D.3 Biological Resources

D.3.1 Environmental Setting for the Proposed Project

This discussion of biological resources in the project area is based on the information presented in the results of past studies and surveys, environmental review documents, and field observations and surveys for recent projects (including the Proposed Project) at the DCPP facility. Several ecological investigations have been conducted on the DCPP lands dating back to 1971, including sensitive resources surveys that took place from 1992 to 1997. The results of these surveys are summarized in the *Sensitive Resource Inventory for Diablo Canyon Lands* (Biosystems Analysis, 1995).

More recent studies from 1999 to 2001 include rare plant and wildlife surveys within the study area for the Diablo Canyon Independent Spent Fuel Storage Installation (ISFSI) project. These studies were focused near the DCPP facilities, with much of the study area overlapping with the Proposed Project site. For this reason, much of the biological analysis associated with the ISFSI project has been utilized in this EIR. Botanical surveys of the ISFSI site and surrounding areas were performed in 1999, using appropriate botanical survey protocols to determine if any sensitive plant species are present in or near the proposed ISFSI site. Additional surveys included botanical investigations during the spring and summer of 2001. A PG&E staff biologist performed additional botanical surveys on the ISFSI project site in 2001.

Within the site vicinity, terrestrial species currently listed or proposed for listing by the State of California or the federal government as either threatened or endangered include the American peregrine falcon (State endangered; federally delisted). A protocol survey for the federally threatened California red-legged frog was conducted in August 1999, within and adjacent to Diablo Creek from a point near the mouth of the creek to a point approximately one-half mile upstream from the 500 kV switchyard (PG&E, 2002). Red-legged frog surveys were also performed in 2002 in the vicinity of Diablo Creek. Southwestern pond turtle surveys were also performed in 2002. Additional botanical and wildlife reconnaissance and focused surveys were also conducted in the ISFSI project area in December 2002 and January 2003. Sources of information include the Diablo Canyon ISFSI Environmental Report (PG&E, 2002) and Final EIR (SLO County, 2004). For this EIR, staff biologists conducted a reconnaissance of the site, with an emphasis on the proposed OSG Storage Facility, Temporary Staging Area (TSA) options, and proposed and alternative barge offload locations in Port San Luis and Intake Cove.

The Proposed Project would be located at the DCPP facility, which occupies 760 acres within PG&E's 12,000-acre owner-controlled land on the California coast in central San Luis Obispo County. DCPP is located within the Irish Hills approximately seven miles northwest of Avila Beach, 12 miles southwest of San Luis Obispo, and directly southeast of Montaña de Oro State Park (see Figures B-1 and B-2). PG&E lands include 12 miles of undeveloped coastline and extend inward an average of 1.5 miles. A diverse upland landscape and adjacent marine habitats support a wide variety of native plant and animal species. These properties are broadly characterized by a narrow, gently sloping marine terrace bordered on the east by the Irish Hills. Currently, most of the DCPP lands are undeveloped and are managed for agriculture, grazing, or as open space. A plan is in place for wildland fuel reduction (Fry, 1999), as well as exotic species management, erosion control, and natural and cultural resource protection (Biosystems Analysis, 1995).

The study area for marine biological resources also includes those areas extending from the mean high-tide line seaward. The marine environmental setting is presented for the following two distinct areas where potential project-related impacts could occur: Port San Luis/Avila Beach and the ocean area immediately offshore of the DCPP, including the cooling water intake and outfall coves (e.g., Diablo Cove).

D.3.1.1 Vegetation Communities and Habitats

Native vegetation communities occurring on PG&E Diablo Canyon lands have been classified into seven different terrestrial habitat types (PG&E, 2002) and were summarized in the Final EIR for the ISFSI project (SLO County, 2004). These communities are described in Table D.3-1.

Table D.3-1. Native Terrestrial Habitat Types on the PG&E Diablo Canyon Lands

Community	Community Characteristics
Coastal Scrub	Coastal Scrubs occur primarily on the lower slopes and coastal terrace. Common species include coyote bush, California sagebrush, sticky monkey flower, and buckwheat.
Chaparral	Chaparral habitats typically occur inland or upslope from the coastal scrub and is common on the ridge tops and high ravines. Common species include toyon, poison oak, manzanita and blue ceanothus.
Grassland	Grassland habitats are found throughout the project site. Common species include soft chess, ripgut brome, foxtail barley, and wild oats. Some native grass species are also found on the project site.
Oak Woodland	Oak woodland, dominated by coast live oak, is found typically on north and east facing slopes and in ravines. Other common species include coffee berry, spiny redberry, and gooseberry.
Closed-Cone Pine Forest	Closed-cone pine forest is found on the higher ridges north of the DCPP and is dominated by bishop pine.
Riparian	Riparian habitats occur along Diablo Creek. Common species include red and arroyo willow, big leaf maple, elderberry and stinging nettle.
Freshwater Marsh	Freshwater marsh habitat is found in two locations. One on Pecho Ranch near Windy Point and the other in Irish Canyon on the Marre Ranch. Common species include cattail, spike rush, and Baltic rush.

Source: SLO County, 2002.

Recently disturbed areas support "ruderal" species composed of nonnative grasses and broadleaf weeds. Ruderal areas on the project site can be observed in the vicinity of disturbed areas, roadsides, cut or fill slopes, equipment storage sites, and fuel modification areas. Such areas are dominated by short-lived, nonnative and native species and may contain seedlings or young individuals of longer-lived mostly native species. The habitats at the proposed OSG Storage Facility, the TSA locations, and upland areas adjacent to the Port San Luis barge offload locations either do not support vegetation, or may support very sparse ruderal vegetation. The ISFSI site and the three soil disposal sites are disturbed and support a mixture of predominately nonnative grasses and herbaceous species along with native shrubs. The proposed haul route traverses a variety of native vegetation communities.

Port San Luis Offload Location. Upon arrival at Port San Luis, the barge carrying the RSG would attempt to enter port during high-tide conditions using an established transport route that passes permanent and seasonal moorings for commercial and recreational vessels. The proposed location of the barge ~~docking~~ offloading would be on the west side of San Luis Obispo Bay between the mobile boat hoist pier and Harford Pier ~~just north of a small peninsula that currently acts as a boat launch~~ in the Harford Landing area of Port San Luis. This area supports no native vegetation, although there are a few patches of non-native sea fig nearby.

Temporary Staging Area Locations. A temporary staging area (TSA) would be used to house most project activities and would consist of offices, fabrication, mock-up, weld testing, warehouse, and laydown areas. Approximately 90,000 additional square feet would be required in temporary or existing facilities in order to perform the required project staging activities. To the extent possible, existing DCPP structures and facilities would be used to otherwise support the RSG activities. PG&E considers it important to locate all project staging areas in close proximity, so that space may be combined or connected with other TSA space. PG&E has proposed to locate the TSA facilities at the southern end of the site on one or more of four previously developed flat terrace areas (see Figure B-2).

The TSA areas all exhibit compacted or paved surfaces, and none of the sites support vegetation. Parking Lot 1 is located on the southern side of the DCPP facility. This area has been filled, leveled, and compacted to create suitable areas for parking and other needs of the facility. Fill material was added to unpaved Parking Lot 1 relatively recently, and the west-facing slope below the lot has been successfully revegetated with coastal scrub (Kelly, 2004).

OSG Storage Facility. The proposed OSG Storage Facility would consist of an 18,000-square-foot reinforced concrete building at the upper portion of the DCPP site near the 500 kV switchyard. The proposed OSG Storage Facility is a disturbed site just east of the 500 kV switchyard, which does not support any vegetation. No vegetation or wildlife habitat would be impacted at the proposed OSG Storage Facility.

Construction of the OSG Storage Facility would require excavation of approximately 2,300 cubic yards of material. This material would be removed and stored at an onsite disposal facility previously approved for the ISFSI project. This disposal site is located in an existing storage yard approximately 200 feet west of the 500 kV switchyard, and north of the proposed ISFSI site. The area is partially paved and is currently used as a storage yard. The disposal site is bounded by a terraced slope to the east, a 230 kV switchyard to the west, the slope adjacent to Diablo Creek Road to the north, and Reservoir Road to the south. Non-native species present throughout the site include, horehound, telegraph weed, Russian thistle, smilo grass, and fennel.

Three small areas of hydrophytic vegetation also occur on this fill site. This vegetation is largely associated with a 6-foot wide by 60-foot long concrete-lined drainage ditch that carries surface runoff water into the site drainage system. Over a period of time, several hydrophytic or wetland plant species have become established in this ditch. These species include cattail (*Typha latifolia*), rabbit foot grass (*Polypogon monspeliensis*), and brass buttons (*Cortula coronopifolia*). The described ditch is unlikely to qualify as either a "Wetland" or "Waters of the U.S." regulated habitat due to its small size and because the concrete lining precludes development of hydric soils.

The Final EIR for the ISFSI project concluded that the soil disposal site offers minimal habitat value (SLO County, 2004).

D.3.1.2 Wildlife Resources

Areas where proposed facilities would be placed are generally paved, graded and compacted, or otherwise highly disturbed. Therefore, most native wildlife would not be expected to rely exclusively upon these areas. Although native wildlife may occur occasionally on parking lots, roads, or other disturbed surfaces, these areas are not important habitats. The diversity of wildlife species utilizing developed portions of the DCPP facility is low, and limited to common non-native species and a few native species that can utilize developed areas. Because all of the areas of disturbance within the project area have been

previously disturbed, this discussion will focus primarily on species supported by habitats surrounding the DCPP.

Within the proposed disturbance areas, few animals have been observed or are expected to regularly occur. Although nearby Diablo Creek provides aquatic habitat, wildlife dependent on aquatic resources, such as fish or amphibians, are unlikely to occur in the disturbance areas. Scrub and grasslands near the proposed OSG Storage Facility and on slopes near the TSA locations may support common reptiles such as the western red-tailed skink, side-blotched lizard, gopher snake, and the western rattlesnake. Avian species, including the mourning dove, Say's phoebe, California horned lark, western scrub-jay, American crow, Bewick's wren, and northern mockingbird, may be able to utilize open surfaces or structures within the project disturbance areas. Several birds of prey are also likely to occur nearby, and may occasionally forage within developed areas of the site due to the presence of prey species and man-made perches. Species such as the sharp-shinned hawk, red-tail hawk, American kestrel, and great horned owl are expected to occasionally forage adjacent to the proposed disturbance areas. Small mammals are likely to be common and abundant in adjacent disturbed communities and may include species such as the western harvest mouse, California mouse, deer mouse, and the dusky-footed woodrat. Other larger mammals expected to occasionally utilize the project areas include the Virginia opossum, desert cottontail, California ground squirrel, coyote, and the striped skunk.

Outside of the proposed disturbance areas, wildlife habitat values increase. Most of the watershed in the Proposed Project area is paved, developed and surrounded by multiple fences, and is not expected to support wildlife other than ubiquitous bird species and occasional rodents or reptiles along the periphery. Although outside of the proposed disturbance area, portions of lower Diablo Creek (i.e., downstream from the culvert exiting the 500 kV yard area) are undisturbed or have regenerated substantially since construction of DCPP. In this area, Diablo Creek supports perennial flows and riparian vegetation. Within the riparian corridor and adjacent slopes, wildlife diversity is substantially greater than in the proposed disturbance areas. Greater habitat values are also expected from relatively undisturbed slopes surrounding DCPP.

Wildlife species expected to occur in the ruderal and disturbed areas are also expected to occur within lower Diablo Canyon. Additional species that are likely to be common residents of lower Diablo Canyon include Pacific slender salamander, arboreal salamander, Pacific tree frog, garter snake, Nuttall's woodpecker, bushtit, wrentit, yellow-rumped warbler (wintering), lazuli bunting, spotted towhee, white-crowned sparrow, lesser goldfinch, barn owl, Cooper's hawk, dusky-footed woodrat, pallid bat, raccoon, bobcat, and mule deer.

D.3.1.3 Marine Biological Resources

This section summarizes the potential marine biological resources near the DCPP facility and along the coast near the two potential offloading locations (Port San Luis and DCPP Intake Cove). Refer to Appendix 2 for more detail on the marine resources along the coast of central California.

Plankton

Plankton refers to organisms that have limited or no swimming ability and drift or float along with ocean currents. The two broad categories of plankton are phytoplankton and zooplankton. Phytoplankton, or plant plankton, form the base of the food web by photosynthesizing organic matter from water, carbon dioxide, and light. They are usually unicellular or colonial algae and support zooplankton, fish, and through their decay, large quantities of marine bacteria. Fish production is highly dependent on the growth and productivity of phytoplankton and zooplankton (Ryther, 1969) and fishery yields increase exponentially with increasing primary production in marine environments (Hanson and Leggett, 1982; Nixon, 1988).

Zooplankton are the animal plankton and a primary link between phytoplankton and larger marine organisms in marine food webs. Zooplankton are those animals that spend part (meroplankton) or all (holoplankton) of their life cycle as plankton. Ichthyoplankton, or fish eggs and larvae, are another component of the zooplankton community. With the exception of a few fish species (e.g., the embiotocidae or surfperches that bear live young), most fish that occur in central California are present as larvae or eggs in the plankton community.

Plankton distribution, abundance, and productivity are dependent on several environmental factors. Factors include light, nutrients, water quality, terrestrial runoff, and upwelling. Their distribution tends to be very patchy with high seasonal and inter-annual variability along the California coastline. Because phytoplankton are photosynthetic, they are generally limited to the photic zone while zooplankton can occur throughout the water column from surface to bottom.

Fish

The fish resources in the project area off the coast of central California are comprised of both year-round residents and seasonal migrants. Fish resources in the area are dynamic and rich and are comprised of over 500 species of fish (USDOI, 1996a). Large numbers of shellfish and other invertebrate species also occur in the area with the most important being crab, shrimp, bivalves, and squid. The high level of diversity is reflective of the complex hydrographic, physical, and geologic conditions of the region that provide a wide variety of habitats for fish resources. The distribution of fishes in the area fluctuates on a daily, seasonal, and annual basis for many reasons including food availability, environmental conditions, and migration (USDOI, 1996a).

The offshore environment can generally be divided into several zones. For fishes in the area, these zones include the benthic or shelf and pelagic zones. Demersal species are those that live on or near the seafloor (benthic environment), while pelagic fish species occur in the water column.

Marine Mammals

In a comprehensive marine mammal census program, Dohl et al. (1983a) reported 27 marine mammal species in central California. The three categories of marine mammal species he reported in central California were: (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, or (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). Generally, marine mammals are characterized by extensive distributional ranges (Gaskin, 1982). The central California area represents a region of overlap. It is an area where populations of marine mammals having different biogeographic affinities intermingle (Dohl et al., 1983a). Several marine mammal species reach the southern limit of their ranges in central California while other species are at their northern range limits (Hubbs, 1960; Bonnell and Daily, 1993).

In late summer and autumn, marine mammals found in warmer waters to the south are found in central California. Examples include the California sea lions and northern elephant seals, bottlenose dolphins and pilot whales. Boreal species, which are marine mammals found in the cooler waters of the North Pacific, occur in central California during winter through early summer. They are found in areas of coastal upwelling and in the coolest waters of the California current. Example boreal species include Dall's porpoises, harbor porpoises, and the northern fur seals.

Some species, for example the southern sea otter, are endemic to coastal central California and occur year-round. Several species are largely restricted to the waters of the California Current and occur in high numbers off of central California. These species include the California sea lion, northern elephant seal, and during its migration, the California gray whale (Dohl et al., 1983a).

Sea Turtles

Although infrequent, sea turtles have occasionally been reported in coastal California. Over the years, four species have been reported in the project area. The four species are the green turtle (*Chelonia mydas)*, the Pacific ridley turtle (*Lepidochelys olivacea)*, the leatherback turtle (*Dermochelys coriacea)*, and the loggerhead turtle (*Caretta caretta)* (Hubbs, 1977).

Populations of marine turtles have been greatly reduced due to overharvesting and loss of nesting sites in coastal areas (Ross, 1982). In the eastern Pacific, most of the turtles nest along the coasts of Mexico and Central America. The nesting season varies with species, but is generally from May to September (Mager, 1984). Sea turtles breed at sea; and the females return to their natal beaches to lay their eggs (Mager, 1984). Female turtles can nest several times in a season but at two to three-year intervals. The eggs, after being laid in the sand, hatch in about two months; and the young instinctively head for the sea.

Although marine turtles are not common to the project area, they have occasionally been reported. According to the California Marine Mammal Stranding Network Database, 12 marine turtles were reported between Morro Bay and Pismo Beach during the 1982 to 1995 period. Of the 12 sightings, 10 were leatherbacks, and one each was a loggerhead and green turtle (NOAA, 1997). At DCPP, one green turtle was reported in 1994 and 1997 (NOAA, 1997; Port San Luis Harbor District, 1997).

Benthos

The benthos consists of organisms that live in or on the ocean floor. Benthic habitats are often classified according to substrate type, either unconsolidated sediments (e.g., gravel, sand, or mud) or rock. The former category is often referred to as soft bottom and the latter is often referred to as hard bottom or rocky substrate. Each supports its own characteristic biological community. In addition to substrate type, water depth and water temperature play important roles in the distribution of benthic organisms. Distance from shore, food availability, and water quality are also important factors that influence the distribution of benthic organisms. Benthic organisms can be epifaunal (attached or motile species that inhabit rock or sediment surfaces) or infaunal (live in soft sediments) (Thompson et al., 1993).

Kelp

Giant kelp (*Macrocystis pyrifera*) is the most conspicuous species at the Port San Luis and DCPP Intake Cove sites, with its floating fronds that form dense canopies on the sea surface. Giant kelp provides important habitat, refuge, and food for fishes and invertebrates and can regulate understory community structure by canopy shading and dampening water currents and surge. Giant kelp is appreciably more abundant and widely distributed in the Intake Cove, compared to Port San Luis harbor. The area of the Intake Cove landing site is populated with widely scattered individual giant kelp plants. Continuous beds of giant kelp are more common fringing the Intake Cove breakwaters located away from the landing site. At Port San Luis, there is only a single small distinctive bed of giant kelp in the vicinity of the Port San Luis offloading site.

Giant kelp is among the fastest growing plant species in the world and has high recovery potential. Damaged and undamaged kelp fronds would continue growing, and within a year, new plants would quickly

become established to replace lost plants. PG&E retains a Special Use Permit issued by the California Department of Fish and Game to actively remove whole plants that constantly grow and repopulate the area in front of the DCPP intake structure. PG&E also utilizes a kelp harvester and implements CDFG harvesting rights to remove kelp surface canopies that constantly regenerate in the Intake Cove. These efforts to control kelp growth in the Intake Cove underscore the species high recovery potential in this area.

Seagrasses

Seagrasses are grass-like marine plants that provide shelter for many species of juvenile fishes and invertebrates, Surfgrass (*Phyllospadix* spp.) occurs along the wave exposed outer coast, while eelgrass (*Zostera marina*) occurs in protected harbors and bays. Like giant kelp, seagrasses are not listed as endangered or threatened, but have high habitat value.

Seagrass beds may be present in the vicinity of the proposed Port San Luis landing site. The sand substrate in the Intake Cove is more stable and supports some small patches of eelgrass. However, it is not known if any seagrasses occur in areas that will be impacted by the RSG landing. PG&E will conduct an underwater survey that will include a review for seagrass beds in order to avoid impacts to the maximum extent practicable.

D.3.1.4 Sensitive Resources

An inventory of sensitive terrestrial biological resources can be found in BioSystems Analysis' *Sensitive Resource Inventory of Diablo Canyon Lands* (1995). Sensitive or special status species include flora, fauna, vegetation communities, and marine biological resources that are listed as threatened or endangered or candidate species under the California or federal Endangered Species Acts (CESA or ESA), California species of special concern, federal species of concern, species that are listed as fully protected by California Department of Fish and Game (CDFG), and List 1B and List 2 plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered in California and beyond.

Based on a review of the California Natural Diversity Database (CDFG, 2004) for the project area and the habitat conditions reported during previous surveys and reports, the special status species or plant communities listed in Table D.3-2 could potentially occur within or near the Proposed Project area.

Table D.3-2. Sensitive Terrestrial Plant Species Potentially Occurring on Diablo Canyon Lands

Scientific Name/Common Name	Status (Fed/State/CNPS)	Description and Habitat	Distribution in Project Area
Federally or State-Listed Threatened or Endangered Species			
Arctostaphylos morroensis Morro manzanita	T / – / 1B	Evergreen shrub; blooming December to March; found on sandy loam soils in maritime chaparral, cismontane woodland, pre-Flandrian coastal dunes, and coastal scrub.	This species was recorded in 1970 along Prefumo Canyon Road. Suitable habitat for this species may be present on PG&E property, but it is has not been identified within the project area.
Cirsium fontinale var. obispoense Chorro Creek bog thistle	E / E / 1B	Perennial herb; blooming February to July; found in serpentinite seeps in chaparral and cismontane woodland.	Closest known location is Prefumo Canyon, off PG&E property. This species is restricted to serpentinite seeps, which are not known for the PG&E property.

Table D.3-2. Sensitive Terrestrial Plant Species Potentially Occurring on Diablo Canyon Lands

Scientific Name/Common Name	Status (Fed/State/CNPS)	Description and Habitat	Distribution in Project Area
Dithyrea maritima Beach spectaclepod	– / T / 1B	Rhizomatous perennial herb; blooming March to May; located on sandy soils in coastal dunes and coastal scrub communities.	Known from Montana de Oro in sand dunes, north of PG&E property. Coastal dunes are limited on the PG&E property and do not occur in the project area.
Eriodictyon altissimum Indian Knob mountainbalm	E / E / 1B	Evergreen shrub; blooming March to June; found on Pismo Formation sandstone soils in maritime chaparral, cismontane woodland and coastal scrub.	This species has been recorded north of the Diablo Canyon property in Hazard Canyon. Although not found in 2002, central maritime chaparral on the property is suitable habitat for this species (PG&E, 1995). However, it is not likely to be present within the project area.
Suaeda californica California seablite	E / – / 1B	Evergreen shrub; blooming July to October; found in coastal salt marshes and swamps.	Closest recorded occurrence is in Morro Bay Estuary. Not expected on the PG&E property or in the project area.
Other Sensitive Species			
Arctostaphylos cruzensis Arroyo de la Cruz manzanita	FSC / – / 1B	Evergreen shrub; blooming December to March; found on sandy soils in broadleaved upland forest, coastal bluff scrub, closed-cone coniferous forest, chaparral, coastal scrub, and valley and foothill grassland.	This species is known to occur on PG&E property near Coon Creek, as well as near Saddle Peak and Green Peak. Not likely to occur within the project area.
Arctostaphylos pechoensis Pecho manzanita	FSC / – / 1B	Evergreen shrub; blooming November to March; located on siliceous shale in closed-cone coniferous forest, chaparral, and coastal scrub.	This species is commonly found within maritime chaparral on PG&E property. Not likely to occur within the project area.
Arctostaphylos wellsii Well's manzanita	– / – / 1B	Evergreen shrub; blooming December to April; found on sandstone in closed-cone coniferous forest and chaparral.	Well's manzanita has been observed along the ridge of Point San Luis on Pismo sandstone, and may be present in other areas of suitable habitat on PG&E property. Not likely to occur within the project area.
Astragalus nuttallii var. *nuttallii* Nuttall's milk-vetch	– / – / 4	Perennial herb; blooming January to November; occurs in coastal bluff scrub and coastal dunes. Species is fairly widespread in coastal areas in northern Santa Barbara, San Luis Obispo, and Monterey Counties.	This species was identified at the ISFSI site in April 2003 where it was relatively abundant. This species does not occur within the Steam Generator Replacement Project disturbance areas.
Atriplex coulteri Coulter's saltbush	– / – / 1B	Perennial herb; blooming March to October; found on alkaline or clay soils in several southern California counties including the Channel Islands.	This species was observed near Crowbar Peak on an isolated sea stack. There is potential for this species to be present in other suitable habitat on PG&E property but not likely to occur within the project area.
Calochortus obispoensis San Luis mariposa lily	– / – / 1B	Perennial herb; blooming May to July; often found on serpentinite soils in chaparral, coastal scrub, and valley and foothill grassland.	This species has been recorded in the Irish Hills along Prefumo Canyon Road near the head of Coon ~~creek~~Creek. Serpentine soils do not occur on the PG&E property reducing the likelihood this species could occur within the project area.

Table D.3-2. Sensitive Terrestrial Plant Species Potentially Occurring on Diablo Canyon Lands

Scientific Name/**Common Name**	**Status (Fed/State/CNPS)**	**Description and Habitat**	**Distribution in Project Area**
Castilleja densiflora ssp. *obispoensis* Obispo Indian paintbrush	– / – / 1B	Annual herb; blooming in April; found in valley and foothill grassland.	This species has been recorded in See Canyon and Prefumo Canyon. Grassland habitat is present within PG&E property, but not within the project area.
Calystegia subacaulis ssp. *episcopalis* San Luis Obispo morning glory	– / – / 1B	Rhizomatous perennial herb; blooming April to May; found in chaparral and cismontane woodland.	Known to occur east of Morro Bay, near Black Hill. Coastal scrub and cismontane woodland on the project property are suitable habitats for this species (PG&E, 1995). However it is not likely to occur within the project area.
Carex obispoensis San Luis Obispo sedge	– / – / 1B	Rhizomatous perennial herb; blooming April to June; often found in serpentinite seeps in closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland.	This species has been recorded in Prefumo Canyon. Serpentine soils are not found on the property, reducing the likelihood of this species occurring within the project area.
Dudleya abramsii ssp. *bettinae* San Luis Obispo serpentine dudleya	– / – / 1B	Perennial herb; blooming May to July; located on rocky, serpentinite soils in chaparral, coastal scrub and valley and foothill grassland.	Reported from along San Bernardo Creek, northeast of Morro Bay. Not known from PG&E property, and not likely to occur within the project area.
Erigeron blochmaniae Blochman's leafy daisy	– / – / 1B	Rhizomatous perennial herb; blooming July to August; found in coastal dunes and coastal scrub communities.	Many occurrences reported from Montaňa de Oro and south end of Morro Bay. May be present in suitable habitat within PG&E property, but is not likely to occur within the project area.
Layia jonesii Jones's layia	FSC / – / 1B	Annual herb; blooming March to May; located on clay or serpentinite soils in chaparral and valley and foothill grassland.	This species was reported from the coastal mesas near Morro Bay. Chaparral and valley grasslands are suitable habitats for this species (PG&E, 1995). However it is not likely to occur within the project area.
Monardella frutescens San Luis Obispo monardella	FSC / – / 1B	Rhizomatous perennial herb; blooming May to September; found on sandy soils in coastal dunes and coastal scrub communities.	This species was reported south of Morro Bay (exact location unknown). Suitable habitat may be present within PG&E property, but is not likely to occur within the project area.
Scrophularia atrata Black-flowered figwort	FSC / – / 1B	Perennial herb; blooming April to July; found in closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, and riparian scrub.	Recorded occurrences in Price Canyon and east of Avila Beach. Reported from PG&E property and likely to occur in suitable habitat; but not observed within the project area.
Perideridia gairdneri ssp. gairdneri Gairdner's yampah	FSC / – / 4	Perennial herb; blooming June to October; found in broad-leaved upland forest, chaparral, coastal prairie, valley and foothill grassland, and vernal pools.	No records of occurrence in the project vicinity, but may occur in suitable habitat. Low potential for occurrence in the project area.

Sources: CNDDB (2004); CNPS (2001); Hickman (1993); PG&E (1995); SLO County (2004).

Notes: Federal: E=Endangered. In danger of extinction throughout all or a significant portion of its range; T=Threatened. Likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range; FSC=Federal Species of Concern. Formerly List 2 Candidate Species (designation is not used by CNPS or CDFG). Species of concern is an informal term used by some but not all U.S. Fish & Wildlife Service offices. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

State: E=Endangered; T=Threatened

California Native Plant Society: 1B=Plants considered rare or endangered in California and elsewhere; 4=Plants of limited distribution – a watch list.

Threatened and endangered plants, wildlife and marine resources are described in the following sections.

D.3.1.4.1 Endangered or Threatened Plants

No federal- or State-listed endangered or threatened plants or CNPS List 1B (rare, threatened or endangered throughout their range) or List 2 (rare, threatened, or endangered in California only) species were located within the survey area. Table D.3-2 lists the sensitive plant species potentially occurring on the DCPP lands. Previous surveys of the proposed ISFSI site and Soil Disposal Sites 1 through 3 identified Nuttall's milk-vetch (Table D.3-2), a CNPS List 4 or "watch list" species (SLO County, 2004). This taxon was identified in relative abundance in the northeast portion of the DCPP near the proposed OSG Storage Facility location. This species is locally common on bluffs and coastal dunes between Monterey Bay and Point Conception. Some of the plants observed during previous surveys had colonized a cut slope above a roadway originally graded during the construction of DCPP (SLO County, 2004). No other sensitive plant species have been reported from the vicinity of the DCPP or Proposed Project disturbance areas (Biosystems Analysis, 1995; SLO County, 2004).

D.3.1.4.2 Endangered or Threatened Wildlife

No federal- or State-listed threatened or endangered terrestrial wildlife species are expected to occur within the project disturbance area. However, listed species are known to occur in the vicinity of the project site. These species are not expected to be affected by the Proposed Project. Whereas federal- or State-listed threatened or endangered species are afforded legal protection under ESA or CESA, the classifications of "federal species of concern" or "California species of special concern" do not afford any legal protection outside of consideration under CEQA. "Species of concern" is not a formal term in any federal regulation, but rather an informal term that refers to those species believed to be declining or to be in need of concentrated conservation actions to prevent decline. Species of concern receive no legal protection under ESA or CESA and the use of the term does not mean that they eventually will be proposed for listing. At one extreme, it may only be necessary to monitor the health of a species and its habitat. At the other extreme, the species may eventually require listing as threatened or endangered.

In addition, the designation "species of special concern" is also not legally protected under any State regulations, but the informal application of this designation is intended to result in special consideration for these species by CDFG, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under federal and State endangered species laws and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. CDFG staff is instructed to consider species of special concern during (1) the environmental review process, (2) conservation planning process, (3) the preparation of management plans for CDFG lands, and (4) inventories, surveys, and monitoring conducted either by CDFG or others with whom CDFG is cooperating.

Several sensitive wildlife species are known or potentially present in the vicinity of DCPP. Species that are State- or federally listed as threatened or endangered (Table D.3-3) include California red-legged frog and the peregrine falcon.

California Red-Legged Frog

The California red-legged frog (*Rana aurora draytonii*) was proposed for listing as endangered in 1994. Subsequently the species was listed as threatened in 1996. California red-legged frog is a medium-sized frog that historically occurred in coastal mountains from Marin County south to northern Baja California,

Table D.3-3. Sensitive ~~Terrestrial~~ Wildlife Species Potentially Occurring on Diablo Canyon Lands

Scientific Name **Common Name**	**Status (Fed/State/Other)**	**Description and Habitat**	**Distribution in Project Area**
Invertebrates			
Euphilotes enoptes smithi Smith's blue butterfly	E / –	Coastal dunes and coastal scrub associated with wild buckwheat (Erigonium latifiolium, E. parvifolium, and E. nudum).	Low potential to occur due to limited amount of suitable habitat and lack of observation records from the vicinity.
Plebulina emigdionis San Emigdio blue butterfly	FSC / –	Larval host plants are saltbush (Atriplex canescens) and occasionally Lotus purshianus.	Low potential to occur due to limited amount of suitable habitat and lack of observation records from the vicinity.
Danaus plexippus (wintering sites) Monarch butterfly	– / –	Groves of Monterey Pine or Eucalyptus along costal strand.	Unlikely to occur due to lack of suitable habitat.
Speyeria adiasste adiaste Unsilvered fritillary butterfly	FSC / –	Grasslands with food plants such as violets, thistles, mint, and California buckeye.	Unlikely to occur due to lack of suitable habitat.
Helminthoglypta walkeriana Morro Bay shoulderband snail	E / –	Endemic to San Luis Obispo County. Inhabits sandy soils and sand dunes.	Not known from Diablo Canyon Lands. Surveys have been conducted within the project area recently, but no individuals have been found.
Fish			
Eucyclogobius newberryi Tidewater goby	E / –	Inhabits coastal lagoons and brackish bays at the mouth of freshwater streams. Subject to variations in temperature, salinity, substrate and vegetation among habitats.	No individuals have been documented in or around the mouth of Diablo Creek or Coon Creek. Unlikely to occur at Diablo Creek due to lack of suitable habitat. Marginal and limited suitable habitat exists within Coon Creek.
Oncorhynchus mykiss Steelhead – South/Central California Coast ESU	T / – / CSC	Cool, clear, well-oxygenated streams with coastal mouths.	Low to moderate.
Amphibians			
Taricha torosa torosa Coast Range newt	– / CSC	Streams, ponds, and any other available surface water. Monterey County and south only.	Moderate potential to occur in Diablo Creek and along other streams intersecting the haul route.
Scaphiopus (=*Spea*) *hammondii* Western spadefoot toad	FSC / CSC	Prefers relatively open areas in lowland grasslands, chaparral, and pine-oak woodlands, areas of sandy or gravelly soil near vernal pools, alluvial fans, washes, and floodplains.	Moderate potential for breeding along streams or other water bodies intersecting the haul route.
Rana aurora draytonii California red-legged frog	T / CSC	Breeds in temporary and permanent water sources with pools and ponds and emergent vegetation.	Unlikely to occur due to negative results of focused surveys.
Reptiles			
Clemmys marmorata pallida Southwestern pond turtle	FSC / CSC	Occupies temporary or permanent water sources with deep pools.	Unlikely to occur due to lack of suitable habitat.
Phrynosoma coronatim frontale California horned lizard	FSC / CSC	Exposed gravelly, sandy soils with minimal shrubs, riparian woodland clearings, dry chamise chaparral, and annual grasslands with scattered seepweed or saltbush.	Likely to occur near the project disturbance areas.

Table D.3-3. Sensitive ~~Terrestrial~~ Wildlife Species Potentially Occurring on Diablo Canyon Lands

Scientific Name **Common Name**	**Status (Fed/State/Other)**	**Description and Habitat**	**Distribution in Project Area**
Anniella pulchra pulchra Silvery legless lizard	FSC / CSC	Areas with sandy or loose organic soils or where there is abundant leaf litter; often annual grasslands with rock outcroppings.	Likely to occur near the project disturbance areas.
Anniella pulchra nigra Black legless lizard	– / CSC	Sandy soils/dunes with bush lupine and mock heather as dominant plants and moist soils.	Unlikely to occur due to lack of suitable habitat and range limits.
Thamnophis hammondii Two-striped garter snake	– / CSC	Riparian and freshwater marshes with perennial water.	Low potential to occur due to limited amount of suitable habitat and lack of observation records from the vicinity.
Birds			
Accipiter cooperii (nesting) Cooper's hawk	– / CSC	Open woodlands and urban areas.	Twelve observed on PG&E property; four were within ~~one~~ 1 mile of DCPP, while others were observed along coast on edge of woodlands, grasslands, or coastal scrub.
Accipiter striatus (nesting) Sharp-shinned hawk	– / CSC	Open woodlands, especially riparian woodland.	Three soaring individuals observed on PG&E property, one was 0.5 miles southeast of DCPP; likely to occur in project area.
Aquila chrysaetos (nesting and wintering) Golden eagle	– / CSC and FP	Mountains, deserts, and open country. Suitable nest habitat is primarily cliffs and rocky ledges, sometimes trees, and occasionally ground and man-made structures.	Nesting unlikely due to limited amount of suitable nesting sites; however, sightings of immature eagles suggests nearby nesting. Known from the Irish Hills; high potential for fly over and infrequent foraging.
Buteo regalis (wintering) Ferruginous hawk	FSC / CSC	Rivers, lakes, and coasts; grasslands and agricultural areas during winter; forages in woodlands.	Moderate potential to occur.
Circus cyaneus (nesting) Northern harrier	– / CSC	Coastal salt marshes, freshwater marshes, grasslands, and agricultural fields; occasionally forages over open desert and brushlands.	Moderate potential to occur.
Elanus leucurus (nesting) White-tailed kite	FSC / FP	Grasslands with scattered trees, near marshes, agricultural areas and along highways.	Moderate potential to occur.
Haliaeetus leucocephalus (nesting and wintering) Bald eagle	T, PD / E	Lakes, reservoirs, rivers, offshore islands, and some rangelands and coastal wetlands in southern California.	Unlikely to occur due to lack of observation records from the vicinity.
Pandion haliaetus (nesting) Osprey	– / CSC	Rivers, lakes, and coasts.	Moderate potential to occur.
Falco columbarius (nesting) Merlin	– / CSC	Coastlines, open country, wetlands, woodlands, agricultural fields, and grasslands.	Moderate potential to occur.
Falco mexicanus (nesting) Prairie falcon	– / CSC	Grasslands, savannahs, rangeland, agricultural fields, and desert scrub; often uses sheltered cliff ledges for cover.	Unlikely to occur due to lack of suitable habitat.

Table D.3-3. Sensitive ~~Terrestrial~~ Wildlife Species Potentially Occurring on Diablo Canyon Lands

Scientific Name **Common Name**	**Status (Fed/State/Other)**	**Description and Habitat**	**Distribution in Project Area**
Falco peregrinus anatum (nesting) American peregrine falcon	D, FSC / E, and FP	Coastal estuaries, open country, cliffs to coasts, urban areas.	Known to nest in the vicinity of DCPP on an offshore rock (PG&E, 2002); high probability of flyovers and foraging.
Charadrius alexandrinus nivosus (nesting) Western snowy plover (coastal population)	T / –	Sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting.	Unlikely to occur due to lack of suitable habitat.
Coccyzus americanus occidentalis (nesting) Western yellow-billed cuckoo	FC / E	Riverine woodlands, thickets, and farms.	Unlikely to occur due to lack of suitable habitat and no recent records from the region.
Pelicanus occidentalis californicus California brown pelican	E / E	Off-shore rocks and coastal bluffs are used for roosting	Frequently observed, outside the breeding season, along the Pecho Coast
Asio flammeus (nesting) Short-eared owl	– / CSC	Open country, marshes, wet meadows, and fields; nests on ground in grassland.	Unlikely to occur due to lack of suitable habitat.
Asio otus (nesting) Long-eared owl	– / CSC	Riparian and live oak woodlands; dense stands of trees.	Moderate potential to occur.
Athene cunicularia (burrow sites) Burrowing owl	FSC / CSC	Open grasslands, deserts, scrublands; low growing vegetation; small mammal burrows; prefers berms, ditches, and grasslands adjacent to rivers, agricultural, and scrub areas.	Low to moderate potential to occur.
Strix occidentalis occidentalis (nesting) California spotted owl	FSC / CSC	Mature woodlands with dense canopy cover.	Low potential to occur due to limited amount of suitable habitat.
Empidonax difficilis (nesting) Pacific slope flycatcher	FSC / –	Woodlands, especially riparian woodland.	Suitable habitat is present in Diablo Creek at locations both above and below the switchyard complex. Closely tied to woodland habitat. No suitable habitat exists within the proposed construction areas.
Lanius ludovicianus (nesting) Loggerhead shrike	FSC / CSC	Grasslands or beach areas with scattered trees or other perch sites, coastal scrub.	Moderate potential to occur.
Eremophila alpestris actia California horned lark	– / CSC	Open habitats, grasslands along the coast, deserts near sea level to alpine dwarf shrub habitat, uncommonly in coniferous and chaparral habitats.	High potential to occur near the project disturbance areas. Common in grazed areas of Diablo Canyon lands.
Toxostoma redivivum California thrasher	FSC / –	Chaparral and coastal sage scrub communities.	Likely to occur near the project disturbance areas.
Dendroica petechia brewsteri (nesting) Yellow warbler	– / CSC	Riparian woodlands, montane chaparral, and mixed conifer habitats.	Moderate potential to occur in Diablo Creek and other riparian areas intersecting the haul route.
Icteria virens (nesting) Yellow-breasted chat	– / CSC	Dense riparian woodland/thickets along streams, swamps, small ponds.	Moderate potential to occur in Diablo Creek and other riparian areas intersecting the haul route.
Amphispiza belli belli (nesting) Bell's sage sparrow	FSC / CSC	Dense, dry chamise chaparral and coastal slopes of coastal sage scrub.	Moderate potential to occur.

Table D.3-3. Sensitive ~~Terrestrial~~ Wildlife Species Potentially Occurring on Diablo Canyon Lands

Scientific Name **Common Name**	**Status (Fed/State/Other)**	**Description and Habitat**	**Distribution in Project Area**
Agelaius tricolor (nesting colony) Tricolored blackbird	FSC / CSC	Inhabits freshwater marshes and riparian scrub.	Nesting colonies highly unlikely due to lack of nearby freshwater marsh habitats; moderate potential for occasional foraging.
Mammals			
Antrozous pallidus Pallid bat	– / CSC	Nests in dry, rocky habitats/caves, crevices in rocks, arid habitats including deserts, chaparral, and scrublands.	Moderate potential to occur, but would forage only within the project disturbance area.
Corynorhinus townsendii townsendii Townsend's western bigeared bat	FSC / CSC	Caves, mine tunnels, and buildings.	Moderate potential to occur, but would forage only within the project disturbance area.
Neotoma lepida intermedia San Diego desert woodrat	– / CSC	Chaparral, coastal sage scrub, and pinyon-juniper woodland.	Likely to occur near the project disturbance area.
Taxidea taxus American badger	– / CSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Moderate potential to occur.

Source: PG&E (1995) and SLO County (2004).
Status: Federal: E=Endangered; T=Threatened; FC=Candidate species (former Category 1 candidates); FSC=Species of Concern; PD - Proposed for de-listing; D - De-listed, monitored for 5 years
State: E=Endangered; T=Threatened; CSC=California Species of Special Concern
Other: FP=California "Fully Protected Species"

and along the floor and foothills of the Central Valley from about Shasta County south to Kern County. Currently, this species generally occurs in the coastal portions of its historic range; and it is extremely rare in most of southern California south of Ventura County

Currently, small coastal drainages between Point Reyes National Seashore in Marin County and Carpinteria in Santa Barbara County are the only remaining areas known to support significant numbers of this species. There are currently only three known California red-legged frog populations with greater than 350 adults, all near the coast in the San Francisco Bay Region. The California red-legged frog was extirpated from the floor of the Central Valley by 1960 and is now extremely rare in the Sierra foothills and coast ranges. Currently, California red-legged frogs are known to occur at only four locations south of Ventura County.

California red-legged frogs are usually confined to aquatic habitats, such as creeks, streams and ponds, and occur primarily in areas having pools approximately one-yard deep, with adjacent dense emergent or riparian vegetation. Adult frogs move seasonally between their egg-laying sites and foraging habitat, but they rarely move far from their aquatic habitat. Major predators include wading birds, introduced predatory fish, bullfrogs, and native garter snakes. Nearby vegetation structure is important for escape cover from predators and possibly also as shading to maintain cool water temperature. Preferred vegetation often includes, but is not limited to, cattails, bulrushes, and willows. At sites with adult California red-legged frogs, vegetation typically shades a substantial portion of water surface area and is dense right at or near water level. Diet of the California red-legged frog is varied in that they consume any prey they can subdue that is not distasteful. Other amphibians and small mammals may form a significant portion of their diet.

Current threats to California red-legged frogs include dam construction, livestock grazing, and non-native predators, in addition to possible impacts due to air pollution, acid deposition, and climate change. Dams have destroyed suitable habitat and fragmented remaining habitat. Similarly, reservoirs act as barriers to dispersal between populations, are themselves unsuitable frog habitat, and often provide suitable habitat for introduced aquatic predators.

This species has not yet been reported near Diablo Creek and there was no sign of this species within the project areas or any other surveyed area during the 2002 focused surveys (SLO County, 2004).

American Peregrine Falcon

American peregrine falcon was listed as federally endangered in 1970 and State listed as endangered in 1971. The species was delisted by the U.S. Fish and Wildlife Service (USFWS) in 1999. American peregrine falcon occurs in North America from boreal regions to northern Mexico and migrates to Central America. The California breeding range, which has been expanding, includes the central and southern California coast, inland northern coastal mountains, Klamath Mountains, Cascade Ranges, and Sierra Nevada. Although relatively uncommon, wintering birds can be seen throughout California (Zeiner et al., 1990). Historically, American peregrine falcon occurred throughout most of California. Populations increase in winter with the arrival of migrating birds from the north.

American peregrine falcons nest almost exclusively on protected ledges of high cliffs, primarily in woodland, forest, and coastal habitats. A very small number of nests have been found on small outcrops and in trees, and a number of reintroduced pairs nest on tall buildings. Cliffs that provide ledges, potholes, or small caves (usually with an overhang), and that are relatively inaccessible to mammalian predators, are required components of nesting habitat. Nest sites usually provide a panoramic view of open country, are near water, and are associated with a local abundance of passerine, waterfowl, or shorebird prey. Peregrine falcons prefer to nest near marshes, lakes, and rivers that support an abundance of birds, but they travel several miles from their nest sites to forage on pigeons, shorebirds, waterfowl, and songbirds. Coastal and inland marsh habitats are especially important to peregrine falcons in fall and winter because they attract large concentrations of waterbirds. Peregrine falcons have been known to nest at elevations as high as 10,000 feet (3,048 meters), but most occupied nest sites are below 4,000 feet (1,200 meters).

The breeding season of American peregrine falcon generally begins in February and lasts to June. Courtship (in February) typically involves the male provisioning the female with food. A month or two after courtship begins, females normally lay four eggs (range, 3 to 5); egg-laying in California typically occurs in March. Both male and female incubate the eggs for 29 to 33 days. In California, fledging occurs in late May or early June when the young are 35 to 42 days old. Juvenile peregrine falcons begin hunting on their own and become independent 6 to 15 weeks after fledging. If a nest fails early due to predation or other factors, peregrine falcon may lay a second clutch at an alternate nest site.

Peregrine falcons feed almost exclusively on birds; most of their avian prey are medium-sized to moderately large. They typically feed on highly mobile, flocking, and colonial nesting birds, such as shorebirds, waterfowl, doves, and pigeons. Known predators of peregrine falcon include great horned owl, golden eagle, red-tailed hawk, raccoon, and coyote.

Peregrine falcons declined after the 1940s as a result of the widespread use of DDT and other pesticides. Although monitoring efforts have been reduced since 1992, populations are believed to be increasing (CDFG, 2000). Bans on the use of DDT in the 1970s and a major reintroduction program led by the Peregrine Fund have resulted in an impressive increase in the distribution and abundance of this species over the last 20 years. The population increase has been substantial enough to warrant the taxon's federal delisting, in August 1999.

Although peregrine falcon habitat has not been mapped on Diablo Canyon Lands, this species is a year-round resident in the vicinity of Diablo Canyon. There are two active nest sites within the vicinity of the proposed project: Diablo Rock site and North Ranch Coastal Bluffs site.

D.3.1.4.3 Endangered and Threatened Fish Species

Rainbow Trout/Steelhead

One species, the steelhead (*Oncorhynchus mykiss*) occurs in the project area. Steelhead in the South-Central Evolutionary Significant Unit (ESU) (from Santa Cruz County south to the Santa Maria River) were listed as a threatened species in August 1997 (NMFS, 1999). Steelhead are migratory anadromous rainbow trout. They hatch in fresh water, descend to the ocean, and return to fresh water to spawn (Love, 1991). Depending on the stream, steelhead can be either summer or winter migrators but regardless of migration period, spawning usually takes place from March to early May (Love, 1991). Steelhead, historically, were common to most streams in central California (NMFS, 1999).

Steelhead constitute various races of ocean-going forms of rainbow trout that are native to Pacific coast streams from Alaska south to northwestern Mexico. The federally endangered southern steelhead is an ESU that has developed to survive the semi-arid climates and the rainfall patterns of southern California. Currently, the southern steelhead range is known from San Luis Obispo County south to Malibu Creek, Los Angeles County.

Once hatched, juvenile steelhead may stay in freshwater for one or two years before migrating to the ocean. This outward migration primarily occurs during the winter and spring months when river flows are relatively high. Steelhead mature at age two to four and migrate back upstream to natal spawning areas. The upstream migration generally occurs from January through March, but is dependent on the intensity of storms and subsequent outflow. After a female steelhead lays her eggs in a gravel nest, a male fertilizes the eggs. After fertilization, the nest is covered by a layer of gravel and the eggs incubate and hatch repeating the cycle.

The occurrence of sea-run rainbow trout (steelhead) has not been verified on DCPP, but self-sustaining populations of rainbow trout do occur in Diablo Creek. Individuals of the species may variously exhibit anadromy or freshwater residency. The relationship between these two life forms is poorly understood and it is not known with what frequency individuals that exhibit one life form (anadromy vs. fresh water residency) may cross over to assume the other mode.

In 1986 and 1990, fish sampling in Diablo Creek showed relatively low numbers of rainbow trout with a high ratio of adults to juveniles. These fish occur in upstream areas where surface water flow is present throughout the year. They also occur in pools that remain watered when adjacent stream reaches are reduced to subsurface flows. Thirty-five adult trout (greater than 4 inches) were collected during sampling in April 1986, and 27 adults and five juveniles were collected in May 1986 (PG&E, 2002). Because of the intermittent nature of surface flows in Diablo Creek, trout tend to concentrate in still pools or where flowing water is present year-round. An example is the plunge pool formed by the outflow of water through the switchyard culvert.

Differentiation between the common rainbow trout and its genetically similar ocean-going relative, the steelhead, is accomplished with certainty only through examination of DNA taken from sampled populations. This type of study has not been undertaken for populations of trout within Diablo Creek (PG&E, 2002). Although no records of adult steelhead trout are known from these streams, and fish sampled during the surveys discussed above lacked certain diagnostic traits of steelhead smolts (PG&E, 2002), the occurrence

of steelhead in these streams cannot be entirely ruled out. At the time of year when sampling occurred, resident rainbows would have been indistinguishable from juvenile steelhead (PG&E, 2002). Populations of steelhead have been documented from streams within the region, north of the power plant. Steelhead have been documented to use San Luis Creek, immediately to the south of DCPP lands, and are known to use several small creeks to the north of DCPP lands including, Little Pico Creek, Big Pico Creek, and other coastal streams. Historically, steelhead are thought to have occurred in Cottontail Creek, a creek that currently runs into Whale Rock Reservoir, near Cayucos.

Diablo Creek is probably not accessible to upstream migrating steelhead due to potential migration barriers located near the mouth of the stream (PG&E, 2002). While these barriers would probably not prevent downstream migrants from reaching the sea, they do not facilitate completion of the anadromous life form's lifecycle (PG&E, 2002). Resident (non-anadromous) fish are able to spawn, rear, and forage in the various riffle, pool, and run habitats afforded by the stream.

D.3.1.4.4 Endangered and Threatened Sea Turtles

There are three sea turtles listed as endangered species under the federal Endangered Species Act and they include the Pacific ridley, leatherback, and green. The loggerhead is listed as a threatened species under the same act. As described above, most of the turtle~~s~~ nests are along the coasts of Mexico and Central America. The nesting season varies with species, but is generally from May to September. The sea turtles breed at sea; and the females return to their natal beaches to lay their eggs. Female turtles can nest several times in a season but at two to three intervals.

Although marine turtles are not common to the Proposed Project area, they have ~~been~~ occasionally been reported. One green turtle was spotted near DCPP facility in 1994 and 1997.

D.3.1.4.5 Endangered or Threatened Seabirds

California Brown Pelican

The California brown pelican (*Pelecanus occidentalis californicus*) is a federally and State-listed endangered species and ranges from British Columbia to southwest Mexico. In the U.S., the California brown pelican nests only on Anacapa and Santa Barbara Islands off the southern California coast.

The listing of California brown pelican was based primarily on serious declines in the southern California population due to bioaccumulation of chlorinated hydrocarbon pesticides (DDT, DDE, dieldrin, and endrin) in the pelican's food chain (USDOI, 1996a). Bioaccumulation of these pesticides resulted in serious eggshell thinning and poor reproductive success (Schreiber and Risebrough, 1972). Food scarcity (primarily anchovies) also contributed to the species' decline (Keith et al., 1971).

The breeding season for California brown pelicans extends from March through early August. Preferred nesting habitat is on offshore islands. In 1991, about 12,000 breeding birds were reported at two colonies on Anacapa and Santa Barbara Islands (Carter et al., 1992). The California brown pelicans occur in coastal areas as far north as British Columbia and as far south as southwestern Mexico. They begin appearing north of Point Conception by July and increase in numbers through September or October. Offshore rocks and coastal habitats as rocky shores, sandy beaches, piers, provide important roost sites in the project area. They feed by plunge diving from heights of up to 15 to 20 m above the ocean surface and feed primarily on small schooling fish (e.g., anchovies) (USDOI, FWS, 1982). Pelicans return to specific roosts each day and do not normally remain at sea overnight. These roosts are usually in regions of high oceanic productivity and isolated from predation pressure and human disturbances. Project activities are not expected to result in any adverse impacts to this species.

D.3.1.5 Existing Marine Resource Issues

As described in Section A.1.1, DCPP uses a once-through cooling system to convert steam into water during power generation. The cooling system pulls water in from the Pacific Ocean using an intake structure located within the Intake Cove at DCPP. The ocean water cools the steam after the steam passes through the turbines in the power block, and then is discharged into Diablo Cove (see Figure A-1). This cooling water causes degradation of existing marine resources from the thermal plume (heated water released to the ocean) and the impingement (trapped on the intake screen) and entrainment (drawn into the cooling water intake) of marine resources. The existing thermal plume, impingement and entrainment issues would not change under this Proposed Project, and therefore, would be considered part of the baseline conditions of the project. This section describes the current studies that have been conducted on these issues at DCPP.

D.3.1.5.1 Cooling Water Thermal Discharge Plume

Thermal plume issues associated with DCPP operation have been well documented and thoroughly evaluated. PG&E initiated comprehensive biological monitoring of Diablo Cove and the surrounding area in 1976. This program is most commonly referred to as the Receiving Water Monitoring Program (RWMP). It is known by additional names including: ~~as the~~ Thermal Effects Monitoring Program (TEMP), ~~or the~~ Ecological Monitoring Program (EMP), and 316(a) demonstration and Marine Environmental Monitoring Program (MEMP). The Regional Water Quality Control Board (RWQCB) has periodically revised the monitoring program, but the program has otherwise continued for over 25 years.

Recently, the RWQCB's independent scientists and staff concluded that the effects from DCPP thermal discharge were greater than the originally predicted, as follows (RWQCB, 2003):

1. The discharge affects a greater distance of coastline than was predicted. The actual distance is ~~1.1~~ 1.4 miles of the intertidal zone in Diablo Cove, with minor changes also observed along an additional ~~0.7~~ 0.9 miles into Field's Cove northward, for a total distance of ~~1.8~~ 2.3 miles. Field's Cove and northward was intended as a control area, with no biological effects and no thermal plume contact, but the thermal plume was found to extend into this area periodically.

2. The discharge affects a greater area of the subtidal ~~zone~~ habitat than was predicted. The discharge was predicted to ~~effect~~affect an area of approximately 40 acres of Diablo Cove at the surface. Yet the discharge ~~affects~~ was found to affect approximately 56 acres of ~~subtidal~~ surface bull kelp on a frequent basis, and up to 105 acres containing surface bull kelp during major El Niño event years.

3. The magnitude of population and community changes is greater than predicted. The predicted effects in the intertidal zone were limited to one-third of Diablo Cove during a few months out of the year, and few changes were expected. The actual effects include major reductions in species populations and assemblages in Diablo Cove, including almost complete loss of foliose algae and intertidal fish. Also the actual effects are continuous and not seasonal as originally predicted.

4. Some thermal effects are unexpected, such as a major increase in "bare rock" in the intertidal zone in Diablo Cove. This represents a major community shift from foliose algae to predominantly limpets and other grazers with low diversity, and is indicative of ~~a stressed~~ an impacted biological community. The thermal discharge also causes detectable effects in the intertidal zone in Field's Cove, and exacerbation of withering syndrome disease on black abalone and black abalone population declines in the area.

Schiel et al. (2004) conducted another study that evaluated 10 years of thermal plume effects on the marine habitats at the DCPP. The study used an 18-year sampling program in intertidal and subtidal habitats. The results of the study found that a 3.5-degree Celsius rise in seawater temperature, induced by the thermal cooling water outfall of the DCPP, over 10 years along 2 kilometers of rocky coastline, resulted in significant community-wide changes in 150 species of algae and invertebrates.

As part of a July 2003 NPDES permit renewal process, RWQCB staff reviewed the biological issues associated with the once-through cooling water system at DCPP, and power plant modifications or operational changes that might reduce the biological issues. The RWQCB is considering measures to mitigate or offset thermal discharge effects associated with the DCPP cooling water system. The Regional Board directed its staff and a Technical Workgroup to consider certain aspects of the environmental mitigation and restoration provisions of the settlement agreement and possible alternative mitigation and restoration measures. With regard to the thermal discharge, they found no reasonable power plant modifications (such as an offshore discharge structure) or operational changes (such as reduced power generation) to address the thermal biological effects. The costs of options to potentially address the relevant thermal effects (the incremental difference between predicted and actual effects) range from hundreds of millions of dollars for an offshore discharge to billions of dollars for reduced power generation. The evidence indicates that these options would not be ecologically effective (RWQCB, 2003). Therefore, the alternatives are not reasonable pursuant to the State Thermal Plan, the Porter Cologne Water Quality Control Act, and the California Environmental Quality Act.

Considering the major issues with power plant modifications and operational changes, RWQCB staff and the Attorney General's office negotiated a settlement with PG&E, which is defined in the Consent Judgment. The Consent Judgment provides permanent protection for 5.7 miles of near-shore marine habitat, funding for projects to enhance and protect marine resources, and other benefits.

It should be noted that PG&E has signed the Consent Judgment, but the RWQCB – Central Coast Region Board declined to adopt the settlement in its current form and directed staff to evaluate additional alternatives. This evaluation is ongoing and there is no clear timeframe for reaching a settlement and implementation of any of the mitigation or restoration projects identified with the draft Consent Judgment.

D.3.1.5.2 Impingement/Entrainment

Impingement

Adult and juvenile fish are impinged on traveling screens ~~in front of~~ within the DCPP cooling system intake structure. The traveling screens are designed to remove debris before it enters the cooling water system. PG&E conducted an impingement study from April 1985 to March 1986 with the results showing that very few adult fish are actually impinged on the traveling screens. This is due to the low velocity (1 ft/sec at the bar racks and 1.95 ft/sec at the traveling screens) of the water as it passes through the intake structure, which allows the fish that inhabit the area to swim onto and off of the traveling screens. The study showed that the DCPP intake structure impinged a total of about 400 fish (about 60 pounds) and 1,300 crabs during the sampling period (RWQCB, 2003). According to PG&E comments on the Draft EIR, there were 80 skates and rays and 323 bony fishes impinged during 1985-1986 impingement study. The 60-pound value could not be verified in the 1988 DCPP 316b study, and the weight (60 pounds) has not been adjusted to total annual impingement. The 1,300 crabs were just the count of impinged Pacific rock crabs collected during the study. There were also 1,143 sharpnose crabs, 698 cryptic kelp crabs, and 425 Northern kelp crabs reported to have been impinged during the 1985-1986 impingement study.

For comparison, the Huntington Beach Power Plant, with flow volumes of about one fourth the flow volumes of DCPP, impinges up to 21 tons of fish per year, and the El Segundo Power Plant, also with flow values about one fourth DCPP flows, impinges about 15 tons of fish per year. Huntington Beach Generating Station's intakes are 1,500 feet offshore in 20 feet of water. El Segundo Generating Station's intakes are 2,100 feet offshore in 28 feet of water. ~~Both of the offshore intakes noted above are approximately 2,000 feet offshore in about 35 feet of water.~~ The amount of fish impinged at DCPP (about 60 pounds during the sampling period) is a small fraction of the amount impinged at these other power plants. The minor impingement losses at DCPP are so insignificant that they do not justify implementation of cooling water intake structure alternatives to further reduce the losses because the losses are already minimized (RWQCB, 2003). It should be noted that the DCPP impingement has not been scaled to an annual value and is not directly comparable to estimates from the Huntington Beach and El Segundo Power Plants, although it would appear that impingement at the DCPP is still considerably lower than at these other power plants.

Entrainment

Entrainment studies at DCPP near the intake structure occurred from October 1996 through June 1999. In addition to entrainment sampling near the intake structure, the study included an offshore sampling program.

The results of the DCPP entrainment study show that proportional larval losses for offshore (deeper water) species, including sport and commercial species, are for the most part relatively low. The ~~other~~ offshore species include sand dabs, rockfish, white croaker, Pacific sardine, ~~and~~ northern anchovy, and California halibut. The relatively low entrainment numbers for offshore taxa are due to the intake structure being located at the shoreline, relatively far from deep water species habitats (RWQCB, 2003).

Larvae from near-shore (relatively shallow water) species are entrained in significantly higher numbers. The nearshore species include smoothhead sculpin, monkeyface prickleback, clinid kelpfishes, snubnose sculpin, and blackeye goby. The larval losses for nearshore taxa cannot be converted into an equivalent number of adults because very little is known about these species. Also, these non-harvested near-shore species have no direct dollar value in terms of commercial fisheries, but do have ecological value. For several nearshore species (sculpins, kelpfish, blackeye goby, monkeyface prickleback), the amount of larvae taken by the power plant is large relative to the amount of larvae available in the nearshore source water body ~~offshore~~ (RWQCB, 2003).

The RWQCB (2003) found that the available data cannot be used to indicate any population declines due to entrainment, but that the relatively large proportional larval losses for nearshore taxa represent an adverse effect because the larval loss itself, regardless of any resulting population or community level affect, is a loss of resources. PG&E disagrees with RWQCB staff's position in the ongoing evaluation of potential entrainment effects. PG&E concludes that given the low entrainment estimates for offshore species, the conservative nature of the higher nearshore estimates, and the ~~limited~~ nature of the population trend data, the entrainment data do not indicate any adverse environmental issues (RWQCB, 2003).

At its July 2003 hearing, the RWQCB directed its staff and the Technical Workgroup to consider certain aspects of the environmental mitigation and restoration provisions of the settlement agreement and to consider possible alternative mitigation and restoration measures. The Technical Workgroup is considering several types of mitigation and restoration projects with respect to entrainment, including:

- Creating offshore reef habitat
- Fish hatchery work
- Restoration of marine habitat
- Terrestrial conservation easement (Regional Board/PG&E settlement)
- Use of PG&E lab facilities (Regional Board/PG&E settlement)
- Abalone Research (Regional Board/PG&E settlement)
- Central Coast Ambient Monitoring Program (Regional Board/PG&E settlement)
- CALCOFI work (ocean monitoring/research)
- Marine Protected Areas (establishment of marine reserves)

The Consent Judgment provides permanent protection of near-shore marine habitat and other benefits, while the effects due to DCPP are temporary and limited to the operating life of the facility. RWQCB staff originally estimated the value of the Consent Judgment at 16 to 26 million dollars (not including the ecological "value" of habitat protected in perpetuity). This value range far exceeds PG&E's estimate of the Net Present Value of the entrainment losses (under two million dollars) and would be similar to the estimated dollar value of the entrainment losses if they are increased by a factor of ten. Although these dollar value comparisons can be made to support the Consent Judgment, RWQCB staff believes the best valuation is ecological where ". . . marine resource benefits from the Consent Judgment will accrue forever, so permanent preservation of resources is invaluable" (RWQCB, 2003).

The RWQCB reached the following conclusions related to impingement and entrainment of marine organisms at DCPP:

1. Impingement losses are minimized pursuant to Clean Water Act Section 316(b) and no alternative technologies are necessary.

2. Entrainment losses are significant. However, intake structure technologies (such as screens and filters) for reducing entrainment are experimental and therefore are not demonstrated available technologies for the DCPP.

3. Closed cooling systems such as saltwater cooling towers are only conceptually possible at the DCPP, and the conceptual and minimum cost estimate for this alternative is 1.3 billion dollars. The cost of closed cooling systems is wholly disproportionate to their benefit.

D.3.2 Applicable Regulations, Plans, and Standards

Several federal and State laws and regulations apply to projects on the California coastline. Regulations, plans, and statutes applicable to the Proposed Project, and the associated compliance requirements as they relate to biological resources are described below.

Federal and State Standards for Terrestrial Biological Resources

Federal Endangered Species Act (ESA) of 1973. Title 16, United States Code, Section 1531 et seq., and Title 50, Code of Federal Regulations, Part 17.1 (50 CFR 17.1) et seq., designate and provide for the protection of threatened and endangered plant and animal species, and their critical habitat. The administering agency is the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Two sections of this Act are relevant to the Proposed Project:

- Under Section 9, the USFWS has defined the "taking" of federally listed species as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or to attempt to engage in such conduct." Harm includes impacts to the habitat of federally listed species where it results in an actual death or injures the species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Designated critical habitat of federally listed species also is protected from destruction or adverse modification by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.
- Under Section 10, in order to "take" a federally listed species, an incidental take permit pursuant to Section 10(a) of the Act must be obtained. The USFWS may issue a permit upon completion of a satisfactory habitat conservation plan (HCP) for the listed species that considers, among other things, measures that would be taken to monitor and mitigate Proposed Project impacts.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) makes it unlawful to pursue, hunt, capture, kill, or possess or attempt such an action towards any bird listed in wildlife protection treaties between the United States and several countries including Great Britain, Mexico, Japan, and countries that are part of the former Union of Soviet States. A "migratory bird" includes the living bird, any parts of the bird, its nests or eggs. Disturbance of the nest of a migratory bird requires a permit issued by the USFWS pursuant to Title 50 of the Code of Federal Regulations (CFR). Almost all birds, except for some non-native pests, are covered by the Act. The administering agency is the USFWS. Executive Order 13186 outlines the responsibilities of federal agencies to protect migratory birds, in furtherance of the MBTA, the Bald and Golden Eagle Protection Acts, the Fish and Wildlife Coordination Act, ESA, and NEPA.

Clean Water Act of 1977 (33 U.S.C. 1251 et seq.). The Clean Water Act (CWA, also known as the Federal Water Pollution Control Act) is the principal federal law governing protection of wetlands and water pollution control. This Act provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters.

Section 402 of the CWA, which establishes conditions and permitting for point-source discharges of pollutants under the National Pollutant Discharge Elimination System (NPDES), is applicable to the Proposed Project. Pursuant to NPDES requirements, a General Construction Activity Storm Water Permit would be required for project construction. A Storm-Water Pollution Prevention Plan (SWPPP) must be prepared in order to obtain the NPDES permit. The SWPPP would outline Best Management Practices (BMPs) to minimize water contamination during construction. These may include, but are not limited to, "in the dry" crossings of streams, seeding or revegetation of disturbed areas according to an established re-vegetation and landscaping plan, using water bars, diversion channels and terraces to control erosion on steep terrain, maintaining construction sites in a sanitary condition, disposal of wastes at appropriate locations, and control of stream sediments.

Executive Order 11990 – Protection of Wetlands. This order directs federal agencies to avoid to the extent possible long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Specifically, federal agencies are directed to provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities when acquiring, managing, and disposing of federal lands and facilities, and providing federally sponsored, financed, or assisted construction and improvements, or conducting federal activities and programs affecting land use. This Order does not apply to the issuance of permits (by federal agencies), licenses, or allocations to private parties for activities involving wetlands on non-federal property.

Executive Order 13112 – Invasive Species. The National Invasive Species Management Plan was developed in response to this order in 1997. This order established the National Invasive Species Council (Council) as the leaders in development of the plan, and directs the Council to provide leadership and oversight on invasive species issues to ensure that federal activities are coordinated and effective. In addition, the Council has specific responsibilities including: promoting action at Local, State, Tribal, and ecosystem levels; identifying recommendations for international cooperation; facilitating a coordinated network to document, evaluate, and monitor invasive species' effects; developing a web-based information network on invasive species; and developing guidance on invasive species for federal agencies. The Council has developed nine plan priorities that provide direction for federal agencies.

Coastal Zone Management Act of 1972 (16 U.S.C. 1455 et seq.). The Coastal Zone Management Act (CZMA) regulates development and use of the Nation's coastal zone by encouraging states to develop and implement coastal zone management programs. California's Coastal Zone Management Program has been certified by the U.S. Department of Commerce, and the California Coastal Commission is responsible for reviewing proposed federal agency and federally authorized activities to assess their consistency with the approved state coastal management program.

Marine Mammal Protection Act (MMPA) of 1972 (16 U.S.C. 1361 et seq.). Under the Marine Mammal Protection Act of 1972, the Secretary of Commerce is responsible for the protection of all cetaceans and pinnipeds and has delegated this authority to the NMFS. The Secretary of Interior is responsible for sea otters and has delegated this authority to the USFWS.

The Marine Mammal Protection Act established a moratorium on the taking of marine mammals in waters under U.S. jurisdiction. The Act defines "take" as hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." "Harassment" is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild; or 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. The moratorium may be waived when the affected species or population stock is within its optimum sustainable population range and would not be disadvantaged by the authorized taking. The Act directs the Secretary, upon request, to authorize the unintentional taking of small numbers of marine mammals incidental to activities other than commercial fishing when, after notice and opportunity for public comment, the Secretary finds that the total of such taking during a five-year (or shorter) period would have a negligible impact on the affected species.

The Act also specifies that the Secretary shall withdraw, or suspend for a specified period of time, permission to take marine mammals incidental to oil and gas production, and other activities if the applicable regulations regarding methods of taking, monitoring, or reporting are not being complied with, or the taking is having, or may be having, more than a negligible impact on the affected species or stock.

In 1994, a new subparagraph (D) was added to Section 101(a)(5) to simplify the process of obtaining "small take" exemptions when unintentional taking is by incidental harassment only. Specifically, the incidental take of small numbers of marine mammals by harassment can now be authorized for periods of up to one year without rulemaking, as required by Section 101(a)(5)(A), which remains in effect for other authorized types of incidental taking.

Magnuson-Stevens Act. The Magnuson-Stevens Fishery Conservation and Management Act of 1976 is the cornerstone legislation of fisheries management in U.S. jurisdictional waters. Its purpose was to stop overfishing by foreign fleets and aid in the development of the domestic fishing industry. The Act gave the U.S. sole management authority over all living resources within the 200-nautical mile exclusive

economic zone of the U.S. The Act created eight regional Fishery Management Councils and mandated a continuing planning and management program for marine fisheries by the Councils. The Act, as amended, requires that a Fishery Management Plan based upon the best available scientific and economic data be prepared for each commercial species or group of related species of fish that is in need of conservation and management within each respective region. The regional council for the Pacific OCS is the Pacific Fishery Management Council. In accordance with the Act, the councils report directly to the U.S. Secretary of Commerce who reviews, approves, and prepares fishery management plans. In practice, this function is delegated to the Administrator of the National Oceanic and Atmospheric Administration (NOAA) and the NMFS.

The Act has been amended several times. In 1996, federal law governing fisheries management underwent a major overhaul. The amendments, termed the Sustainable Fisheries Act of 1996, identified fish habitat as critical to healthy fish stocks and sustainable fisheries. The Act implemented a program to designate and conserve Essential Fish Habitat (EFH) for species managed under a Fishery Management Plan. EFH is defined as "those waters and substrate necessary for spawning, breeding, feeding, or growth to maturity." The intention is to minimize any adverse effects on habitat caused by fishing or non-fishing activities and to identify other actions to encourage the conservation and enhancement of such habitat. The documents prepared for West Coast groundfish EFH include all species of rockfish managed by the Pacific Fishery Management Council (Bloeser, 1999).

California Endangered Species Act (CESA). The California Endangered Species Act parallels the main provisions of the federal Endangered Species Act and is administered by CDFG. Under the California Act, an "endangered species" is defined as a species of plant, fish, or wildlife that is "in serious danger of becoming extinct throughout all, or a significant portion of its range" and is limited to species or subspecies native to California. The CESA establishes a petitioning process for the listing of threatened or endangered species. The CDFG is required to adopt regulations for this process and establish criteria for determining whether a species is endangered or threatened.

The California Endangered Species Act prohibits the "taking" of listed species except as otherwise provided in State law. Unlike its federal counterpart, the California Act applies the "take" prohibitions to species petitioned for listing (i.e., State candidates). CDFG code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." State lead agencies are required to consult with the CDFG to ensure that any action it undertakes is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat. Fish and Game Code Section 2080.1 states the requirements and procedures for a 2080.1 Consistency Determination. Section 2080.1 allows an applicant who has obtained a federal incidental take statement pursuant to a federal Section 7 consultation or a federal Section 10(a) incidental take permit to notify the Director in writing that the applicant has been issued an incidental take statement or an incidental take permit pursuant to the federal Endangered Species Act of 1973. The applicant must submit the federal opinion incidental take statement or permit to the Director of Fish and Game for a determination as to whether the federal document is "consistent" with CESA. Receipt of the application by the Director starts a 30-day clock for processing the Consistency Determination.

The classification of Fully Protected was the State's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations. Common and scientific names are given in the Fish and Game Code Sections 3511, 4700, 5050 and 5515. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

California Coastal Act (PRC 30000 et seq.). The California Coastal Act is the principal planning and regulatory program for the coastal zone of California. New development in the Coastal Zone that requires a permit from the Coastal Commission or the appropriate local government generally includes the placement of any solid material or structure, a change in land use density or intensity (including any land division), change in the intensity of water use or access to water, and removal of major vegetation.

The Coastal Act protects coastal access, environmentally sensitive habitats, agricultural lands, fisheries, cultural resources, and scenic qualities of the shoreline. The Act also establishes guidelines for development in the coastal zone and contains provisions for protecting life and property from coastal hazards. Implementation of the Coastal Act is through Local Coastal Programs that are developed and adopted by county and city jurisdictions as well as other state agencies that own land in the coastal zone. The project site is within an area covered by an adopted Local Coastal Program.

California Regional Water Quality Control Board (RWQCB). The RWQCB determines permit requirements on a case-by-case basis. They require a Waste Discharge Permit (WDP) if the action creates problems or if the action becomes permanent. The duration and size of a project are important factors and concerns may include the amount of water quality degradation.

The Water Quality Control Plan developed by the California Regional Water Quality Control Board, Central Coast Division established water quality standards for the region. The plan incorporates the California Ocean Plan which establishes standards to protect the quality of ocean waters for use and enjoyment by the people of California. The Ocean Plan is administered by Regional Water Quality Control Boards and is reviewed periodically to guarantee that the current standards are adequate and are not allowing degradation to marine species or posing a threat to public health (State Water Resources Control Board, 1990). In general, Chapters I, II, and III establish discharge standards for non-point discharges to marine waters. For example:

The California Ocean Plan, Chapter I, Beneficial Uses, states: "The beneficial uses of the ocean waters of the State that shall be protected include industrial water supply, water contact and non-contact recreation, including aesthetic enjoyment, navigation, commercial and sport fishing, mariculture, preservation and enhancement of Areas of Special Biological Significance, rare and endangered species, marine habitat, fish migration, fish spawning and shellfish harvesting."

The California Ocean Plan, Chapter II, Water Quality Objectives, states, in part, in Section E, Biological Characteristics, that:

1. Marine communities, including vertebrate, invertebrate, and plant species shall not be degraded.

2. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.

3. The concentration of organic materials in fish, shellfish or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

The California Ocean Plan, Chapter III, General Requirements for Management of Waste Discharge to the Ocean states, in part, in Section B, that waste discharged to the ocean must be essentially free of the following:

1. Material that is floatable or will become floatable upon discharge.

2. Settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life.

3. Substances which will accumulate to toxic levels in marine waters, sediments or biota.

4. Substances that significantly decrease the natural light to benthic communities and other marine life.

5. Materials that result in aesthetically undesirable discoloration of the ocean surface.

The State Water Resources Control Board (SWRCB) maintains the California Ocean Plan (SWRCB, 2001), which incorporates the State water-quality standards that apply to all NPDES discharge permits (Table D.3-4) and which is part of the California's Coastal Management Program. The standards identified in the California Ocean Plan are consistent with the limitations specified in the NPDES General Permit. This determination was made when the California Coastal Commission (2001) concurred with the USEPA's consistency certification that the proposed activities are consistent with the enforceable policies of California's Coastal Management Program.

In addition to the narrative standards specified in the Ocean Plan, numerical water-quality objectives are specified. Those likely to be pertinent to discharges from the DCPP are listed in Table D.3-5.

Fully Protected Species. Fish and Game Code Sections 3511, 4700, 5050, and 5515 prohibit the take of animals that are classified as fully protected in California.

Nest or Eggs – Take, Possess, or Destroy. Fish and Game Code Section 3503 protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.

Birds of Prey – Take, Possess, or Destroy. Fish and Game Code Section 3503.5 specifically protects California's birds of prey in the orders Falconiformes and Strigiformes by making it unlawful to take, possess, or destroy any such birds of prey or to take, possess, or destroy the nest or eggs of any such bird.

Migratory Birds – Take or Possession. Fish and Game Code Section 3513 protects California's migratory non-game birds by making it unlawful to take or possess any migratory non-game bird, as designated in the MBTA, or any part of such migratory non-game bird.

Lake or Streambed Alteration Agreement. Fish and Game Code Section 1600 et seq. regulates activities by any entity that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by the CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit.

Porter-Cologne Water Quality Control Act. Regional water quality control boards regulate the "discharge of waste" to "waters of the state." All projects proposing to discharge waste that could affect waters of the state must file a waste discharge report with the appropriate regional board. The board responds to the report by issuing waste discharge requirements (WDR) or by waiving WDRs for that project discharge. Both of the terms "discharge of waste" and "waters of the state" are broadly defined such that discharges of waste include fill, any material resulting from human activity, or any other "discharge." Isolated wetlands within California, which are no longer considered "waters of the United States" covered under Section 404 of the CWA, would still be covered under the Porter-Cologne Act.

Table D.3-4. California Ocean Plan Water Quality Standards

A. Bacterial Characteristics

1. Water-Contact Standards

   Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline and in areas outside this zone used for water contact sports, as determined by the Regional Board, but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column:

   a. Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20% of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 ml) and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 ml).

   b. The fecal coliform density based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 200 per 100 ml nor shall more than 10% of the total samples during any 60-day period exceed 400 per ml.

   The "Initial Dilution Zone" of wastewater outfalls shall be excluded from designation as "kelp beds" for purposes of bacterial standards and Regional Boards should recommend extension of such exclusion zone where warranted to the State Board. Adventitious assemblages of kelp plants on waste discharge structures, e.g., outfall pipes and diffusers, do not constitute kelp beds for purposes of bacterial standards.

2. Shellfish Harvesting Standards

   At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

   The median total coliform density shall not exceed 70 per 100 ml and not more than 10% of the samples shall exceed 230 per 100 ml.

B. Physical Characteristics

1. Floating particulates and grease and oil shall not be visible.
2. The discharge of the waste shall not cause aesthetically undesirable discoloration of the ocean surface.
3. Natural light shall not be significantly reduced at any point outside the initial dilution zone as a result of the discharge of waste.
4. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

C. Chemical Characteristics

1. The dissolved oxygen concentration shall not at any time be depressed more than 10% from which occurs naturally, as a result of the discharge of oxygen demanding waste materials.
2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.
4. The concentration of substances set forth in Chapter IV, Table B in marine sediments shall not be increased to levels which would degrade indigenous biota.
5. The concentration of organic materials in marine sediments shall not be increased to levels which would degrade marine life.
6. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.

D. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate and plant species, shall not be degraded.
2. The natural taste, odor and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.
3. The concentration of organic materials in fish, shellfish or other marine resources used for human consumption shall not be bioaccumulated to levels that are harmful to human health.

E. Radioactivity

1. Discharge of radioactive waste shall not degrade marine life.

Table D.3-5. Limiting Concentrations (µg/L) for Selected Chemical Constituents to be Applied in Receiving Ocean Water Beyond the Zone of Initial Dilution

Constituent	6-Month Median	30-Day Average	Daily Maximum	Instantaneous Maximum
Arsenic	8.0		32.0	80.0
Cadmium	1.0		4.0	10.0
Chromium	2.0		8.0	20.0
Copper	3.0		12.0	30.0
Lead	2.0		8.0	20.0
Mercury	0.04		0.16	0.4
Nickel	5.0		20.0	50.0
Selenium	15.0		60.0	150.0
Silver	0.7		2.8	7.0
Zinc	20.0		80.0	200.0
Cyanide	1.0		4.0	10.0
Total Chlorine Residual	2.0		8.0	60.0
Ammonia	600.0		2400.0	6000.0
Non-Chlorinated Phenolics	30.0		120.0	300.0
Chlorinated Phenolics	1.0		4.0	10.0
Antimony		1,200.0		
Ethylbenzene		4,100.0		
Thallium		2.0		
Toluene		85,000.0		
Total PAH		0.0088		

Source: SWRCB (2001).

Local Ordinances and Policies

San Luis Obispo County Local Coastal Plan (LCP). The San Luis Obispo County LCP addresses protection and enhancement of biological resources in the coastal zone. The Proposed Project, including the proposed RSG offloading area and most of the transportation route is subject to the County's LCP.

Local Ordinance and Policies for Marine Biological Resources. There are no local ordinances or policies that specifically address marine biological resources offshore of the DCPP or within the study area. However, the Central Coast RWQCB has established a Water Quality Control Plan (Basin Plan) for the coastal watersheds of San Luis Obispo County (RWQCB, 1994). The standards of the RWQCB incorporate the applicable portions of the Ocean Plan and are more specific to the beneficial uses of marine waters adjacent to the project site. These water quality objectives are designed to protect the beneficial uses of ocean waters within specific drainage basins. The Basin Plan identifies the following existing beneficial uses for the coastal waters near the DCPP: contact and non-contact water recreation, navigation, ocean commercial and sport fishing, shellfish harvesting, aquatic species migration and spawning, as well as habitat for marine ecosystems, terrestrial wildlife, and rare, threatened, or endangered species.

D.3.3 Environmental Impacts and Mitigation Measures for the Proposed Project

D.3.3.1 Definition and Use of Significance Criteria

Terrestrial Biological Resources

Significance criteria have been developed based on guidance provided by the *CEQA Guidelines* (Appendix G) and adapted to address specific issues associated with the Proposed Project, as determined by the CPUC as Lead Agency. The Proposed Project may result in significant impacts to terrestrial biological resources including wildlife and vegetation if the project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a threatened or endangered, candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means.
- 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 wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The criteria described above for determining the significance of project impacts are equally applicable to the OSG removal and RSG transport, site preparation, and storage, RSG transport construction, operation, and routine maintenance phases of the Proposed Project. While most of the effects on biological resources would be limited to construction activities, such as habitat disturbances and construction noise or lighting, others such as the permanent loss of habitat would perpetuate after project activities conclude.

Marine Biological Resources

Significance criteria have been developed based on guidance provided by the *CEQA Guidelines* (Appendix G) and adapted to address specific issues associated with the Proposed Project, as determined by the CPUC as Lead Agency. The Proposed Project may result in significant impacts to marine biological resources if the project would cause:

- Adverse modification to or the reduction in a population or habitat used by a state or federally listed endangered, threatened, regulated or sensitive species. Any "take" of a listed species shall be considered significant.

- Adverse modification to or the reduction in a population or habitat of a species that is recognized as biologically or economically significant in local, State, or federal policies, statutes or regulations.
- Any impedance of fish or wildlife migration routes that lasts for a period that significantly disrupts migration.
- Any alteration or destruction of habitat that prevents re-establishment of biological communities that inhabited the area prior to the project.
- Long-term (more than one year) loss or disturbance to biological communities or to ecosystem relationships.

Significance criteria have been developed based on guidance provided by the *CEQA Guidelines* (Appendix G) and adapted to address specific issues associated with the Proposed Project, as determined by the CPUC as Lead Agency. Changes in marine biological resources caused by the Proposed Project are considered significant if the changes:

- Last longer than a month for toxicological impacts (e.g., those caused by oiling events or toxicity caused by the resuspension of contaminated sediments).
- Last longer than one year for impacts caused by habitat disturbance (e.g., suspended sediments) or habitat reduction (e.g., damage to hard-bottom structures).
- Cause adverse modifications to, or reductions in a population or habitat used by a State or federally listed endangered, threatened, rare, or candidate species.
- Cause observable reductions in the population, community composition, or ecosystem relationships for species that are recognized for scientific, recreational, ecological, or commercial importance.

D.3.3.2 Replacement Steam Generator Transport

Terrestrial Biological Resources

Because transport of the RSGs would take place exclusively on paved surfaces, no impacts to vegetation are expected. No biological resources would be affected between the shore and road, and the Access Road is paved. Minor indirect temporary effects to wildlife could occur as a result of increased lighting and noise during transport, and minor sedimentation associated with runoff should construction activities be needed to reinforce portions of the road prior to transport.

Impact B-1: Transport of the RSGs would temporarily disturb nocturnal wildlife as a result of increased noise and night lighting along the road

Although the DCPP Access Road is regularly traveled by passenger vehicles and tractor trailer trucks, the type of equipment used for transport of the RSGs could temporarily disturb nocturnal wildlife if the RSGs were transported at night. Headlights on the transporter and other prime movers may cast light over a larger area than typical vehicles using the road, and this light may be more intense.

However, speeds would be well below the posted speed limit of the paved road minimizing adverse noise impacts (no more than ten miles per hour). No transport activities are expected to occur off the paved road, and no vegetation is expected to be impacted during transport. Because the transporter and other prime movers would be limited to a total of 16 trips between Port San Luis and DCPP, this impact is not considered significant, and no mitigation is required (Class III).

Impact B-2: Surface water runoff associated with new construction required to reinforce portions of the RSG transport roadway would increase erosion and sediments affecting aquatic species

Because the road is completely paved, impacts related to runoff, erosion, and sedimentation along the transport route would be relatively minor. In addition, any areas to be reinforced would be relatively small and Applicant-proposed monitoring and erosion control BMPs discussed in the Project Description of this Draft EIR (Section B) and Section 5.8 of PG&E's Proponent's Environmental Assessment (PG&E, 2004) are expected to be adequate to address small areas where erosion could be a concern. This impact is considered less than significant, and no additional mitigation measures are required (Class III).

Marine Biological Resources

Barges and support vessels would be used to transport the RSGs to Port San Luis near the DCPP. Increased vessel traffic can have an impact on sea life. RSG offloading activities would also impact ~~intertidal~~ subtidal habitats in Port San Luis.

Impact B-3: Vessel traffic would increase the likelihood of collisions with protected marine mammals

Marine Mammals. Watkins (1986), Malme et al. (1989), and Richardson et al. (1991) have reported that noises from vessels elicit a startle reaction from gray whales and mask their reception capabilities. They also reported that avoidance and approach responses vary according to whale activity. Migrating gray whales have been observed to avoid the approach of vessels to within 200 to 300 m (Wyrick, 1954) or to within 350 to 550 m (Bogoslovskaya et al., 1981). Based upon the results of Wyrick (1954) and Bogoslovskaya et al. (1981), noise effects on gray whales from vessels can be expected to be limited to within 200 to 550 m of approaching vessels and to be sublethal and temporary. However, collisions between vessels and gray whales occur frequently. Twelve collisions resulting in six deaths of gray whales occurred off southern California between 1975 and 1980 (Patten et al., 1980). Young gray whales, especially, are more likely to be hit by moving vessels (Laist et al., 2001).

The frequency and duration of offshore support vessels would increase substantially as a result of this project. Since collisions between vessels and gray whales, a federally protected marine mammal species, can result in severe injury or death, collisions are considered to be a potentially significant impact.

Very little information describing pinniped responses to vessels is available. Johnson et al. (1989) reported that northern fur seals can be wary and show an avoidance reaction to vessels at distances of up to one mile. Wickens (1994), however, reported that fur seals are often attracted to fishing vessels to feed. Sea lions in the water often tolerate close and frequent approaches by vessels, especially around fishing vessels. Sea lions hauled out on land are more responsive and react when boats approach within 100 to 200 m (Peterson and Bartholomew, 1967). Also, harbor seals often move into the water in response to boats. Even small boats that approach within 100 m displace harbor seals from haulout areas, and less severe disturbance can cause alert reactions without departure (Bowles and Stewart, 1980; Allen et al., 1984; and Osborn, 1985).

Dolphins of many species tolerate or even approach vessels. Reactions to boats often appear to be related to the dolphins' activity. Resting and foraging dolphins tend to avoid boats, while socializing dolphins may approach them (Richardson et al., 1995).

Riedman (1983) reported that, while sea otters often allow close approaches by small boats, they tend to avoid high activity areas. Rafting sea otters often exhibit mild interest in boats at distances of a few hundred meters and are not alarmed. Garshelis and Garshelis (1984) reported that sea otters in Alaska tend to avoid areas with frequent boat traffic. Udevitz et al. (1995) reported that sea otters tend to move away from approaching boats.

Marine mammals are present at both Port San Luis and the DCPP Intake Cove and are accustomed to vessel traffic and human activity. The area surrounding the mobile crane and Port Side Marine recreational boat launch is a hub of boating activity in Port San Luis and results in a considerable volume of vessel traffic in the immediate vicinity of the RSG landing site. Vessel traffic is also common in the Intake Cove as a result of the operation of the DCPP dive boats and kelp harvester. Therefore, introducing a barge and tug boat into either area would not constitute a new impact to marine mammals.

There is a greater potential to encounter and disturb marine mammals at the Intake Cove landing site because of the usage of areas within the Cove as a year-round harbor seal haul out site and the persistent presence of sea otters rafting in the kelp beds inside of the breakwater. The presence of a barge and maneuvering vessels in the Intake Cove has the potential to result in a temporary displacement of otters from the Cove, however the displaced animals would more than likely move only a short distance to bull kelp located along the breakwater at the entrance of the Cove. The proposed marine mammal observer training and use of marine mammal observers (Mitigation Measure B-3a) are adequate measures to reduce the potential for impacts to marine mammals to less than significant levels.

Marine Turtles. Noise from service-vessel traffic may elicit a startle reaction from marine turtles and produce a temporary sublethal stress (NRC, 1990). Service vessels could also collide with and injure marine turtles at the sea surface, but turtles are estimated to be at the sea surface for less than 4 percent of the time (Byles 1989 and Lohoefener et al., 1990). Vessel-related injuries have not been reported in project waters but have been noted in the Gulf of Mexico. In the Gulf of Mexico, 9 percent of stranded turtles examined showed signs of vessel injuries (USDOC, 1989).

Although marine turtles could be harmed or killed by project related vessels, collision impacts are considered to be adverse but not significant. Marine turtles are very rare in the project area, and collisions with vessel traffic are not expected to occur.

Overall, increased vessel traffic caused by the Proposed Project and associated impacts on marine mammals would be considered potentially significant, but with Mitigation Measure B-3a, the impacts would be reduced to a less than significant level (Class II).

Mitigation Measure for Impact B-3, Vessel traffic would increase the likelihood of collisions with protected marine mammals

B-3a **Marine Mammal Observer Training.** Under the direction of PG&E, vessel operators shall be trained by a marine mammal expert, provided by PG&E, to recognize and avoid marine mammals. The operators shall be retrained annually. Retraining sessions shall focus on the identification of marine mammal species, the specific behavior of species common to the project area, and awareness of seasonal concentrations of marine mammals. In addition, PG&E shall meet with the vessel operator prior to final transport to Port San Luis to convey all requirements regarding marine mammal safety measures. PG&E shall also provide a minimum of two marine mammal observers on all support vessels during the spring and fall gray whale migration periods and during periods/seasons having high concentrations of marine mammals in the project area. PG&E shall provide written documentation to CPUC verifying meetings with the vessel operators and identifying the marine mammal observers. Gray whales can be present from December to May, with the greatest numbers in January during the southward migration. A secondary peak occurs in March during the northward migration.

The observers shall have unobstructed views onboard each vessel and shall serve as lookouts so that collisions with marine mammals can be avoided. Additionally, PG&E shall provide to vessel operators and the CPUC a contingency plan that focuses on avoidance procedures when marine mammals are encountered at sea. Minimum components of the plan shall include:

- Vessel operators shall make every effort to maintain a distance of 1,000 feet from sighted whales and other threatened or endangered marine mammals or marine turtles.
- Support vessels shall not cross directly in front of migrating whales or any other threatened or endangered marine mammals or marine turtles.
- When paralleling whales, support vessels shall operate at a constant speed that is not faster than the whales.
- Female whales shall not be separated from their calves.
- Vessel operators shall not 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.
- Any collisions with marine wildlife shall be reported promptly to the federal and State agencies listed below pursuant to each agency's reporting procedures:
  - National Marine Fisheries Service
  - California Department of Fish and Game.

Impact B-4: Offloading activities would disturb nearshore marine habitats

The direct mechanical disturbance of nearshore marine habitats associated with RSG barge offloading activities can result in the loss of invertebrate marine organisms. Barge offloading activities associated with the Proposed Project can disturb beach habitat in two ways. First, grading of surficial sand cover to install the barge offloading crane would destroy marine invertebrates and result in a temporary delay in habitat recolonization. Second, regions immediately surrounding barge offloading area would be physically modified and compacted by the use of heavy equipment.

The degree of impact from mechanical disturbance would vary depending on location and organism density. A beach invertebrate survey conducted in October 1996 revealed substantially lower abundances in the supratidal zone. Within that zone, most of the organisms collected were terrestrial insects. Beach hoppers (*Megalorchestia columbiana*) were also more prevalent in samples collected in the supratidal zone although their numbers were low (96 per square foot). The actual loss in this region is likely to be small because the highly motile beach hoppers are capable of avoiding construction activities. Also, because of their mobility, this region would rapidly repopulate and return to the preconstruction densities. Finally, these organisms are comparatively low in number on this beach due to substantial recreational use, and they represent only a minor food source for birds and terrestrial organisms.

Project-related activities near the ~~intertidal~~ subtidal zone would impact a more diverse community of marine invertebrates. Habitat disturbance would consist of compaction from the ~~operation of heavy equipment~~grounding of the barge in addition to burial and movement of sand. In this region, five marine taxa, consisting largely of the polychaete worm Euzonus mucronata, contribute to an elevated ~~intertidal~~ subtidal invertebrate density (3,170 per square foot). The biomass associated with these organisms is small and not likely to represent a major food source for marine predators.

The seafloor in the vicinity of the proposed RSG offloading site at Port San Luis is composed primarily of relatively stable sandy substrate that would he expected to support a variety of invertebrate species including various clams, worms, crabs, sea stars, and sand dollars. Grounding the barge in this area would result in Class III adverse impacts to organisms inhabiting the soft bottom.

Although these invertebrate species are not protected under federal or state law, an effort should be made to avoid positioning the barge over dense sand dollar beds, which could be present in the area, since grounding the barge on a sand dollar bed may result in a longer-term (more than one year) adverse impact to the community. Seagrass beds, which may be present in the area, should also be avoided since they provide important nursery habitat for fishes and crustaceans and may be slow to recover. PG&E will conduct an underwater survey prior to arrival of the barge to assess what marine biological resources are present in the area that will be impacted and avoid sand dollar or seagrass beds to the maximum extent feasible.

In summary, damage to the marine invertebrate community from physical disturbance of habitat would be adverse but not significant for three reasons. First, the beach area impacted by habitat disturbance will be limited to the region surrounding the barge offloading area. Second, the number and biomass of invertebrate organisms lost would be comparatively low and represent only a few species which are not considered rare or endangered. Finally, loss of these organisms would probably be unavoidable, and the invertebrate community would fully recover within a few months after the completion of the project. Therefore, potential impacts are considered adverse but not significant (Class III), and no mitigation is necessary.

D.3.3.3 Replacement Steam Generator Staging and Preparation

Terrestrial Biological Resources

Replacement Steam Generator Temporary Staging Area. The proposed TSA at Parking Lot 1, which includes all the temporary facilities needed for RSG staging and preparation except for the containment and decontamination facilities, at Parking Lot 1 exhibits a compacted surface, and does not support vegetation. Additional fill material was added to Parking Lot 1 relatively recently, and the southwest-facing slope below the lot has been successfully revegetated with coastal scrub (Kelly, 2004). The construction of the RSG storage facility will therefore take place on developed property and would not affect vegetation or wildlife. The temporary containment access facility and decontamination facility would also be constructed on previously developed land. However, if vehicles travel beyond the limits of any previously disturbed or developed areas, native vegetation including sage scrub, oak woodland, and chaparral could be impacted.

Impact B-5: Vehicular travel into undisturbed areas could directly impact native vegetation

Although unlikely, vehicular travel beyond the limits of undisturbed areas could result in the direct loss of vegetation and wildlife habitat. Depending on the area and level of impact, unintended disturbance to native communities and wildlife habitat could be significant. With the adoption of Mitigation Measure B-5a, the residual impacts would be less than significant (Class II).

Mitigation Measures for Impact B-5, Vehicular travel into undisturbed areas could directly impact native vegetation

B-5a **Delineation of Disturbance Limits.** Limits of disturbance shall be clearly marked with construction fencing and approved by CPUC prior to project-related activities at the site to ensure that there is no incursion of construction equipment or deposition of materials into habitats outside of the defined area. The construction fence shall remain in place for the duration of the active phase at the location.

Marine Biological Resources

All activities associated with staging and preparation of the TSA facilities would occur onshore and, therefore, would not adversely affect marine biological resources. No impacts would occur.

D.3.3.4 Original Steam Generator Removal, Transport, and Storage

Terrestrial Biological Resources

The proposed OSG Storage Facility site has been previously developed and is unvegetated. Transport of the OSGs would take place within developed portions of the DCPP, and all travel would occur on paved roads. Therefore, no direct impacts to biological resources are expected. However, deposition of fill materials within the ISFSI soil disposal area has the potential to result in indirect impacts to vegetation and wildlife in the vicinity of the disposal site.

Impact B-6: Deposition of excavated materials could result in indirect impacts to vegetation and wildlife habitat

Deposition of excavated materials could cause indirect impacts to sensitive vegetation and wildlife habitat as a result of gullying caused by uncontrolled runoff; deposition of eroded materials into adjacent habitats downslope from the deposition site with consequent impacts on native vegetation and wildlife habitat; and potential establishment of invasive exotic plant species on the disposal site and their spread into adjacent native habitats.

Mitigation measures for soil deposition impacts associated with the ISFSI project were identified in the Final EIR for the ISFSI project (SLO County, 2004). Although the addition of 2,300 cubic yards of fill placed in the ISFSI disposal sites would not likely appreciably affect the level of impact, the following mitigation measure from the ISFSI Final EIR is recommended for the Proposed Project. With the adoption of Mitigation Measure B-6a, the residual impacts would be less than significant (Class II).

Mitigation Measures for Impact B-6, Deposition of excavated materials could result in indirect impacts to vegetation and wildlife habitat

B-6a **Revegetation of Soil Disposal Areas.** The Applicant shall prepare and implement a revegetation plan to be approved by CPUC prior to approval of the project. The revegetation plan will provide for long-term stabilization and revegetation of the soil stockpile areas associated with the project. The plan shall provide for development of long-term native plant cover compatible with surrounding areas of undisturbed native vegetation and wildlife habitat using local genetic sources of seed or cuttings for all native plant material. The plan shall include provisions for regular monitoring, maintenance including replacement of plants as needed, exotic species control, and performance assessment by a qualified independent third-party monitor. The revegetated areas shall achieve at least 75 percent of the native cover of appropriate reference sites in the general vicinity of the impact area as approved by CPUC. This performance standard shall be met within five years.

Marine Biological Resources

All activities associated with OSG removal, transportation and storage would occur onshore and, therefore, would not adversely affect marine biological resources. No impacts would occur.

D.3.3.5 Replacement Steam Generator Installation

Terrestrial Biological Resources

Installation of the RSGs would take place within completely developed portions of the DCPP facility at Units 1 and 2 and within disturbed areas. No impacts to terrestrial biological resources are anticipated.

Marine Biological Resources

All activities associated with RSG installation would occur onshore and, therefore, would not adversely affect marine biological resources. No impacts would occur.

D.3.4 Environmental Impacts and Mitigation Measures for the Alternatives

D.3.4.1 Replacement Steam Generator Offloading Alternative

Terrestrial Biological Resources. Terrestrial habitats at the DCPP Intake Cove offloading location include a compacted storage yard, with an adjacent bluff supporting a variety of non-native species along with some coastal scrub species. Vegetation adjacent to the Intake Cove RSG haul route consists of disturbed coastal scrub and coastal bluff scrub with some perennial and annual grasses (see Figure D.3-1). Use of the Intake Cove location for offloading the RSGs would require disturbance of a very narrow strip of mostly non-native, ruderal vegetation located close to the water's edge. This disturbance of non-native vegetation would not be considered a significant impact as defined by the significance criteria in Section D.3.3.1 above. This ruderal terrestrial vegetation includes bur clover, fennel, tree tobacco, sea fig, summer mustard, and a small number of seedling coast goldenbush (*Isocoma menziesii*). The impact to this small amount of native and non-native vegetation is less than significant. A nearby bluff supports some native species, and a minor impact to native vegetation could occur if vehicles accessed areas beyond the currently disturbed area (Impact B-5). Because the topography would limit any unintended disturbance to a very small area, this impact is less than significant (Class III) and no mitigation would be required.

In addition, because the Intake Cove location is much closer to the project disturbance areas (a distance of one mile versus seven miles for the Proposed Project), the RSGs would travel a much shorter distance between the offload point and the staging and installation locations. This distance would mostly traverse disturbed or developed portions of the plant. Although transport of the RSGs on the DCPP Access Road per the Proposed Project would be unlikely to produce direct impacts to vegetation and wildlife, some indirect impacts to terrestrial wildlife and water quality are possible. The Intake Cove Alternative would therefore have a slightly lower overall effect on terrestrial biological resources than the Proposed Project.

Marine Biological Resources. Impacts associated with RSG delivery to the DCPP Intake Cove would be similar to the Proposed Project. As with the Proposed Project, potential impacts associated with increased vessel traffic resulting from this alternative and associated impacts on marine mammals (Impact B-3) would be considered significant, but can be mitigated to a less than significant level (Class II) with the implementation of Mitigation Measure B-3a. Also similar to the Proposed Project, offloading at Intake Cove would cause a less than significant impact related to disturbing nearshore marine habitats (Impact B-4, Class III). The live offload procedure is proposed for RSG landing, if implemented, at the DCPP Intake Cove. No impacts to intertidal or subtidal habitat are expected because the barge would not contact the seafloor or the revetment along the shore of the Cove.

Figure D.3-1. Native and Introduced Vegetation Adjacent to the RSG Offloading Alternative and Transport Route

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Impacts to giant kelp cannot be avoided if the Intake Cove landing site was used. Although most kelp fringes the breakwater, scattered individual plants occur in the central portions of the Intake Cove and in the planned footprint of the docked barge. Therefore, some plants would be chopped by boat propellers and affected by the barge offloading operation. However, only a limited number of plants would be affected. Mitigation is not warranted because of the few plants that would be affected and the high potential for this species to recover.

There is a greater potential to encounter and disturb marine mammals at the Intake Cove landing site because of the usage of areas within the Cove as a year-round harbor seal haul out site and the persistent presence of sea otters rafting in the kelp beds inside of the breakwater. The presence of a barge and maneuvering vessels in the Intake Cove has the potential to result in a temporary displacement of otters from the Cove, however the displaced animals would more than likely move only a short distance to bull kelp located along the breakwater at the entrance of the Cove. The proposed marine mammal training and use of marine mammal observers represent adequate measures to reduce the potential for impacts to marine mammals to less than significant levels.

D.3.4.2 Temporary Staging Area Alternatives

All activities associated with the TSA Alternatives would occur onshore and, therefore, would not adversely impact marine biological resources.

TSA Alternatives A and B

TSA Alternatives A and B would be sited in Parking Lots 7 and 8, respectively, which are located on the southern side of the DCPP facility. See Figure C-1 for map showing the locations of these Alternatives. Steep slopes surrounding Parking Lots 7 and 8 are vegetated with disturbed coastal scrub and grassland species. The sites are used as parking lots, and are paved. No impacts to vegetation or wildlife would be associated with the use of these options.

TSA Alternative C

TSA Alternative C would be sited in Warehouse B and Parking Lot 1, located on the southern side of the DCPP facility (see Figure C-1 for a detailed map showing these locations). The Warehouse B site is completely developed. Parking Lot 1 has been filled, leveled, and compacted to create suitable areas for parking and other needs of the facility. Fill material was added to unpaved Parking Lot 1 relatively recently, and the west-facing slope below the lot has been successfully revegetated with coastal scrub (Kelly, 2004).

Although use of the TSA Alternative C would not be expected to result in the direct loss of vegetation and wildlife habitat, however there could be unintended disturbance to native communities and wildlife habitat near or adjacent to the site due to the accidental movement of construction vehicles over this area (Impact B-5), which could be significant. However, impacts would be similar to the Proposed Project, and with the implementation of Mitigation Measure B-5a, the impacts to terrestrial biological resources would be less than significant (Class II).

D.3.4.3 Original Steam Generator Storage Facility Location Alternatives

Terrestrial Biological Resources. The OSG Storage Facility Alternatives would be located at the following sites on the DCPP property:

- OSG Storage Facility Alternative A would be located in the northeast corner of the 500 kV switchyard.
- OSG Storage Facility Alternative B would be located approximately 500 feet southeast of the proposed OSG storage location, on the south side of Diablo Canyon upstream of the 500 kV switchyard.
- OSG Storage Facility Alternative C would be located approximately 800 feet southeast of the proposed OSG storage location, on the south side of Diablo Canyon upstream of the 500 kV switchyard.
- OSG Storage Facility Alternative D would be located approximately 600 feet southeast of the proposed OSG storage location, on the south side of Diablo Canyon upstream of the 500 kV switchyard.

All four sites are currently unpaved and unvegetated equipment storage and parking areas. Coastal scrub and oak woodland occurs on the slopes to the south, and coast live oak woodland associated with Diablo Canyon occurs to the north. Grasslands, chaparral, and scrub communities are scattered in the hills to the east. The construction of the OSG Storage Facility Alternatives would take place on developed property and would not affect vegetation or wildlife. However, if vehicles travel beyond the limits of any previously disturbed or developed areas, native vegetation including sage scrub, oak woodland, and chaparral could be impacted.

Although construction and use of OSG Storage Facility Alternatives would not be expected to result in the direct loss of vegetation and wildlife habitat, unintended disturbance to native communities and wildlife habitat near or adjacent to the site (Impact B-5) could be significant (Class II). This unintended disturbance could occur as a result of construction vehicle movement occurring within or over this area. However, impacts of each alternative would be similar to the Proposed Project, and with the implementation of Mitigation Measure B-5a, impacts to terrestrial biological resources would be less than significant (Class II).

Marine Biological Resources. All activities associated with the OSG Storage Facility Alternatives would occur onshore and, therefore, would not adversely impact marine biological resources.

D.3.4.4 Original Steam Generator Offsite Disposal Alternative

Terrestrial Biological Resources. If the OSGs would be removed from the site and transported to a low-level waste facility, the long-term OSG Storage Facility and associated excavation would not be required. This would avoid Impact B-6, related to depositing excavated materials onsite. However, similar impacts could occur at the disposal site.

Marine Biological Resources. OSG offsite disposal would result in the need to transport the OSGs via barge, which would create similar impacts discussed above for the Proposed Project concerning the delivery of the RSGs. Similar to the offloading described in Section D.3.3.2, Impact B-3 related to vessel traffic impacts on marine mammals (Class II) and Impact B-4 related to disturbing nearshore marine habitats (Class III) would occur. Mitigation Measure B-3a (Marine Mammal Observer Training) would be required to reduce potentially significant impacts to less than significant levels.

D.3.5 Environmental Impacts of the No Project Alternative

D.3.5.1 Terrestrial Biological Resources

Under the No Project Alternative, the habitats at the DCPP site would remain largely unchanged for the short term, and project-related impacts during RSG transport and other activities would not occur. No

ground disturbance or other physical modification of the lands surrounding DCPP would occur. Because the plant would probably cease operation before the NRC license expiration, some limited areas may be returned to native habitat sooner than under the Proposed Project.

Offsite, replacement sources of power would likely be constructed and operated to make up for the generating capacity lost with the shutdown of DCPP. A wide range of potential new power generating and transmission solutions could be implemented. These could include the construction of new generating facilities including natural gas-fired power plants with associated linear facilities such as supply pipelines and transmission system interconnections or expansions. Wind energy technologies could involve especially severe impacts by causing bird strikes. Impacts to other terrestrial biological resources could be significant if new facilities would be built in or near areas supporting sensitive habitats, plants, or animals.

D.3.5.2 Marine Biological Resources

The No Project Alternative could generate limited impacts to marine biological resources depending on the source of replacement of power; however it would eliminate ~~adverse~~ effects of normal DCPP operations such as the thermal plume ~~in Diablo Cove~~ and cooling water intake impingement and entrainment.

Replacement Generation Impacts. Replacement generation facilities would most likely not cause substantial impacts to marine biological resources. Due to environmental concerns, the use of once-through cooling or the substantial alteration of marine habitat is not expected to occur under any reasonably foreseeable replacement generation scenario. None of the foreseeable alternative power generation sources would have direct, adverse impacts to the marine environment. In addition, it is unlikely that any alternative to DCPP would utilize the existing DCPP cooling water system without substantial modification.

DCPP shutdown under the No Project Alternative would cause cooling water thermal discharges to cease, which would allow for the slow natural restoration of the marine environment as it existed prior to DCPP operations. As stated in Section D.3.1.5, the DCPP thermal discharge has affected ~~1.1~~ 1.4 miles of Diablo Cove and ~~0.7~~ 0.9 miles of Field's Cove northward over approximately 40 to 105 acres containing surface bull kelp depending on weather conditions. The adverse effects of the existing thermal plume include major reductions in species populations and assemblages in Diablo Cove and almost the complete loss of others; as well as species' community shifts, low species diversity, and an increase of withering syndrome in ~~some species~~black abalone. Therefore, shutdown of DCPP would eliminate the effects of thermal plume discharge. This would be considered a beneficial impact (Class IV).

Similar to the thermal plume discharge, the existing adverse effects of cooling water intake impingement and entrainment would cease if DCPP ceases operation under the No Project Alternative. Upon shutdown of DCPP, impingement and entrainment would stop immediately. Adult and juvenile fish are impinged, or trapped, on the screens ~~in front of~~within the DCPP cooling system intake structure. Small aquatic organisms and larvae are also entrained, or drawn into the cooling water intake, ~~super~~heated and eventually pumped out the discharge structure. According to studies performed by PG&E (see Section D.3.1.5.2), 400 fishes, ~~(60 pounds)~~skates, and rays were impinged during a one-year time period, and there was a ~~large proportional~~ larval loss in nearshore fish taxa, which can not be converted into equivalent adults, but still constitutes a loss of resources. Impingement and entrainment would cease under the No Project Alternative, which would be considered a beneficial impact (Class IV).

D.3.6 Mitigation Monitoring, Compliance, and Reporting Table

Table D.3-6 shows the mitigation monitoring, compliance, and reporting program for Biological Resources.

Table D.3-6. Mitigation Monitoring Program – Biological Resources

IMPACT B-3	**Vessel traffic would increase the likelihood of collisions with protected marine mammals (Class II)**
MITIGATION MEASURE	**B-3a: Marine Mammal Observer Training.** Under the direction of PG&E, vessel operators shall be trained by a marine mammal expert, provided by PG&E, to recognize and avoid marine mammals. The operators shall be retrained annually. Retraining sessions shall focus on the identification of marine mammal species, the specific behavior of species common to the project area, and awareness of seasonal concentrations of marine mammals. In addition, PG&E shall meet with the vessel operator prior to final transport to Port San Luis to convey all requirements regarding marine mammal safety measures. PG&E shall also provide a minimum of two marine mammal observers on all support vessels during the spring and fall gray whale migration periods and during periods/seasons having high concentrations of marine mammals in the project area. PG&E shall provide written documentation to CPUC verifying meetings with the vessel operators and identifying the marine mammal observers. Gray whales can be present from December to May, with the greatest numbers in January during the southward migration. A secondary peak occurs in March during the northward migration. The observers shall have unobstructed views onboard each vessel and shall serve as lookouts so that collisions with marine mammals can be avoided. Additionally, PG&E shall provide to vessel operators and CPUC a contingency plan that focuses on avoidance procedures when marine mammals are encountered at sea. Minimum components of the plan shall include: • Vessel operators shall make every effort to maintain a distance of 1,000 feet from sighted whales and other threatened or endangered marine mammals or marine turtles. • Support vessels shall not cross directly in front of migrating whales or any other threatened or endangered marine mammals or marine turtles. • When paralleling whales, support vessels shall operate at a constant speed that is not faster than the whales. • Female whales shall not be separated from their calves. • Vessel operators shall not 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. • Any collisions with marine wildlife shall be reported promptly to the federal and State agencies listed below pursuant to each agency's reporting procedures: — National Marine Fisheries Service — California Department of Fish and Game.
Location	Transportation route between Ports of Los Angeles/Long Beach and Port San Luis
Monitoring / Reporting Action	Continuous monitoring, reporting only if incident occurs
Effectiveness Criteria	Avoidance of marine mammal strike
Responsible Agency	CPUC, CDFG, NMFS
Timing	Prior to RSG transport
IMPACT B-5	**Vehicular travel into undisturbed areas could directly impact native vegetation (Class II)**
MITIGATION MEASURE	**B-5a: Delineation of Disturbance Limits.** Limits of disturbance shall be clearly marked with construction fencing and approved by CPUC prior to project related activities at the site to ensure that there is no incursion of construction equipment or deposition of materials into habitats outside of the defined area. The construction fence shall remain in place for the duration of the active phase at the location.

Table D.3-6. Mitigation Monitoring Program – Biological Resources

Location	Replacement Steam Generator Temporary Storage Area
Monitoring / Reporting Action	CPUC shall verify placement, maintenance, and compliance.
Effectiveness Criteria	Fence remains intact for duration of project work at this location.
Responsible Agency	CPUC
Timing	Prior to project activities until end of active phase
IMPACT B-6	**Deposition of excavated materials could result in indirect impacts to vegetation and wildlife habitat (Class II)**
MITIGATION MEASURE	**B-6a: Revegetation of Soil Disposal Areas.** The Applicant shall prepare and implement a revegetation plan to be approved by CPUC prior to approval of the project. The revegetation plan will provide for long-term stabilization and revegetation of the soil stockpile areas associated with the project. The plan shall provide for development of long-term native plant cover compatible with surrounding areas of undisturbed native vegetation and wildlife habitat using local genetic sources of seed or cuttings for all native plant material. The plan shall include provisions for regular monitoring, maintenance including replacement of plants as needed, exotic species control, and performance assessment by a qualified independent third-party monitor. The revegetated areas shall achieve at least 75 percent of the native cover of appropriate reference sites in the general vicinity of the impact area as approved by CPUC. This performance standard shall be met within five years.
Location	Soil disposal area for OSG Storage Facility site
Monitoring / Reporting Action	Preparation of revegetation plan, implementation of plan, regular maintenance and monitoring events. The plan shall be submitted to and approved by the CPUC prior to approval of the project.
Effectiveness Criteria	Meets 75 percent native cover performance criteria.
Responsible Agency	CPUC
Timing	Plan to be developed prior to project approval, measure to be implemented until performance standards are met

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