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The study area is located within the Southern California Bight (SCB), an oceanic region bounded landward by the coast and seaward by the continental slope (Patton Escarpment). For the purposes of the Restoration Plan, the SCB is defined as the area between Point Conception (north), Cabo Colonet, located south of Ensenada, Mexico (south), outside of the Cortez and Tanner Banks (west), and coastal watersheds (east). The study area extends from Point Dume to Dana Point along the coast and includes the California Channel Islands and those Baja California Pacific Islands that lie within the SCB. To facilitate National Environmental Policy Act (NEPA) analysis and descriptions, the United States portion of the study area has been divided into three subareas: coastal, the Northern Channel Islands, and the Southern Channel Islands (Figure 3.0-1).

The coastal subarea has been further divided into the following six reaches:

- Coastal Reach 1: Pont Dume to Pacific Palisades
- Coastal Reach 2: Pacific Palisades to Palos Verdes Estates
- Coastal Reach 3: Palos Verdes Estates to Cabrillo Beach
- Coastal Reach 4: Cabrillo Beach to Orange County jurisdictional boundary
- Coastal Reach 5: Orange County jurisdictional boundary to Corona del Mar
- Coastal Reach 6: Corona del Mar to Dana Point

The two subareas of the Channel Islands are separated geographically and geologically, which can also relate to species distribution patterns. The Northern Channel Islands subarea includes four islands: San Miguel, Santa Rosa, Santa Cruz, and Anacapa.

The Southern Channel Islands subarea also includes four islands: Santa Barbara, San Nicolas, Santa Catalina, and San Clemente.

Management and ownership of the Channel Island falls under the jurisdictions of the Channel Islands National Park, the Channel Islands National Marine Sanctuary, the U.S. Navy, the Catalina Island Conservancy, and The Nature Conservancy. Land use, including management, is described in Section 3.5.

The following subsections summarize existing conditions according to major resource categories, including geology and earth resources (Section 3.1), oceanographic and coastal processes (Section 3.2), watershed and coastal water quality (Section 3.3), biological resources (Section 3.4), land use and recreation (Section 3.5), aesthetics and visual resources (Section 3.6), transportation (Section 3.7), air quality (Section 3.8), noise (Section 3.9), cultural resources (Section 3.10), and socioeconomics (Section 3.11).

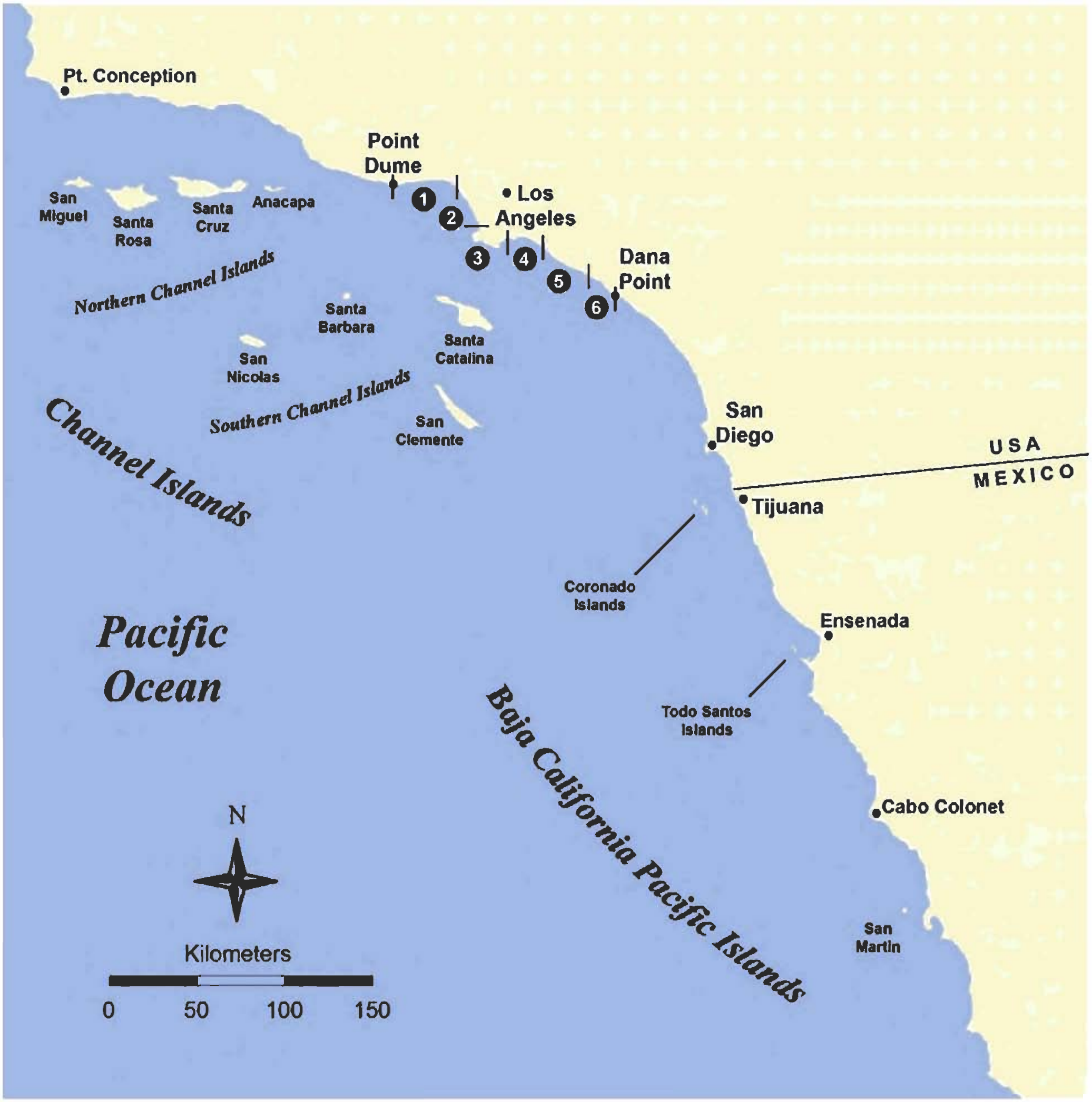


Figure 3.0-1. Study area for the Montrose Settlements Restoration Program with coastal and island subareas.

3.1 GEOLOGY AND EARTH RESOURCES

The study area consists of low lying coastal areas backed by uplifted mountain ranges and uplifted islands offshore (Figure 3.1-1). The shorelines of the coastal mainland are characterized by uplifted marine terraces, coastal bluffs, and "drowned" alluvial plains. The most extensive marine terraces within the study area are exposed along the sides of the Palos Verdes Hills and at Dana Point (California Coastal Commission 1987). The geology of the Channel Islands is predominantly of igneous and sedimentary origin (Thorne 1967, Schaffer 1993), and marine terraces occur along the coasts of these islands.

Three major geomorphic features occur in the marine environment within the Southern California Bight: the Santa Barbara Basin, and the Inner and Outer Borderlands (Dailey et al. 1993). These features include canyons, ridges, and basins defined by unique patterns of seismicity, fault types, sea floor topography, and bottom sediments (Figure 3.1-2). The Santa Barbara Basin is north of the study area. The study area includes the Inner Borderlands and shelf of the Outer Borderlands around the Channel Islands to depths of 200 meters (656 feet) in both areas.

3.1.1 Bathymetry and Topography

The shoreline topography and offshore bathymetry along the coastal reaches of the study area are shown in Figure 3.1-3. Elevations range from sea level along the coast to 451 meters (1,480 feet) in the Palos Verdes Hills. The width of the shelf along the coast varies from 1.9 kilometers (1.2 miles) to 22 kilometers (13.7 miles) and includes several marine canyons that intercept the shelf and slope. The nearshore portion of the study area consists geographically of Santa Monica Bay, Palos Verdes Shelf, San Pedro Bay, and the open coastal waters off Orange County.

Santa Monica Bay is characterized by a gently sloping continental shelf that extends to the shelf break at a water depth of approximately 80 meters (265 feet). At the break, the seafloor becomes steep along the slope but then flattens into the deep Santa Monica Basin in approximately 800 meters (2,630 feet) of water (Terry et al. 1956, SMBRP 1994). The Dume, Santa Monica, and Redondo Canyons bisect Santa Monica Bay.

The Palos Verdes Shelf is narrow and extends offshore to approximately 75 meters (245 feet) of water. The shelf ranges in width from 1.9 to 7.4 kilometers (1.2 to 4.6 miles). Features of the shelf and bathymetry in the vicinity of the Los Angeles County Sanitation Districts' Joint Water Pollution Control Plant (JWPCP) outfalls offshore of White Point are shown in Figure 3.1-4.

San Pedro Bay consists primarily of the Los Angeles/Long Beach Harbor complex and a relatively flat, wide shelf offshore. The development of the ports has involved a series of dredge-and-fill operations to deepen channels to accommodate deep-draft vessels and to provide fill for additional land areas for terminal development. Typical water depth in the outer harbor is approximately 15 meters (50 feet).

Relatively regular bathymetric features typical of open coasts characterize the coastal region adjacent to Orange County. Newport Canyon bisects the shelf offshore of Newport Bay. The shelf narrows downcoast of the canyon, and the nearshore bathymetry is largely shore-parallel along this reach of the SCB.

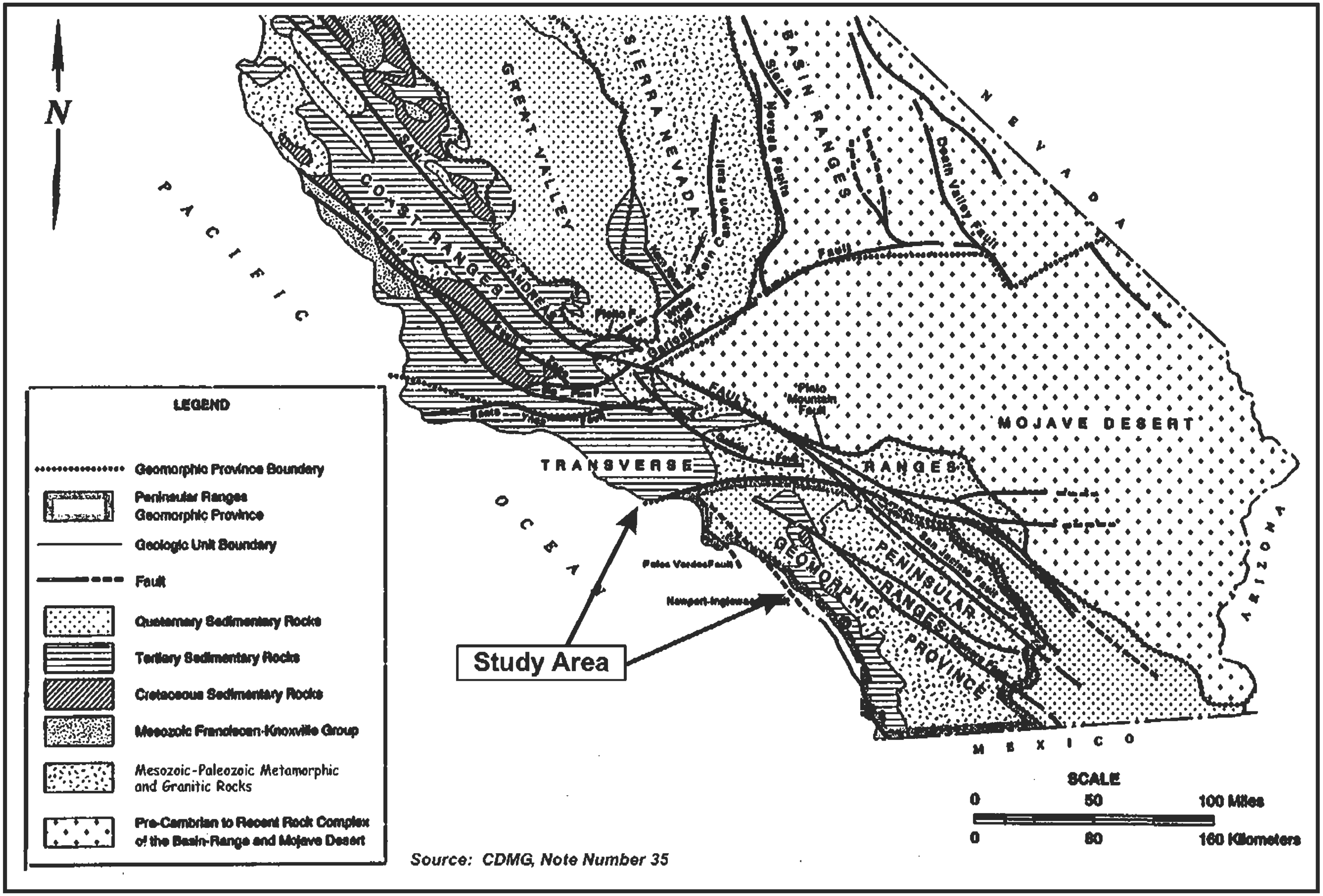


Figure 3.1-1. Geomorphic setting of the region.

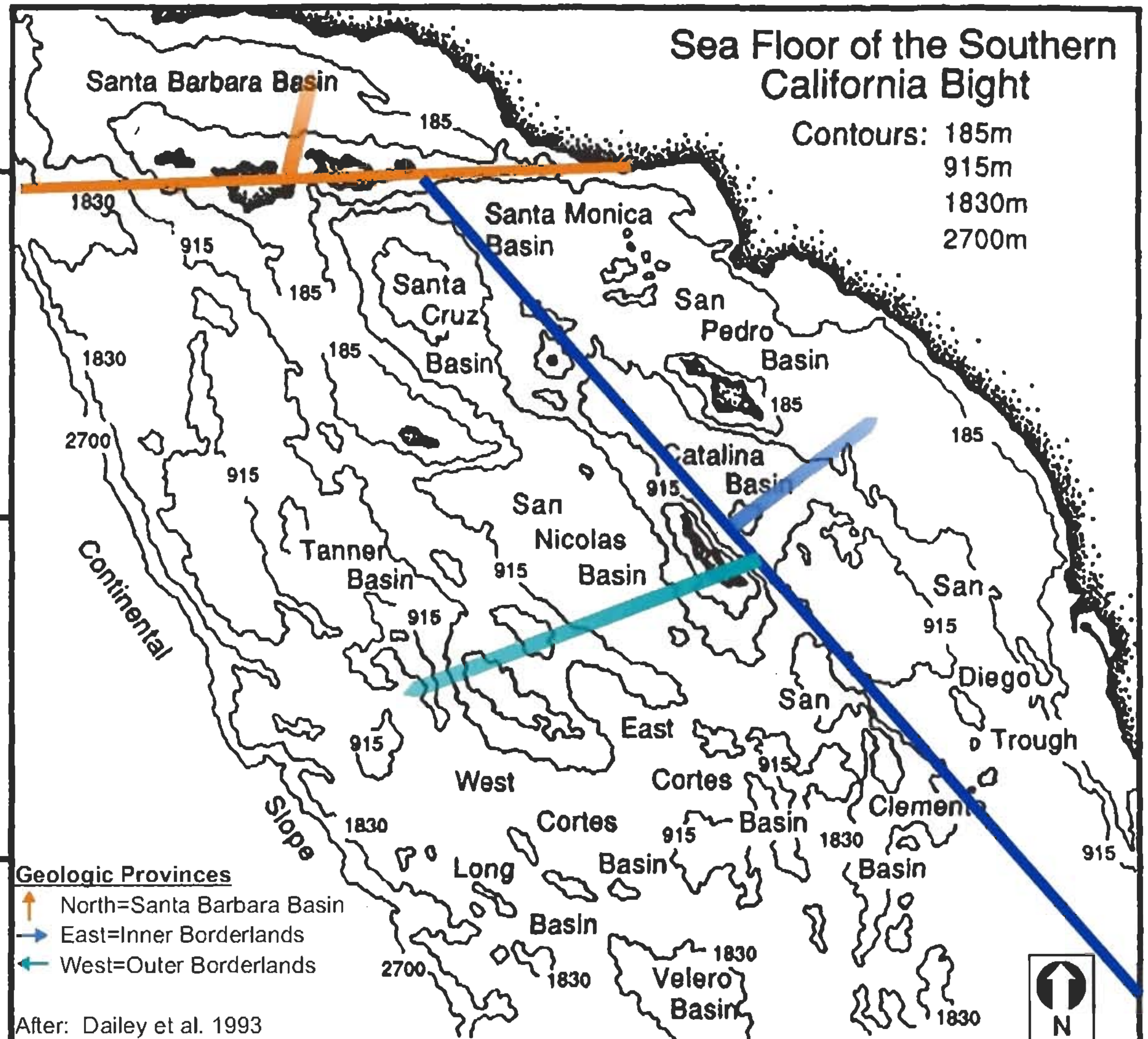
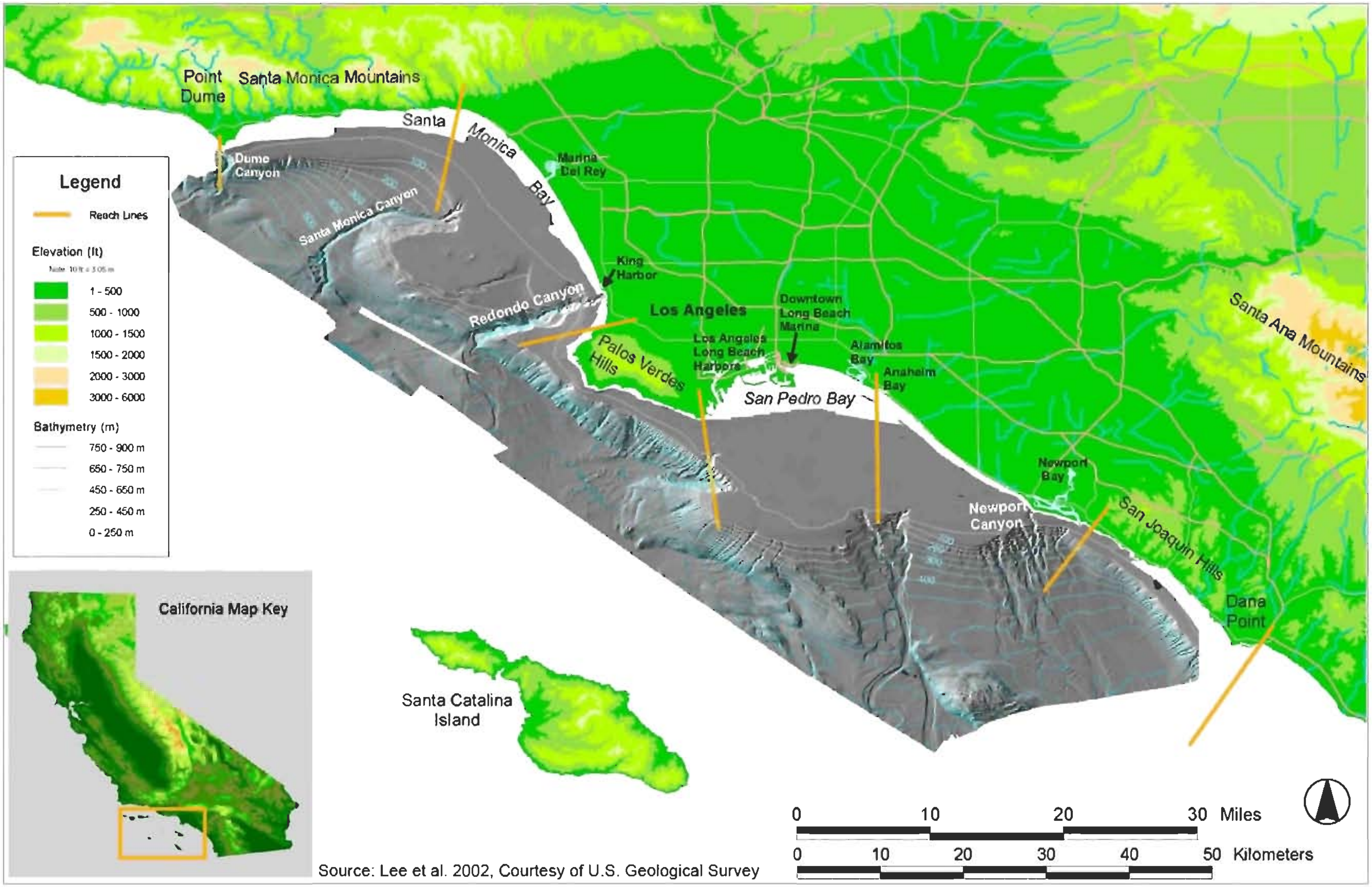


Figure 3.1-2. Major geologic provinces and seafloor characteristics of the Southern California Bight.



Source: Lee et al. 2002, Courtesy of U.S. Geological Survey

Figure 3.1-3. Elevation and bathymetry along the coastline from Point Dume to Dana Point.

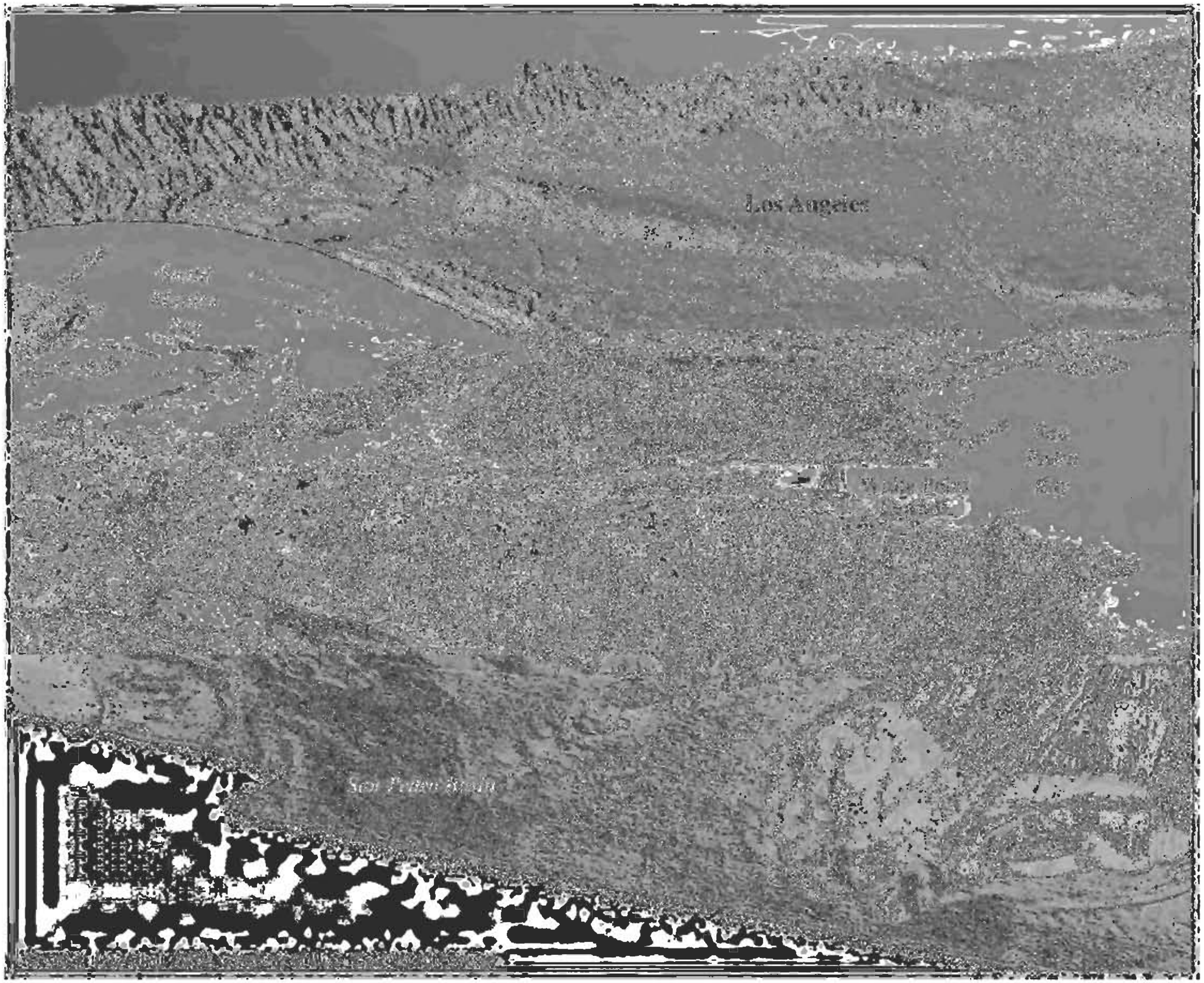


Figure 3.1-4. Oblique view of the Palos Verdes Shelf and slope based on multi-beam bathymetry.

The total land area of the Channel Islands is about 87,102 hectares (215,227 acres), with Santa Cruz being the largest island and Santa Barbara the smallest of the archipelago. Elevations range from sea level to the highest peak at Picacho Diablo on Santa Cruz Island, with an elevation of 747 meters (2,450 feet) (CINMS 2000).

The bathymetry of the Channel Islands forms a relatively wide shelf around San Miguel, San Nicolas, Santa Barbara, and Santa Rosa Islands (Figure 3.1-5). Anacapa and Santa Cruz Islands have a wider shelf on the north than the south sides of the islands. San Clemente and Santa Catalina Islands have relatively narrow shelves. The shelves drop off into basins adjacent to the islands (see Figure 3.1-5).

3.1.2 Shoreline Characteristics and Marine Sediments

Shorelines within the study area were classified into six summary categories: rocky shores, gravel beaches, riprap, sandy beaches, wetlands, and areas with artificial structures (e.g., wharves, piers, or seawalls). These categories, which are based on the California Department of Fish and Game (CDFG) and National Oceanic and Atmospheric Administration (NOAA) Environmental Sensitivity Index Geographical Information System (GIS) database, include shorelines along the seacoast as well as those associated with wetlands, bays, and harbors. Table 3.1-1 summarizes the highest elevation (above mean sea level) and the characteristics of the shorelines within each coastal reach of the study area. In general, shorelines bordered by mountains have rocky shores, shorelines bordered by coastal plains are mostly sandy beaches, and bays and harbors have extensive artificial substrates along their shorelines.

Table 3.1-1
Coastal Shore Elevation and Shoreline Types Within the Coastal Reaches of the Study Area

	COASTAL REACH					
	Reach 1	**Reach 2**	**Reach 3**	**Reach 4**	**Reach 5**	**Reach 6**
Elevation (meters)	427	122	427	61	91	244
Elevation (feet)	1,400	400	1,400	200	300	800
Shoreline Type (%)						
Artificial structure	0	23	0	65	43	10
Gravel beach	0	0	37	0	0	3
Riprap	28	27	1	28	11	22
Rocky shore	20	0	55	0	0	30
Sandy beach	49	46	7	6	15	35
Wetlands	2	4	0	1	30	0

Note: Calculated by MEC Analytical Systems, Inc., for NOAA from Environmental Sensitivity Index GIS data (NOAA and CDFG 2000).

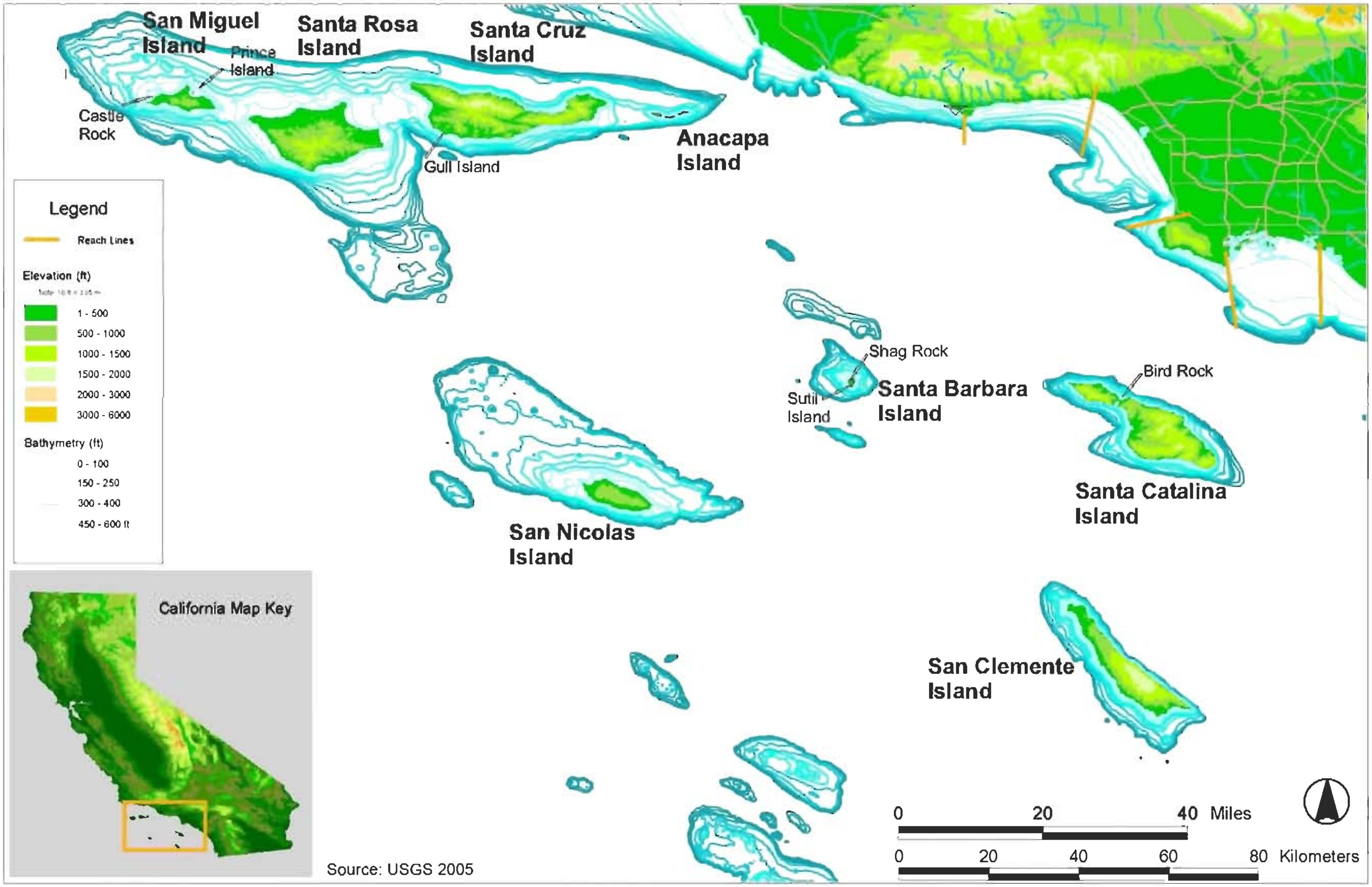


Figure 3.1-5. Elevation and bathymetry for Channel Islands.

Two primary types of sedimentary environments occur within the study area: soft-bottom and hard substrate. Soft-bottom areas range from sands to muds. Hard substrate includes gravel, cobbles, boulders, and exposed bedrock. Figure 3.1-6 illustrates seafloor characteristics based on backscatter soundings measured by the U.S. Geological Survey (Edwards et al. 2003). Human-made hard-bottom areas (e.g., the Hyperion and County Sanitation Districts of Orange County wastewater outfall pipelines and their associated rock ballast) are included in the figure.

Sediments of the inner shelf are usually coarse and fine sands, whereas those of the outer shelf tend to be silts and clays with localized intrusions of differing sediments (Thompson et al. 1993). Sources of sediment include coast bluff erosion, runoff from rivers and creeks, runoff through storm drains, and suspended solids discharged from wastewater treatment outfalls. The discharge of solids has decreased dramatically over the past 18 years with improvements to wastewater treatment (SCCWRP 1993).

Anthropogenic sources of sediment have included pollutants from wastewater outfalls and non-point source runoff from storm drains and rivers. Recent sediments include clay mineral and sand particles that are mixed with organic, chemical, and metal pollutants (Connolly and Glasser 2002). Sediments containing pollutants occur in Coastal Reaches 2 and 3:

- Coastal Reach 2: Anthropogenic sediments occur on the shelf in Santa Monica Bay; these sediments have been estimated to range in thickness from a few centimeters to 60 centimeters (24 inches) (Edwards et al. 2003).
- Coastal Reach 3: Effluent-affected sediments occur on the Palos Verdes Shelf northwest and offshore of the JWPCP outfall off of White Point (LACSD 2002). The size of the deposit is estimated to be more than 40 square kilometers (15 square miles). Within this deposit, concentrations of p,p'-DDE range up to several hundred parts per million (ppm), and concentrations of PCBs are as high as 15 ppm (LACSD 2002, Lee et al. 2002).

Many of the shores of the Channel Islands are characterized by rugged sea cliffs, waterfalls, stream canyons, and sea caves (NPS and Channel Islands National Park 2002). Shoreline platforms of wave-cut terraces with rocky or gravel beaches predominate; however, a few sandy beaches occur on most of the islands (Table 3.1-2). Rocky reefs extend offshore of much of the shorelines of the islands.

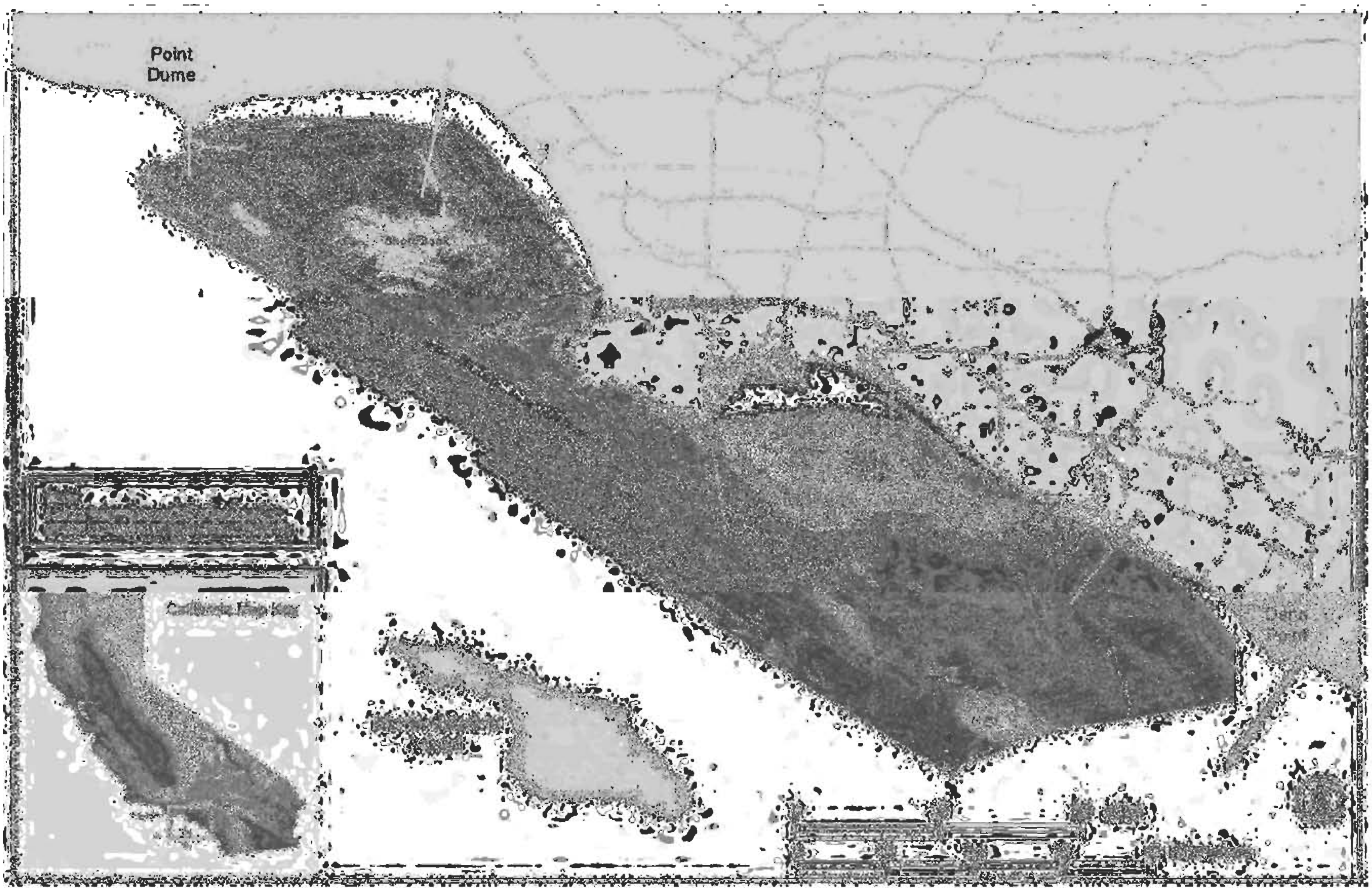


Figure 3.1-6. Multibeam backscatter image of seafloor characteristics along the coastline from Point Dume to Dana Point.

(Modified from Edwards et al. 2003.)

Table 3.1-2
Elevation, Size, and Shoreline Types for Channel Islands

	Island							
	San Miguel	**Santa Rosa**	**Santa Cruz**	**Anacapa**	**Santa Barbara**	**San Nicolas**	**Santa Catalina**	**San Clemente**
Elevation (meters)	252	483	742	283	194	277	648	599
Elevation (feet)	831	1584	2434	930	635	910	2125	1965
Area (hectares)	3,841	21,470	25,080	298	261	644	19,400	14,500
Area (acres)	9,491	53,051	61,972	737	644	1,591	47,937	35,830
Shoreline Type (%)								
Artificial structures	0	0	0	0	0	0	1	0
Gravel beach	0	1	9	13	10	6	45	35
Riprap	0	0	0	0	0	1	2	0
Rocky shore	69	63	71	86	88	59	41	58
Sand beach	31	35	20	1	2	34	10	6
Wetlands	0	1	0	0	0	0	0	0

Sources: NPS 1999, Power 1980.

3.1.3 Seismology

Several major faults occur within the study area (Figure 3.1-7), including well-known faults such as the San Andreas, Elsinore, and Whittier. However, less-known faults off the coast and along the shoreline are more likely to affect the SCB than well-known faults. Unmapped blind-thrust faults also represent an undefined potential hazard to the SCB (Simila 1993). Within the SCB, the Santa Barbara Channel Region, with its associated coast and islands, has been the most seismically active area off the shore of Southern California in the past 100 years. The San Pedro Basin, east of Catalina Island, has a moderate level of seismicity. The San Nicolas Basin has a low level of seismicity (Simila 1993).

The highest seismic gravity ratings occur along the Northern Channel Islands and along Coastal Reach 1. This hazard rating indicates that these areas are likely to experience earthquakes of significant magnitude between five and six times per century. Coastal Reaches 2 through 5 have moderate seismic gravity ratings with significant earthquakes predicted once per century. Coastal Reach 6 and Santa Catalina Island are predicted to have significant earthquakes on the order of once every 200 years. The seismic hazard rating is once per 300 years for the other Southern Channel Islands. However, the San Clemente fault zone is considered to be active and potentially hazardous (Reynolds 2003).

3.1.4 Liquefaction

Soil type is an important factor in determining earthquake hazard. Unconsolidated sediments, such as those that lie on the shelf regions of the Santa Monica and San Pedro Bays, may experience liquefaction (SCEC 1996). These marine soils are already saturated and when exposed to strong shaking may flow along a gradient (Kramer 1996). Seismic hazard zones associated with liquefaction also occur in areas of unconsolidated sediment along the shoreline, drainages, creeks, coastal lagoons, and embayments. Areas of greatest hazard include Malibu Lagoon, Marina Del Rey, and King Harbor within Coastal Reaches 1 and 2, Los Angeles/Long Beach Harbor and Alamitos Bay in Coastal Reach 4, Anaheim Bay, Huntington Harbor, Bolsa Chica wetlands, and Newport Bay in Coastal Reach 5, and creek drainages and Dana Point Harbor in Coastal Reach 6 (SCEC 1996).

3.1.5 Landslides

Pacific Palisades in Coastal Reach 2 is a well-known landslide area. Similarly, Portuguese Bend and Royal Palms on the Palos Verdes Peninsula are known landslide locations. Landslide materials represent a major source of sediments to the shelf. It has been estimated that landslide-derived sediments on the Palos Verdes Shelf range from 5.7 and 9.4 million metric tons (6.3 to 10.4 million U.S. tons) (Kayen et al. 2002). Mineralogical data indicate that at least 2.7 million metric tons (3 million U.S. tons) of landslide-derived sediment has mixed with the mid- and outer-shelf effluent-affected sediment layer off the Palos Verdes Peninsula (Kayen et al. 2002).

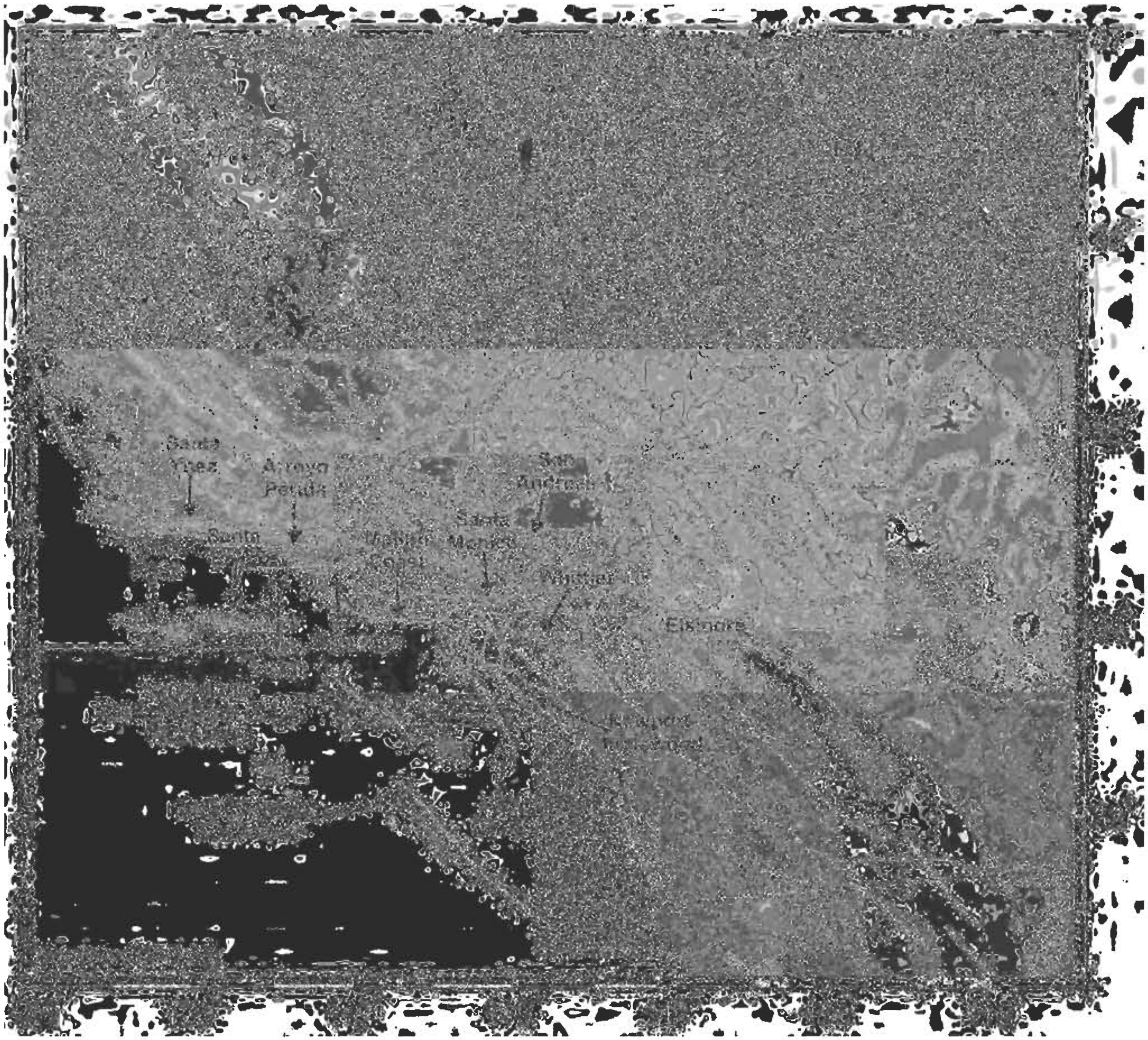


Figure 3.1-7. Major faults within the study area.

3.2 OCEANOGRAPHIC AND COASTAL PROCESSES

3.2.1 Currents and Tides

The California Current is a broad, equator-ward flow that brings cold water from the Gulf of Alaska down the coast along the seaward boundary of the SCB and turns shoreward near the U.S.-Mexico border (Hickey 1993). A branch of the California Current turns pole-ward into the SCB, where it is known as the Southern California Countercurrent. This countercurrent moves warm water from Southern California northwestward up the coast. This countercurrent is strongest in summer and fall when it can be eddy-like (Southern California Eddy) and rejoin the California Current, and in winter when pole-ward flow north can be continuous; during the spring this countercurrent appears to be absent.

The California Undercurrent, which flows approximately 240 to 270 meters (800 to 900 feet) below water surface with relatively high temperature and salinity, moves pole-ward over the continental slope; this undercurrent is the strongest during the summer. The undercurrent surfaces north of Point Conception during the fall and winter and is known then as the Davidson Current.

The California Current moves closer to shore during spring and away from shore during summer, which results in a predominantly equator-ward flow during summer and pole-ward flow during winter within the SCB (DiGiacomo and Holt 2003, Jackson 1986). No obvious seasonal structure has been observed in the flow (Noble et al. 2002).

Tides within the SCB are of a mixed, semidiurnal type consisting of two unequal high tides and two unequal low tides within a tidal period of 24 hours and 50 minutes. Table 3.2-1 shows the tide datums relative to mean lower low water (MLLW) based on data recorded at the NOAA tide station in Los Angeles Outer Harbor. These data show that the tides in San Pedro Bay have a tidal range of approximately 1.7 meters (5.5 feet) and a mean tidal level of approximately 0.9 meter (2.9 feet) MLLW. The tidal range and datums within the SCB vary slightly from those recorded in San Pedro Bay as a result of interactions with landforms.

Table 3.2-1
Tide Datums

Tide	Elevation (meters, MLLW)
Highest observed water level	2.43
Mean higher high water	1.68
Mean high water	1.45
Mean tide level	0.87
Mean low water	0.29
Mean lower low water	0.00
Lowest observed water level	-0.79

3.2.2 Wave Characteristics

The wave climate within the SCB is affected by the presence of numerous offshore islands, shallow banks, and coastal submarine canyons that partially shelter the coastline from deep ocean surface waves. The wave pattern within the SCB is thus spatially complex due to the reflection, refraction, diffraction, and dissipation of the incident deep ocean waves.

Wave climate within the SCB is composed of waves generated by extratropical storms, tropical storms, and southern hemisphere extratropical storms. Prefrontal winds and local winds also generate waves of shorter periods within the region.

Extratropical storm waves approach the SCB primarily from the general west during northern hemisphere winters. Generated by North Pacific low-pressure systems developed along the polar front, the extratropical storm waves are the predominant wave component affecting the SCB during winters.

Tropical storm waves generated by tropical cyclones approach the SCB from the southeast off the Mexican coast during northern hemisphere summers. These storms occur approximately 15 to 20 times a year and affect the SCB when taking a southeasterly track. Sheltering afforded by offshore islands, such as San Clemente Island, tends to reduce the wave energy for portions of the nearshore SCB.

Southern hemisphere swell generated by large South Pacific storm systems during southern hemisphere winters approaches the SCB from a south-southwest window. However, the long travel distances of these waves result in the characteristically narrow frequency bands, which enhance the capacity of the waves to amplify nearshore.

Prefrontal seas generated by strong winds prior to frontal passages approach the coasts in the SCB from the southeast. Wave data indicate that wave conditions over the SCB are produced primarily by deepwater waves approaching the SCB (CDIP 2003). These data demonstrate the dissipation of wave energy by island and headland shadowing, diffraction, refraction, and dissipation. Although swell from the south is present, its energy is negligible compared with that from the northwest and therefore does not appear in the directional wave spectrum.

3.2.3 Sediment Transport

Sediment transport within the SCB consists of littoral drift in the nearshore and sedimentation on and near the shelves. Littoral drift is composed of sediment transport in and near the surf zone in longshore and cross-shore directions driven primarily by wave-induced currents. Sedimentation on the continental shelves is driven by a combination of surface gravity waves, internal waves, and subtidal currents.

Sediment transport in the nearshore is normally evaluated as a component in the sediment budget within a littoral cell. Sediment transport in the Santa Barbara littoral cell is driven by the predominantly westerly waves. The southerly waves are to a large extent sheltered by the Channel Islands. The longshore transport rate along the Santa Barbara littoral cell was estimated to be approximately 214,100 cubic meters/year (280,000 cubic yards/year) in an eastward direction (SWQCB 1965).

Longshore sediment transport in the Santa Monica littoral cell is marked by predominantly downcoast drift with occasional upcoast reversals as a result of seasonal variations in wave approach direction. The net longshore drift is downcoast (southward) at a rate of approximately 146,000 to 191,000 cubic meters/year (191,000 to 250,000 cubic yards/year) off Santa Monica Beach (DMJM 1984, Ingle 1966), 151,000 cubic meters/year (198,000 cubic yards/year) off Dockweiler Beach, and 167,000 cubic meters/year (219,000 cubic yards/year) off Manhattan

Beach and Hermosa Beach (Landrum-Brown 1996). Approximately 153,000 to 306,000 cubic meters/year (200,000 to 400,000 cubic yards/year) were estimated to be lost to Redondo Canyon from both up- and downcoast beaches (Gorsline 1958).

Sediment transport on the Palos Verdes Shelf is characterized by predominant northwestward fluxes along the shelf, with occasional southeastward reversals. Shelf sediment is typically resuspended by gravity waves from the seabed and transported by prevailing currents at the time of resuspension. The currents that carry the suspended sediment are generally independent of wave conditions (Wiberg et al. 2002) and can include the currents produced by internal waves and tidal processes (Jones et al. 2002). It was estimated that the frequency of significant resuspension and transport is approximately 10 events per year in 60 meters (200 feet) of water on the shelf and 3 events per year in 90 meters (300 feet) of water beyond the shelf break

Sediment movement in the San Pedro littoral cell is obstructed by the presence of the Los Angeles/Long Beach Harbor complex, which alters the wave conditions near the beaches. The longshore transport rate along Peninsula Beach was estimated at approximately 41,000 cubic meters/year (54,000 cubic yards/year) in an upcoast (toward northwest) direction (Morris 1998). Farther downcoast off of Seal Beach and the beaches of Orange County, longshore sediment transport occurs in both directions with net drift directed to the downcoast (southeast) direction. The longshore transport rate has been estimated to be approximately 211,000 cubic meters/year (276,000 cubic yards/year) off of Surfside-Sunset Beach, 86,000 cubic meters/year (112,000 cubic yards/year) at the Santa Ana River mouth, and 97,000 cubic meters/year (127,000 cubic yards/year) off Newport Beach (Hales 1980).

Sedimentation on the continental shelves within the SCB is characterized by resuspension of sediment by wave action and transport by subtidal currents. Transport of the resuspended sediment in the nearshore portions of the shelves mostly follows the subtidal currents, which are largely directed parallel to the isobaths. In the deeper portions of the shelves where internal waves occur (e.g., near the shelf break off Santa Monica Bay), sediment has been observed to transport offshore across the shelf breaks and deposit on the continental slopes (Lee et al. 2002).

3.2.4 ENSO Events

El Niño Southern Oscillation (ENSO) events are climatic phenomena characterized by decreases in atmospheric pressure in the eastern tropical Pacific Ocean and easterly trade winds, and an increase in sea level on the west coast of North and South America (Chelton and Davis 1982). During an ENSO event, the equator-ward California Current is weakened, and the warmer, low-salinity Equatorial Countercurrent moves pole-ward into the North Pacific Ocean. Within the SCB, the ENSO condition causes increases in seawater temperature by several degrees Celsius above normal (Dailey et al. 1993), increases in sea levels (Chelton and Davis 1982, Flick and Badan-Dangon 1989), and more vigorous winter storms with pole-ward coastal winds (Hickey 1993).

3.2.5 Upwelling

Upwelling is an oceanographic process in which offshore winds move the surface water away from shore and the deep, anaerobic, and nutrient-rich water rises to replace the displaced surface water. Strong wind-driven upwelling occurs in the SCB in winter and early spring, which causes modifications to water properties such as salinity and temperature distributions in the water column within the SCB. One of the most significant upwelling events occurs off Point Conception, where strong wind-driven upwelling sends upwelled water into the Santa Barbara Channel and basins south of the Channel Islands, resulting in significant modification of water properties in the upper water columns in these regions (Hickey 1993, Atkinson et al. 1986).

3.3 WATERSHED AND COASTAL WATER QUALITY

The six coastal reaches within the study area of this project represent a large portion of the SCB. Watersheds in this area are diverse, ranging from large river systems, such as the Los Angeles and San Gabriel Rivers, to small, coastal streams. Most of the rivers and streams in these watersheds drain urbanized areas as they approach the coast, which impacts water quality along the coast. However, a few systems support diverse aquatic habitats and wildlife. Coastal features within the study area include bays, harbors, estuaries, wetlands, beaches, and open ocean. Several coastal wetlands are also found in the study area, including large wetlands such as Anaheim Bay, Upper Newport Bay, and the Bolsa Chica wetlands, the moderate-sized Ballona wetlands and Los Cerritos wetlands, and several smaller wetlands. In addition, recreational beaches can be found throughout the study area, occurring along lengthy stretches of coastal waters.

3.3.1 Watershed Descriptions

Regulatory Background

Within Coastal Reaches 1 through 6 (Figure 3.3-1), four Regional Boards have the responsibility for setting and enforcing water quality standards:

- The Central Coast Region (Region 3): The Central Coast Region is responsible for setting water quality standards in the study area on the Northern Channel Islands of San Miguel, Santa Rosa, and Santa Cruz.
- The Los Angeles Region (Region 4): The Los Angeles Regional Board covers Coastal Reaches 1 through 4, the Southern Channel Islands, and Anacapa Island.
- The Santa Ana Region (Region 8): The Santa Ana Region is responsible for all of Coastal Reach 5 and the northern third of Coastal Reach 6.
- The San Diego Region (Region 9): The San Diego Region is responsible for water quality standards within the southern two-thirds of Coastal Reach 6.

Under federal terminology, water quality standards must contain two components: (1) beneficial uses and (2) water quality objectives. Both of these must satisfy all of the applicable requirements of the California Water Code, Division 7 (Porter-Cologne Act) and the Clean Water Act (CRWQCB 1995a). These standards are regulated by the Regional Water Quality Control Boards.

A water body has beneficial use if it can be used for the benefit of people and/or wildlife (CRWQCB 1995b). Examples include drinking, swimming, industrial and agricultural water supply, and the support of freshwater and saltwater aquatic habitats. Definitions of the various beneficial uses listed in the basin plans are presented in Table 3.3-1. Table 3.3-2 summarizes beneficial uses by Coastal Reach for surface water bodies within the study area.

Land use source: NOAA 2000; 303(d) source: FWRCB 2005

Figure 3.3-1. Watersheds and impaired water bodies within the study area.

(Back of Figure 3.3-1)