
Sebastes carnatus	Gopher rockfish	Fish	Low	Negligible (SP) Small (PP)	Negligible (SP) Minor (PP)
Oxylebius pictus	Painted greenling	Fish	Low	Negligible (SP) Small (PP)	Negligible (SP) Minor (PP)
Sebastes mystinus	Blue rockfish	Fish	Low	Negligible (SP) Small (PP)	Negligible (SP) Minor (PP)
Embiotoca lateralis	Lined surfperch	Fish	Low	Negligible (SP) Small (PP)	Negligible (SP) Minor (PP)
Oxyjulis californica	Señorita	Fish	Low	Negligible (SP) Small (PP)	Negligible (SP) Minor (PP)
Chelonia mydas	Green Sea Turtle	Sea Turtle	Medium	Negligible (SP) Small (PP)	Negligible (SP) Minor (PP)
Pelecanus occidentalis	California Brown pelican	Seabird	Low	Negligible (SP) Small (PP)	Negligible (SP) Minor (PP)

Source: PG&E, 2022a - Table 11.7.3-1.
Acronyms: SP: sheet pile; PP: pipe pile
[1] Southern Sea Otters are technically fissipeds; however, their hearing most resembles otariid pinnipeds and were therefore classified as such in the impact analysis.

As part of the Proposed Project, PG&E would provide environmental awareness training and documentation for all construction personnel prior to start of any Project activities (AC BIO-1, *Worker's Environmental Awareness Training – Biological Resources*). The training would include photographs and a description of the ecology of all special-status species known, or with potential, to occur on site, as well as other sensitive resources requiring avoidance near the Project site. The training would also include an overview of the required avoidance, minimization,

and mitigation measures and Project boundaries and avoidance area. Additionally, PG&E would implement measures that minimize impacts to all wildlife species during construction and complete reporting and documentation in the event of an inadvertent "take" of federal or state-listed species (AC BIO-2, *General Marine Operations and Wildlife Protection*, and AC BIO-5, *General Wildlife Protection*). To reduce impacts from Project-related activities, MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) is recommended, which requires updating PG&E's Marine Wildlife Contingency Plan (PG&E, 2020b) to ensure that no harassment of marine mammals or other marine life occurs during offshore Project activities and would require a description of the work activities; qualifications, number, location, and roles/ authority of MWOs; exclusion zones; and monitoring and reporting requirements. As such, impacts would be less than significant (Class II).

Water Management Activity

No noise sources are anticipated from the water management activities; therefore, no impacts from noise to marine biological resources are expected.

Phase 2

Discharge Structure Removal and Restoration Activity

Discharge Structure removal and restoration activities are anticipated to extend into Phase 2 and conclude in 2033. Impacts associated with this activity are discussed under Phase 1 and are expected to be similar in Phase 2, and would be mitigated through implementation of MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) resulting in a less-than-significant impact (Class II).

Intake Structure Closure Activity

Intake Structure closure would entail sealing the structure with precast concrete bulkheads that would be installed on the existing structure and backfilling the void with CLSM. Construction is anticipated to occur from on top of the Intake Structure with no in-water equipment; however, it is anticipated that some underwater noise would be generated from the activity although it would be expected to be substantially less than that produced by the Discharge Structure Removal Activity as no pile driving is expected. Similar to the Discharge Structure Removal Activity, while fishes and seabirds may be disturbed from their natural activities due to Project-related activities, they are generally mobile organisms, and would be able to adjust to the short-term effects of noise-generating activities by moving to other locations. For marine mammals and sea turtles, while mortality is unlikely due to Project-related activities; behavioral changes could occur that would be considered a significant impact (Level B harassment) for any marine mammal or sea turtle (protected under FESA and CESA) present within the impact zone.

As part of the Proposed Project, PG&E would provide environmental awareness training and documentation for all construction personnel prior to start of any Project activities (AC BIO-1, *Worker's Environmental Awareness Training – Biological Resources*). The training would include photographs and a description of the ecology of all special-status species known, or with potential, to occur on site, as well as other sensitive resources requiring avoidance near the Project site. The training would also include an overview of the required avoidance, minimization, and

mitigation measures and Project boundaries and avoidance area. Additionally, PG&E would implement measures that minimize impacts to all wildlife species during construction and complete reporting and documentation in the event of an inadvertent "take" of federal or state-listed species (AC BIO-2, *General Marine Operations and Wildlife Protection*, and AC BIO-5, *General Wildlife Protection*). To reduce impacts from Project-related activities, MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) is recommended, which requires updating PG&E's Marine Wildlife Contingency Plan (PG&E, 2020b) to ensure that no harassment of marine mammals or other marine life occurs during offshore Project activities and would require a description of the work activities; qualifications, number, location, and roles/ authority of MWOs; exclusion zones; and monitoring and reporting requirements. As such, impacts would be less than significant (Class II).

Post-Decommissioning Operations

New Facility Operations. Following Phase 2, activities at the DCPP site associated with the Proposed Project include operation of the new GTCC Storage Facility, Security Building, indoor Firing Range, and Storage Buildings. No in-water noise sources are anticipated from new facility operations; therefore, no impacts from noise to marine biological resources are expected.

Future Actions. All Marina improvements for establishing reuse are anticipated to occur on top of the Intake Structure or upland with, the exception of the installation of up to five mooring buoys in the Marina required per MM MBIO-9 (*Mooring Placement Habitat Survey*). MM MBIO-9 requires a pre-construction habitat survey be conducted prior to mooring installation to delineate sensitive habitats such as eelgrass beds and rocky reefs. It is assumed that moorings would consist of an anchor placed on soft-bottom substrate with the main source of noise being vessel traffic during buoy installation. Given the relatively low noise source, low number of anticipated vessels, and the relatively minor behavioral response anticipated from the operation of small vessels supporting the buoy installation, impacts from vessel use for mooring installation would be less than significant (Class III). Seabirds may be disturbed from their natural activities due to Project-related activities, but they are mobile organisms and would be able to adjust to the short-term effects of noise-generating activities by moving to other locations.

Marina operations would also result in an increase in small vessel use (i.e., vessels that could be launched using the boat hoist). Unlike crew or tugboats, these vessels are generally small and would operate intermittently within and outside the Intake Cove. Larger vessels create stronger and lower frequency sounds because of their greater power, large drafts, and slower turning engines and propellers; however, even small vessels can create sounds that would exceed the acoustic thresholds for non-impulsive, continuous noise (NMFS, 2018b). Therefore, any increase in ambient noise levels due to increased vessel activity would result in noise levels sufficient for disturbing marine mammals and sea turtles; however, given the relatively low noise source, low number of anticipated vessels, and the relatively minor behavioral response anticipated from small vessel operations, impacts from vessel use would be less than significant (Class III).

Mitigation Measures for Impact MBIO-3.

MBIO-7 Marine Mammal and Sea Turtle Mitigation and Monitoring Plan

Impact MBIO-4: Release pollutants into receiving water during decommissioning activities (Class I: Significant and Unavoidable).

Phase 1

DCPP Project Site

Waste Transportation Activity

Potential impacts from waste transportation activities to receiving waters includes increased vessel activity that may result in fuel or oil spills. Fuel or hydraulic leaks could occur from vessels or equipment positioned on vessels or barges. A fuel or oil spill could impact all marine biological resources; although, since fuel or oil would tend to float, the water surface and intertidal and shallow subtidal habitats and associated biological communities would be at greatest risk. Due to its location in the low intertidal and shallow subtidal zone, black abalone critical habitat would be especially vulnerable to fuel or oil spills. Effects on subtidal communities would be less apparent, but kelp canopies at or near the surface would also be vulnerable as would seabirds, fishes, marine mammals, and sea turtles that occur in the upper water column and surface waters. In addition, toxic components of a spill could spread to and degrade adjacent marine habitats due to ocean currents and weather conditions and could potentially bioaccumulate to higher trophic levels. While the consequence of a spill would result in the high likelihood of substantial degradation of marine habitats including receiving waters and critical habitat for listed species, and would be considered a significant impact.

As part of the Proposed Project, PG&E would provide environmental awareness training and documentation for all construction personnel prior to start of any Project activities (AC BIO-1, *Worker's Environmental Awareness Training – Biological Resources*). The training includes photo-graphs and a description of the ecology of all special-status species known, or with potential, to occur on site, as well as other sensitive resources requiring avoidance near the Project site. The training also includes an overview of the required avoidance, minimization, and mitigation measures and Project boundaries and avoidance area. Additionally, PG&E would implement measures that requires that construction equipment be inspected by the operator daily to ensure that equipment is in good working order and no fuel or lubricant leaks are present (AC BIO-4, *Site Maintenance and General Operations*).

To reduce impacts to receiving waters and adjacent marine habitats, MM MBIO-8 (*Oil Spill Response Plan*) is recommended, which requires updating PG&E's Oil Spill Response Plan (PG&E, 2022e) to include at a minimum, a description of the Project scope-of-work and geographic area, pre-work planning needed to prepare for a possible nearshore oil spill, initial response procedures including agency notifications and onsite team communications, how the waste from the oil spill would be handled and disposed of, and a description of how the area would be decontaminated and how any contaminated materials handled. As such, impacts would be less than significant (Class II).

Discharge Structure Removal and Restoration Activity

Similar to the Waste Transportation Activity, impacts to receiving waters includes potential fuel or oil spills but also includes increased turbidity associated with cofferdam construction that includes pile driving and filling to seal the structure, as well as, dewatering the enclosed area. No details have been provided on the method of dewatering, but it is assumed that dewatered seawater would be pumped out of the confined area and discharged into the ocean. Each of these actions has the potential to increase turbidity in adjacent receiving waters, which may lower dissolved oxygen in the immediate vicinity of the discharge point, and could reduce foraging for fishes, seabirds, and marine mammals, as well as increase sedimentation on rocky reef and canopy kelp habitat in the area.

As part of the Proposed Project, PG&E would provide environmental awareness training and documentation for all construction personnel prior to start of any Project activities (AC BIO-1, *Worker's Environmental Awareness Training – Biological Resources*). The training includes photographs and a description of the ecology of all special-status species known, or with potential, to occur on site, as well as other sensitive resources requiring avoidance near the Project site. The training also includes an overview of the required avoidance, minimization, and mitigation measures and Project boundaries and avoidance area. Additionally, PG&E would implement measures that requires that construction equipment be inspected by the operator daily to ensure that equipment is in good working order and no fuel or lubricant leaks are present (AC BIO-4, *Site Maintenance and General Operations*).

To reduce potential impacts to receiving waters, and marine mammals and sea turtles, MM MBIO-3 (*Water Quality Monitoring Plan*), MM MBIO-4 (*Cofferdam Installation and Dewatering Plan*), MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*), and MM MBIO-8 (*Oil Spill Response Plan*) are recommended. MM MBIO-8 (*Oil Spill Response Plan*) would require updating PG&E's Oil Spill Response Plan (PG&E, 2022e) to include at a minimum, a description of the Project scope-of-work and geographic area, pre-work planning needed to prepare for a possible nearshore oil spill, initial response procedures including agency notifications and onsite team communications, how the waste from the oil spill will be handled and disposed of, and a description of how the area will be decontaminated and how any contaminated materials will be handled. MM MBIO-3 (*Water Quality Monitoring Plan*) would require PG&E to update the Turbidity Monitoring Plan to include monitoring for turbidity and other water quality parameters such as dissolved oxygen to ensure that Project-related activities were not contributing to conditions that could degrade sensitive marine habitats. If water quality monitoring detected persistent and elevated levels of turbidity, BMPs would be implemented to avoid or minimize turbidity impacts to receiving waters and adjacent habitats. MM MBIO-4 (*Cofferdam Installation and Dewatering Plan*) would require PG&E to develop a plan to avoid impacts to marine biological resources, receiving waters, sensitive habitats, and potentially protected species from all aspects associated with cofferdam construction and removal. The plan would require tasks such as a pre-construction habitat and biological survey, an approach to relocate marine life, and dewatering controls to minimize turbidity, and inspection schedule to ensure compliance. MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*) would require updating PG&E's Marine Wildlife Contingency Plan (PG&E, 2020b) to ensure that no harassment of marine mammals or other marine life occurs during offshore Project activities and would require a

description of the work activities; a risk analysis; qualifications, number, location, and roles/ authority of MWOs; exclusion zones; and monitoring and reporting requirements. However, because of the uncertainty associated with the success of relocation of black abalone (per MM MBIO-4), impacts would remain significant and unavoidable (Class I).

Shore-based construction activities may lead to runoff or sedimentation from stormwater or other discharges. Sedimentation could bury marine habitats, turbidity can reduce light penetration and affect primary productivity and affect other water quality parameters such as dissolved oxygen levels, while runoff can transport toxic pollutants from surfaces, such as vehicle parking or construction staging areas. These stressors could degrade water column habitat, rocky intertidal and subtidal habitat, and affect surfgrass and kelp canopy habitats, both of which are considered EFH HAPC, in addition to black abalone critical habitat. Impacts related to runoff and effects on water quality are discussed in Section 4.11, *Hydrology and Water Quality*, under Impact HWQ-1. Additionally Impact HWQ-3 discusses impacts related to degradation of marine water quality.

Water Management Activity

Impacts associated with brine and wastewater discharge from water management activities are discussed under Impact MBIO-1, and as discussed, impacts from brine and wastewater discharge in Diablo Cove during decreased OTC flows would be less than significant (Class III). Also discussed under Impact MBIO-1, impacts to water quality from the reduction and cessation of flows within the Intake Cove would be less than significant (Class III).

Phase 2

Discharge Structure Removal and Restoration Activity

Discharge Structure removal and restoration activities are anticipated to extend into Phase 2 and conclude in 2033. Impacts associated with this activity are discussed under Phase 1 and are expected to be similar in Phase 2, and would be mitigated to the extent feasible through implementation of MM MBIO-3 (*Water Quality Monitoring Plan*), MM MBIO-4 (*Cofferdam Installation and Dewatering Plan*), and MM MBIO-7 (*Marine Mammal and Sea Turtle Mitigation and Monitoring Plan*). However, because of the uncertainty associated with the success of relocation of black abalone (MM MBIO-4), impacts would remain significant and unavoidable (Class I).

Intake Structure Closure Activity

Construction activities associated with closing the Intake Structure are anticipated to occur from on top of the Intake Structure with no in-water equipment. Shore-based construction may lead to runoff or sedimentation from stormwater or other discharges. Sedimentation could bury marine habitats, turbidity can reduce light penetration and affect primary productivity and affect other water quality parameters such as dissolved oxygen levels, while runoff can transport toxic pollutants from surfaces, such as vehicle parking or construction staging areas. These stressors could degrade water column habitat, rocky intertidal and subtidal habitat, and affect eelgrass and kelp canopy habitats, both of which are considered EFH HAPC, in addition to black abalone critical habitat. As part of the Proposed Project, PG&E would prepare a site-specific Stormwater Pollution Prevention Plan (SWPPP) that identifies potential pollutant sources vulnerable to

rainwater events along the coastal bluffs, including pathways that lead to the intertidal zone and ocean, and identify a series of BMPs to ensure adequate prevention of slope erosion and silt and sedimentation impacts to adjacent intertidal areas (AC BIO-3, *Site-Specific Stormwater Pollution Prevention Plan*). Additionally, construction equipment would be inspected by the operator daily to ensure that equipment is in good working order and no fuel or lubricant leaks are present (AC BIO-4, *Site Maintenance and General Operations*).

In addition, some seafloor disturbance may occur when installing the bulkheads which may increase turbidity in adjacent receiving waters. As discussed for the waste transportation activity, implementation of MM MBIO-3 (*Water Quality Monitoring Plan*) would require PG&E to update the Turbidity Monitoring Plan to include monitoring for turbidity and other water quality parameters such as dissolved oxygen to ensure that Project-related activities were not contributing to conditions that could degrade sensitive marine habitats. If water quality monitoring detected persistent and elevated levels of turbidity, BMPs would be implemented to avoid turbidity impacts to receiving waters and adjacent habitats. As such, potential impacts from closing the Intake Structure to receiving waters would be reduced to a less-than-significant level (Class II). Impacts associated with brine and wastewater discharge from water management activities are discussed under Impact MBIO-1, and as discussed, impacts from brine and wastewater discharge during cessations of OTC flows would be less than significant (Class III).

Post-Decommissioning Operations

New Facility Operations. Following Phase 2, activities at the DCPP site associated with the Proposed Project include operation of the new GTCC Storage Facility, Security Building, indoor Firing Range, and Storage Buildings. Shore-based activities may lead to runoff or sedimentation from stormwater or other discharges. Sedimentation could bury marine habitats, turbidity could reduce light penetration and affect primary productivity and affect other water quality parameters such as dissolved oxygen levels, while runoff could transport toxic pollutants from surfaces, such as vehicle parking or construction staging areas. These stressors could degrade water column habitat, rocky intertidal and subtidal habitat, and affect surfgrass and kelp canopy habitats, both of which are considered EFH HAPC, in addition to black abalone critical habitat. The degradation of these habitats would be considered a significant impact.

As part of the Proposed Project, PG&E would prepare a site-specific SWPPP that identifies potential pollutant sources vulnerable to rainwater events along the coastal bluffs, including pathways that lead to the intertidal zone and ocean, and identify a series of BMPs to ensure adequate prevention of slope erosion and silt and sedimentation impacts to adjacent intertidal areas (AC BIO-3, *Site-Specific Stormwater Pollution Prevention Plan*). Additionally, construction equipment would be inspected by the operator daily to ensure that equipment is in good working order and no fuel or lubricant leaks are present (AC BIO-4, *Site Maintenance and General Operations*). As such, impacts would be less than significant (Class III).

Future Actions. Construction of Marina improvements are anticipated to occur on top of the Intake Structure or upland with no in-water construction. Similar to the Discharge Structure removal activities, shore-based construction activities may lead to runoff or sedimentation from stormwater or other discharges. Sedimentation could bury marine habitats, turbidity could reduce light penetration and affect primary productivity and affect other water quality

parameters such as dissolved oxygen levels, while runoff could transport toxic pollutants from surfaces, such as vehicle parking or construction staging areas. These stressors could degrade water column habitat, rocky intertidal and subtidal habitat, and affect surfgrass and kelp canopy habitats, both of which are considered EFH HAPC, in addition to black abalone critical habitat. The degradation of these habitats is considered a significant impact.

As part of the Proposed Project, PG&E would prepare a site-specific SWPPP that identifies potential pollutant sources vulnerable to rainwater events along the coastal bluffs, including pathways that lead to the intertidal zone and ocean, and identify a series of BMPs to ensure adequate prevention of slope erosion and silt and sedimentation impacts to adjacent intertidal areas (AC BIO-3, *Site-Specific Stormwater Pollution Prevention Plan*). Additionally, construction equipment would be inspected by the operator daily to ensure that equipment is in good working order and no fuel or lubricant leaks are present (AC BIO-4, *Site Maintenance and General Operations*). As such, impacts would be less than significant (Class III).

Another potential impact to marine biological resources would be from operational activities and could include potential fuel or oil spills, as well as stormwater runoff. These stressors could degrade water column habitat, rocky intertidal and subtidal habitat, and affect surfgrass and kelp canopy habitats, both of which are considered EFH HAPC, in addition to black abalone critical habitat. The degradation of these habitats is considered a significant impact; however, implementation MM HWQ-3 (*Clean Marina Lease Provisions*) would require PG&E to include a Clean Marina provision in any future lease for the Marina's use with reporting and enforcement criteria and would reduce impacts to a less than significant level (Class II).

Mitigation Measures for Impact MBIO-4.

MBIO-3 Water Quality Monitoring Plan

MBIO-4 Cofferdam Installation and Dewatering Plan

MBIO-7 Marine Mammal and Sea Turtle Mitigation and Monitoring Plan

MBIO-8 Oil Spill Response Plan

HWQ-3 Clean Marina Lease Provisions. See Section 4.11.

Residual Impacts. Due to the uncertainty associated with the success of relocation of black abalone (MMs MBIO-4), impacts associated with Discharge Structure removal and restoration activities in Phases 1 and 2 of the Proposed Project and the potential to release pollutants into receiving water would remain significant and unavoidable (Class I).

Impact MBIO-5: Introduce invasive non-native marine species during decontamination and dismantlement activities (Class II: Less than Significant with Mitigation).

Phase 1

DCPP Project Site

Waste Transportation Activity

Potential impacts from waste transportation activities include increased vessel activity that may introduce NAS. Many invasive NAS are introduced by boat traffic, either as encrusting organisms

on the hulls and other submerged parts of vessels, or when ballast water is discharged from vessels. The introduction of NAS is a significant impact and can result in displacement of native fauna and flora, altering native habitats and ecosystem function, and dramatic changes in community structure.

Ports and harbors and adjacent areas are typically vulnerable to NAS, as the bulk of marine traffic is concentrated in these areas. It is not certain where barges and vessels used for the Proposed Project would originate, but if NAS are resident within the harbor facility, NAS could be transported from the harbor facility to the waste disposal location and the DCPP area during the transit to and from the port facility. The transfer of NAS from the waste disposal location or DCPP area is less likely as the vessels are not expected to remain within the DCPP area or disposal location for a sufficient length of time for NAS to establish on the hulls. In addition, ballast water discharge and recharge are strictly controlled within major harbors and waterways for large vessels, and therefore this vector is also an unlikely source for NAS transfer from the harbor, waste disposal locations, or DCPP area. While unlikely, the transfer of NAS between potential harbor facilities, waste disposal locations, and the DCPP area would be a significant impact; however, with the inclusion of MM MBIO-10 (*Non-Native Aquatic Species Measures*), the impact would be less than significant (Class II).

MM MBIO-10 (*Non-Native Aquatic Species Measures*) requires PG&E to verify that all Project vessels originate from a local harbor or port, or have underwater surfaces cleaned before entering southern or central California prior to transiting to the DCPP area or disposal locations, as well as comply with applicable CSLC regulations or standards including Ballast Water Management Regulations, Biofouling Management Requirements, and/or Ballast Water Discharge Performance Standards.

Discharge Structure Removal and Restoration Activity

The Discharge Structure Removal and Restoration Activity also includes increased vessel traffic which could increase the potential for introduction of NAS. As discussed for the waste transportation activities, inclusion of MM MBIO-10 (*Non-Native Aquatic Species Measures*) would reduce impacts from increased vessel traffic on NAS to less than significant (Class II).

Another element of the Discharge Structure removal and restoration activity includes the direct impact to intertidal and subtidal benthic habitat during cofferdam installation, dewatering, and Discharge Structure removal. A potential concern from bottom disturbing activities is the spread or infestation of *Caulerpa*, a group of green algae that are not native to California. Infestations from two *Caulerpa* species, *C. taxifolia* and *C. prolifera*, have been detected in California, and both species can rapidly colonize new areas from small fragments and have the potential to cause substantial negative impacts on native ecosystems. In order to detect existing infestations, as well as avoid the spread of these invasive species within other systems, the *Caulerpa* Control Protocol includes provisions for California nearshore coastal and enclosed bays, estuaries, and harbors from Morro Bay to the US/Mexican border that outlines the certification, survey, and reporting guidelines required when surveying for all *Caulerpa* species (NMFS, 2021). If *Caulerpa* were present within the Discharge Structure Removal footprint, impacts would be considered significant and construction would be prohibited; however, with implementation of MM

MBIO-11 (*Pre-Construction* Caulerpa *Survey*) impacts would be reduced to less than significant (Class II).

MM MBIO-10 (*Non-Native Aquatic Species Measures*) requires PG&E to verify that all Project vessels originate from a local harbor or port, or have underwater surfaces cleaned before entering southern or central California prior to transiting to the DCPP area or disposal locations, as well as comply with applicable CSLC regulations or standards including Ballast Water Management Regulations, Biofouling Management Requirements, and/or Ballast Water Discharge Performance Standards. MM MBIO-11 (*Pre-Construction* Caulerpa *Survey*) requires PG&E to conduct a pre-construction survey for *Caulerpa* in accordance with the *Caulerpa* Control Protocols (NMFS, 2021) prior to initiation of any authorized bottom disturbing activity, and to submit findings to the NOAA Fisheries/CDFW within 15 calendar days of completion of survey.

Water Management Activity

No actions associated with the water management activities are expected to introduce NAS, therefore no impact would occur.

Phase 2

Discharge Structure Removal and Restoration Activity

Discharge Structure removal and restoration activities are anticipated to extend into Phase 2 and conclude in 2033. Impacts associated with this activity are discussed under Phase 1 and are expected to be similar in Phase 2, and would be mitigated through implementation of MM MBIO-10 (*Non-Native Aquatic Species Measures*) and MM MBIO-11 (*Pre-Construction* Caulerpa *Survey*) resulting in a less-than-significant impact (Class II).

Intake Structure Closure Activity

No vessels or other in-water equipment would be used during the Intake Structure Closure Activity; however, potential bottom disturbance could occur with installation of the bulkheads. Similar to the Discharge Structure Removal Activity, there is concern about the spread or infestation of *Caulerpa*. No *Caulerpa* was detected during a recent survey in front of the Intake Structure (PG&E, 2021a); however, in order to detect existing infestations, as well as, avoid the spread of these invasive species within other systems, the *Caulerpa* Control Protocol (NMFS, 2021) includes provisions for California nearshore coastal and enclosed bays, estuaries, and harbors from Morro Bay to the US/Mexican border that outlines the certification, survey, and reporting guidelines required when surveying for all *Caulerpa* species. If *Caulerpa* were present within the Intake Structure construction footprint, impacts would be considered significant; however, with implementation of MM MBIO-11 (*Pre-Construction* Caulerpa *Survey*) impacts would be reduced to less than significant (Class II).

MM MBIO-11 (*Pre-Construction* Caulerpa *Survey*) requires the Applicant or their designee to conduct a pre-construction survey for *Caulerpa* in accordance with the *Caulerpa* Control Protocols (NMFS, 2021) prior to initiation of any authorized bottom disturbing activity, and to submit findings to the NOAA Fisheries/CDFW within 15 calendar days of completion of survey.

Post-Decommissioning Operations

New Facility Operations. Following Phase 2, activities at the DCPP site associated with the Proposed Project include operation of the new GTCC Storage Facility, Security Building, indoor Firing Range, and Storage Buildings. Since no in-water operations are anticipated, no impacts from NAS would be expected.

Future Actions. Installation of mooring buoys, as well as future operational activities, could potentially introduce NAS from vessel activities. This is unlikely to occur since it is assumed that any commercial vessel used for mooring installation would originate from a local harbor, and most small vessels do not have holds that could support NAS species, and since they are generally stored on trailers, any encrusting or attached species would perish due to desiccation. However, the introduction of NAS could degrade marine habitats and species and is considered a significant impact. Implementation of MM HWQ-3 (*Clean Marina Lease Provisions*) would require PG&E to include a Clean Marina provision in any future lease for the Marina's use and would reduce impacts to a less-than-significant level (Class II).

Mitigation Measures for Impact MBIO-5.

MBIO-10 **Non-Native Aquatic Species Measures.** To prevent the introduction of Non-Native Aquatic Species (NAS), during Phase 1 and prior to issuance of permits for in-water construction requiring vessels or other floating platforms (e.g., barges), the Applicant or its designee shall verify that all Project vessels: (1) Originate from a local harbor or port, or have underwater surfaces cleaned before entering southern or central California and immediately prior to transiting to the DCPP area or disposal locations; and (2) Comply with applicable CSLC regulations or standards including Ballast Water Management Regulations, Biofouling Management Requirements, and/or Ballast Water Discharge Performance Standards, including reporting procedures. Documentation shall be submitted to the County and CSLC at least 30 calendar days prior to start of construction.

MBIO-11 **Pre-Construction *Caulerpa* Survey.** During Phase 1 and Phase 2, and prior to initiation of any authorized bottom disturbing activity, the Applicant or its designee shall conduct a pre-construction survey for *Caulerpa* in accordance with the *Caulerpa* Control Protocols (NMFS, 2021). The survey shall be conducted by a certified surveyor at a Surveillance Level of the Project area to determine the presence or absence of *Caulerpa*. Survey work shall be completed not earlier than 90 days prior to the bottom disturbing activity and not later than 30 days prior to the bottom disturbing activity and shall be completed, to the extent feasible, during the high growth period of March 1 – October 31. Survey findings shall be submitted to the County, NOAA Fisheries, and CDFW within 15 calendar days of completion of survey. If *Caulerpa* is found, then the NOAA Fisheries/CDFW Contacts shall be notified within 24 hours of the discovery. Within seven days of notification, NOAA Fisheries and CDFW will coordinate with the Southern California *Caulerpa* Action Team (SCCAT) and relevant permitting and resource agencies (and project proponent, as warranted) to fully document the extent of the *Caulerpa* infestation within the Project area. *Caulerpa* eradication activities, which are subject to review and approval by NOAA Fisheries and CDFW, in coor-

dination with the SCCAT and relevant permitting and resource agencies, shall be undertaken using the best available technologies at the time and will depend upon the specific circumstances of the infestation.

HWQ-3 Clean Marina Lease Provisions. See Section 4.11.

4.4.5 Cumulative Impact Analysis

Geographic Extent Context

For marine biological resources, of the reasonably foreseeable projects noted in Table 3-1, eight include offshore projects that may not fall within the general geographic area of DCPP; however, Project-activities include the use of ocean-going vessels and support equipment that may utilize both nearshore and offshore transportation corridors to/from DCPP, local/regional harbors, as well as potential disposal locations in Oregon. The offshore projects considered for potential cumulative impacts related to marine biological resources include:

- Vandenberg Offshore Wind Energy Projects (#18)
- South Ellwood Project (#19)
- Rincon Onshore and Offshore Facilities (#20)
- Chumash Heritage Marine Sanctuary Project (#21)
- Morro Bay Wind Energy Area (#22)
- Humboldt Wind Energy Area (#23)
- PacWave South Project (#24)
- Port San Luis Breakwater Repair (#25)

Four projects (#18, 22, 23, and 24) are offshore wind or wave energy projects ranging from Newport, Oregon to Point Arguello, California, while three projects are nearshore marine construction projects located in Ventura, California (#20); Goleta, California (#19); and Port San Luis, California (#25) (see Table 3-1). One project (#21) is the designation of a National Marine Sanctuary along the central coast of California from Cambria to Santa Barbara.

Cumulative Impact Analysis

Phase 1

Project # 19 and #25 are expected to be completed by 2023 and therefore, Phase 1 Project-related activities would not contribute to cumulative impacts since Phase 1 is anticipated to occur from 2024 to 2031. While most of the wind or wave energy projects are currently in the planning phase, it may be possible that some or all could be implemented during Phase 1 decommissioning activities. It is assumed that installation of the wave or wind farms would include anchoring structures offshore and running cable from the structure to a shore-based facility. It is also assumed that the cable would be exposed in deeper waters but trenched and buried in nearshore waters.

If DCPP decommissioning activities overlapped with installation of the wind or energy farms there could potentially be greater vessel traffic and construction in offshore and nearshore waters that may lead to an increased likelihood of collisions with other vessels or equipment, marine

mammals and sea turtles, oil or fuel spills, as well as increased underwater noise associated with increased vessel traffic.

The frequency of barge trips associated with the waste transportation activities is estimated to be 28 roundtrips or loading cycles (55 barges) over three years (2030-2033) between DCPP and Oregon. More localized barge trips are associated with the Discharge Structure removal activities, which are estimated to take 14 months and require approximately 15 barge trips to transport fill material from Port of Long Beach and potentially several additional trips to transport equipment to/from DCPP, as well as 3 barge trips to transport 1-ton and ¼-ton rocks from Santa Catalina Island to backfill the void created following removal of the Discharge Structure. Given the relatively large area (i.e., nearshore and offshore waters from southern California to Oregon) and infrequent number of Project-related vessel operations over an extended, multi-year period, even if barge trips were to occur at the same time as the potential wind or wave energy projects, the Project's potential contribution to cumulative impacts on marine biological resources would not be cumulatively considerable.

Phase 2

Discharge Structure Removal and Restoration Activity

Discharge Structure removal and restoration activities are anticipated to extend into Phase 2 and conclude in 2033. Impacts associated with this activity are discussed under Phase 1 and are expected to be similar in Phase 2, and no cumulative impacts are expected on marine biological resources even if the one wind farm project that is closest to DCPP (#22) was to be implemented since it is located offshore of Morro Bay, California and therefore are too far away given the infrequent number of Project-related vessel operations over an extended period to result in any cumulative impacts.

Intake Structure Closure Activity

Construction activities associated with closing the Intake Structure are anticipated to occur from on top of the Intake Structure with no in-water equipment. Since no in-water operations are anticipated, the Intake Structure closure activities contribution to cumulative impacts on marine biological resources would not be cumulatively considerable.

Post-Decommissioning Operations

New Facility Operations. Following Phase 2, activities at the DCPP site associated with the Proposed Project include operation of the new GTCC Storage Facility, Security Building, indoor Firing Range, and Storage Building. Since no in-water operations are anticipated, the New Facility Operations activities contribution to cumulative impacts on marine biological resources would not be cumulatively considerable.

Future Actions. Marina improvements for reuse are anticipated to occur on top of the Intake Structure or upland. The exceptions include the installation of up to five mooring buoys in the Marina, and future Marina operations that would result in an increase in small vessel use (i.e., vessels that could be launched using the boat hoist). Given the small area affected and infrequent number of vessel operations over an extended period, future actions contributions to cumulative impacts on marine biological resources would not be cumulatively considerable

4.4.6 Summary of Significance Findings

Table 4.4-23 presents a summary of the environmental impacts, significance determinations, and mitigation measures for the Proposed Project.

Table 4.4-23. Summary of Impacts and Mitigation Measures – Biological Resources – Marine

	Impact Significance Class				
	Phase 1		Phase 2	Post-Decom	
Impact Statement	***DCPP***	***PBR/SB***	***DCPP***	***Ops/Marina***	**Mitigation Measures**
MBIO-1: Destroy or degrade marine habitat(s) during decontamination and dismantlement activities including habitat of state- or federally listed endangered, threatened, rare, protected, or candidate species, or a Species of Special Concern or federally listed critical habitat	I	NI/NI	I	NI/II	**MBIO-1:** Eelgrass Monitoring Plan **MBIO-2:** Marine Safety and Anchoring Plan **MBIO-3:** Water Quality Monitoring Plan **MBIO-4:** Cofferdam Installation and Dewatering Plan **MBIO-5:** Preconstruction Survey for Black Abalone **MBIO-6:** Marine Habitat Restoration and Monitoring Plan **MBIO-7:** Marine Mammal and Sea Turtle Mitigation and Monitoring Plan **MBIO-8:** Oil Spill Response Plan **MBIO-9:** Mooring Placement Habitat Survey
MBIO-2: Harm or disturb marine special-status invertebrate, fish, reptile, bird, or mammal	I	NI/NI	I	NI/III	**MBIO-5** and **MBIO-7**(see above)
MBIO-3: Generate noise or vibration levels above or below the water surface that could result in disturbance or injury to marine life	II	NI/NI	II	NI/III	**MBIO-7** (see above)
MBIO-4: Release pollutants into receiving water during decommissioning activities	I	NI/NI	I	III/II	**MBIO-3**, **MBIO-4, MBIO-7** and **MBIO-8** (see above) **HWQ-3:** Clean Marina Lease Provisions
MBIO-5: Introduce invasive non-native marine species during decontamination and dismantlement activities	II	NI/NI	II	NI/II	**MBIO-10:** Non-Native Aquatic Species Measures **MBIO-11:** Pre-Construction *Caulerpa* Survey **HWQ-3** (see above)
Cumulative Impact	Not cumulatively considerable		Not cumulatively considerable		None required

Acronyms: PBR = Pismo Beach Railyard, SB = Betteravia Industrial Park (Santa Barbara County), Post-Decom = Post-Decommissioning, Ops = Long Term Operations, Class I = Significant and Unavoidable, Class II = Less than Significant with Mitigation, Class III = Less than Significant, Class IV = Beneficial, NI = No Impact.