

**California Marine Life Protection Act Initiative
First Draft of Section 9 (Subregional Summaries) for the
Regional Profile of the MLPA South Coast Study Region
November 14, 2008 Draft**

This document contains a first draft of Section 9 of the regional profile for the MLPA South Coast Study Region. The summaries in this section are based on information from other regional profile sections, appendices and maps. Input from MLPA South Coast Regional Stakeholder Group members is requested to complete these subregional summaries before they are incorporated into the regional profile.

9.0 Summary by Subregion

Highlights and basic information on the ecological and socioeconomic setting and existing managed areas in each of the seven subregions are summarized in the following subsections. Table 9.0-1 shows habitats present within each of the seven subregions and the proportion of each habitat that lies within each subregion. Note that subregions were created for the ease of displaying information on maps.

Table 9.0-1: Subregional Summary of Habitats [square miles or linear miles]

Habitat	Sub-region 1	Sub-region 2	Sub-region 3	Sub-region 4	Sub-region 5	Sub-region 6	Sub-region 7	Total
Total Area (mi ²)	225.47	177.70	283.77	176.59	203.30	645.22	642.41	2,354.47
Total Shoreline Length (mi)	69.69	78.59	246.42	108.24	187.64	190.79	162.57	1,043.93
Minimum Depth (ft)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Depth (ft)	911.00	2,023.00	2,640.00	1,871.00	1,303.00	2,378.00	3,938.00	0.00
Sandy or Gravel Beaches (mi)	38.05	44.56	57.13	43.73	66.80	56.49	73.12	379.88
Rocky Intertidal and Cliff (mi)	25.52	1.40	12.58	8.91	10.86	134.30	86.94	280.51
Coastal Marsh (mi)	3.38	9.36	12.75	11.16	20.16	0.00	0.00	56.80
Coastal Marsh Area (mi ²)	0.47	0.04	0.64	0.41	1.56	0.00	0.00	3.12
Tidal Flats (mi)	0.59	1.99	2.60	11.17	11.49	0.00	0.72	28.56
Surfgrass (mi)	0.00	0.00	0.00	0.00	0.00	54.39	3.50	57.90
Eelgrass (mi ²)	0.11	0.53	0.29	0.00	17.02	0.11	0.00	18.06

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Habitat	Sub-region 1	Sub-region 2	Sub-region 3	Sub-region 4	Sub-region 5	Sub-region 6	Sub-region 7	Total
Estuary (mi ²)	0.62	0.78	7.42	3.83	23.96	0.00	0.00	36.62
Soft 0 - 30m (mi ²)	34.10	91.42	126.93	78.71	62.08	59.65	13.73	466.61
Soft 30 - 100m (mi ²)	131.60	47.98	76.90	48.36	52.65	336.54	86.07	780.10
Soft 100 - 200m (mi ²)	8.53	10.46	9.88	5.90	6.09	57.98	41.79	140.64
Soft 200 - 3000m (mi ²)	0.36	16.35	29.69	29.92	14.20	55.40	171.06	316.98
Hard 0 - 30m (mi ²)	26.40	3.26	22.27	4.13	27.50	58.96	47.61	190.13
Hard 30 - 100m (mi ²)	21.71	4.32	2.27	1.33	13.48	47.37	109.75	200.23
Hard 100 - 200m (mi ²)	0.97	1.58	0.08	2.23	0.10	15.89	80.27	101.12
Hard 200 - 3000m (mi ²)	0.00	0.64	0.35	1.28	0.00	8.15	86.70	97.12
Hard Substrate < 50m (mi ²)	27.97	3.49	22.69	4.17	29.93	67.89	68.37	224.52
Soft Substrate < 50m (mi ²)	77.55	116.46	165.93	99.19	70.66	136.81	24.51	691.11
Kelp 1989 (mi ²)	3.39	0.42	0.87	0.75	2.58	4.85	4.93	17.80
Kelp 1999 (mi ²)	0.58	0.23	0.50	0.05	2.33	3.33	4.57	11.58
Kelp 2002 (mi ²)	1.70	0.53	0.47	0.59	2.58	3.84	3.34	13.05
Kelp 2003 (mi ²)	3.23	0.48	0.62	0.54	4.04	8.79	8.59	26.30
Kelp 2004 (mi ²)	1.80	0.53	0.48	0.14	1.55	12.80	13.78	31.09
Kelp 2005 (mi ²)	2.40	0.32	0.67	0.00	0.00	14.47	12.51	30.38
Average Kelp (mi ²)	2.18	0.42	0.60	0.35	2.18	8.01	7.95	21.70

Habitat	Sub-region 1	Sub-region 2	Sub-region 3	Sub-region 4	Sub-region 5	Sub-region 6	Sub-region 7	Total
Linear Kelp (mi)	5.22	0.17	1.16	1.52	6.16	9.63	12.64	36.51

^Shoreline length is based on the Environmental Sensitivity Index (ESI) database.

9.1 Government Point to Rincon Point (Subregion 1)

Subregion 1 covers 225 mi², with 70 miles of coastline facing south with a slight west to southeast curve. Coal Oil Point, Goleta Point, and Santa Barbara Point are the major promontories in this subregion. The coast faces the Santa Barbara Channel and northern Channel Islands. Prominent coastal features include: Cojo Anchorage, Naples Point, Edgecliff Point, Fernald Point, Loon Point, Sand Point.

9.1.1 Ecological Setting

Shoreline: Mostly narrow, sandy beaches backed by cliffs and rocky shores, protected from ocean swells by the northern Channel Islands.

Estuaries: Devereux Slough, UCSB Campus Lagoon, Goleta Slough, and Carpinteria Salt Marsh.

Seagrass: None mapped

Kelp: Kelp beds found throughout subregion, concentrated around Point Conception, off Naples, and from around Coal Oil Point to the east side of Santa Barbara Point.

Rock/Sand Bottom: Rocky reef off Naples, hard substrate around Carpinteria and east of Government Point. Hard substrate along the 100 meter contour from Government Point to Goleta Point.

Depth Range: Mostly soft bottom in the 30-100 meter depth range.

Oceanographic Habitats: Upwelling center at Point Conception, which also marks the boundary where the cool California Current meets the relatively warmer California Countercurrent. The subregion ends at the most northern portion of the Southern California Bight. During the upwelling season (March through September), cold, nutrient-rich waters are brought to the surface near Point Conception, the upwelling center, and move eastward along the western edge of the Santa Barbara Channel (Hickey 2000, Atkinson et al. 1986).

Seabird Colonies: Colony of Pelagic Cormorant, American Black Oystercatcher, Western Gull, and Pigeon Guillemot at Point Conception, and high at sea diversity from Point Conception to Goleta Point.

Marine Mammal Rookeries: Harbor seal rookery at Carpinteria.

Marine Mammal Haulouts: Harbor seals haulout around Point Conception, Rincon Point, Carpinteria Bluffs, Carpinteria State Beach, Casitas Pier, Crescent Rock, and Nursery Beach in Carpinteria. Harbor seals have been recorded near Goleta Point, near Arroyo Burro Beach, and Coal Oil Point. California sea lions haulout at Carpinteria State Beach.

Other Areas for Marine Mammals: Gray whales cross into the study region here during their migration.

9.1.2 Land-Sea Interactions

Coastal watersheds: Arguello, South Coast

Major rivers: Several coastal creeks, including Arroyo Burro, Mission Creek, Carpinteria Creek and Rincon Creek, are found in this subregion, but no major rivers.

Anadromous fish streams: Many creeks have suitable habitat, but barriers prevent use by steelhead.

Hardened shoreline: Goleta Beach (riprap), Santa Barbara Harbor (riprap)

Key impaired water bodies: [need SCRSG input here]

Major point sources: Chevron U.S.A. Inc. (desalination brine), Cultured Abalone Inc. (aquaculture wastewater), Goleta, Santa Barbara, Montecito, Summerland, and Carpinteria Wastewater Treatment Plants (treated sanitary wastewater).

Other issues: Nonpoint source pollution.

9.1.3 Socioeconomic Setting

Counties: Santa Barbara

Coastal towns/ports/harbors: Goleta, Santa Barbara/Santa Barbara Harbor, Montecito, Summerland, Carpinteria

Public access areas, boat ramps, piers, etc: Gaviota State Park (campground, fishing, beach, boat hoist), Refugio State Beach (campground, fishing), bike path between Refugio and El Capitan State Beaches, El Capitan State Beach (campground, surfing), parking and path to the beach at Bacara Resort and Spa, Coal Oil Point Natural Reserve (beach, surfing, wildlife viewing), Isla Vista County Park (stairs to beach), Isla Vista Beach (stairs and ramp to beach, tidepools), University of California, Santa Barbara (beaches, surfing), Goleta Beach County Park (fishing, pier/hoist), Arroyo Burro Beach County Park (surfing, dog-free zone), Mesa Lane Stairs (to beach, surfing), One Thousand Steps (beach access), Shoreline Park (stairs to shore), Leadbetter Beach, West Beach, Stearns Wharf (fishing), Chase Palm Park, East Beach, bike path/boardwalk from Leadbetter Beach to East Beach with continuous beach access, three public stairways to the beach south of Cahnel Drive (Santa Barbara), Hammonds Beach, Miramar Beach, Lookout County Park (beach), Carpinteria Salt Marsh Nature Park, Carpinteria City Beach, Carpinteria State Beach (Chumash Indian interpretive display, campground, motorhome sites, surfing), Tarpits Park (accessed through Carpinteria State Beach) is a Chumash Indian historical site, Rincon Beach County Park (surfing).

Commercial fisheries: Some of the major commercial fisheries landed in Santa Barbara Port are spiny lobster, sea urchin, market squid, crab, California halibut, and California sheephead. Important areas include [need SCRSG input here]

Consumptive recreational use: Major recreational fisheries occurring in subregion 1 include surfperches, rockfishes, scorpionfish, greenlings, sculpins, and flatfishes. Important areas include [need SCRSG input here]

Non-consumptive recreational use (diving, kayaking, wildlife viewing, beaches, etc.): Important areas include state beaches, Santa Barbara waterfront and beaches, Campus Point beaches, Coal Oil Point beaches, Goleta Beach, Arroyo Burro/Hendry's Beach, Carpinteria County and State Beaches, Rincon Point. Wildlife viewing from boats leaving from the Santa Barbara Harbor. [need SCRSG input here]

9.1.4 Research and Monitoring

Research institutions: University of California, Santa Barbara; Santa Barbara City College

Existing monitoring sites: MARINE site at Government Point, 13 PISCO monitoring sites throughout the study region (Alegria Beach, Arroya Quemada, Arroyo Hondo, Buelto, Caprinteria, Carpinteria, Coal Oil Point, Cojo, Ellwood, Mussel Shoals, Naples, North and South Alegria Beach), and CRANE monitorings sites at Cojo and Naples.

9.1.5 Existing MPAs, Marine Managed Areas, and Coastal Protected Areas

Existing state MPAs: Refugio SMCA and Goleta Slough SMP.

Rockfish Conservation Areas (RCAs and other fishery closures): Halibut Trawl Grounds from around Gaviota State Park to Point Hueneme (past Rincon Point).

Other marine managed areas: Aquaculture leases.

Coastal protected areas: Gaviota State Park, Refugio State Beach, El Capitan Ranch Park, El Capitan State Beach, Coal Oil Point Reserve, Isla Vista County Park, Window of the Sea Park, Isla Vista Beach, University of California, Santa Barbara, Goleta Beach County Park, Arroyo Burro Beach County Park, Douglas Family Reserve, La Mesa Park, Shoreline Park, Leadbetter Beach, West Beach, Chase Palm Park, East Beach, Andree Clark Bird Refuge, Hammonds Beach, Miramar Beach, Lookout County Park, Santa Monica Creek Trail, Carpinteria Salt Marsh Nature Park, Carpinteria City Beach, Carpinteria State Beach, Tarpits Park, Carpinteria Bluffs Nature Park and Rincon Beach County Park.

9.1.6 Other Issues

To be determined.

9.2 Rincon Point to Point Dume (Subregion 2)

Subregion 2 covers 177.7 mi² and 78.6 miles of coastline oriented northwest to southeast with freshwater input from the Ventura and Santa Clara Rivers. The northern half of subregion 2 faces the Channel Islands. Prominent coastal features include: Pitas Point, Pierpont Bay, Ventura Harbor, Channel Islands Harbor, Point Hueneme, Middle Point, Laguna Point, Point Mugu, Sequit Point, and Point Mugu.

9.2.1 Ecological Setting

Shoreline: Mostly narrow, sandy beaches backed by cliffs and rocky shores.

Estuaries: Ventura River, Santa Clara River, Mugu Lagoon.

Seagrass: None mapped.

Kelp: Small patches along the shore in the northern portion of the subregion, and to the east and west of Sequit Point.

Rock/Sand Bottom: Most of the subregion is soft substrate.

Depth Zones: The majority of the subregion is soft substrate from 0 to 100 meters depth. There are submarine canyons off Point Hueneme, Point Mugu, and Point Dume.

Oceanographic Habitats: The counter-clockwise circulating gyre called the Southern California Eddy is offshore.

Seabird Colonies: Santa Clara River (Least Tern), Mugu Lagoon (Least Tern)

Marine Mammal Rookeries: Point Mugu Lagoon (harbor seals)

Marine Mammal Haulouts: Mugu Lagoon and Point Mugu Lagoon (harbor seals)

Other Areas for Marine Mammals: Harbor seals forage within the study region around Point Mugu Lagoon.

9.2.2 Land-Sea Interactions

Coastal watersheds: Pitas Point, Ventura River, Beunaventura, Santa Clara-Calleguas, Oxnard, Calleguas, Ventura Coastal Streams, Santa Monica Bay

Major rivers: Ventura River, Santa Clara River

Anadromous fish streams: Ventura and Santa Clara rivers (steelhead)

Hardened shoreline: La Conchita Beach (riprap), from Pitas Point south to Ventura Harbor, Channel Islands Harbor, Hueneme Point, Laguna Point, east of Point Sycamore Cove Beach to about County Line Beach.

Key impaired water bodies: [Need SCRSG input here]

Major point sources: Ormond Beach Generating Station and Ocean Vista Power Station (cooling water), and Oxnard Wastewater Treatment Plant (treated sanitary wastewater).

Other issues: Nonpoint source pollution.

9.2.3 Socioeconomic Setting

Counties: Ventura, Los Angeles

Coastal towns/ports/harbors: Ventura/Ventura Harbor, Oxnard, Channel Islands Harbor, Port Hueneme

Public access areas, boat ramps, piers, etc: La Conchita Beach (fishing), Mussel Shoals Beach, Sea Cliff Beach, Hobson County Park (campground, beach, fishing), Rincon Parkway North and South (campground, beach, fishing), Faria County Park (campground, beach, fishing), Solimar Beach, Emma Wood State Beach (campground, fishing), Ventura County Fairgrounds Beach, Surfer's Point at Seaside Park (beach), Promenade Park (beach, boardwalk), San Beunaventura State Beach, Marina Park (beach access), Peninsula Beach, McGrath State Beach (campground, fishing), Mandalay County Park (beach), Oxnard Shores (beach), Oxnard State Beach, Hollywood Beach (fishing), Peninsula Park (boat dock), Channel Islands Harbor (ramp, hoist, beach, fishing), Silver Strand Beach (campground, fishing jetty), Port Hueneme Beach Park (fishing), Ormond Beach (fishing), Point Mugu Beach, Thornhill Broome Beach (campground), Sycamore Canyon Campground, Sycamore Cove Beach, County Line Beach (fishing), Staircase Beach, Leo Carrillo State Beach (campground, fishing), Nicholas Canyon County Beach, Robert H. Meyer Memorial State Beaches, Zuma Beach County Park (fishing), Point Dume State Beach (fishing), and Point Dume State Preserve (beach).

Commercial fisheries: Some of the major commercial fisheries landed in subregion 2 are market squid, Pacific sardine, mackerel/anchovy, sea urchin, sea cucumber, rock crab,

California halibut, ridgeback prawn, Pacific bonito, and tuna. Important areas include **Consumptive recreational use**: Major recreational fisheries occurring in subregion 1 include surfperches, rockfishes, and halibut. Important areas include **Non-consumptive recreational use (diving, kayaking, wildlife viewing, beaches, etc)**: Beaches and surfing locations abound in subregion 2. Santa Clara Estuary Natural Preserve is popular for bird-watching. Campgrounds at Rincon Parkway North and South are heavily used. Trips to the Channel Islands, especially Anacapa Island, for diving, kayaking, and wildlife viewing leave from Ventura Harbor. [need SCRSG input here]

9.2.4 Research and Monitoring

Research institutions: Channel Islands National Marine Sanctuary, Channel Islands National Park

Existing monitoring sites: PISCO, Mussel Shoals and Old Stairs.

9.2.5 Existing MPAs, Marine Managed Areas, and Coastal Protected Areas

Existing state MPAs: Big Sycamore Canyon SMR.

RCAs and other fishery closures: Halibut Trawl Grounds from Rincon Point to Point Mugu with a break at Point Hueneme. There is an intersection of recreational, trawl, and non-trawl Rockfish Conservation Areas in the southern portion of the study region.

Other marine managed areas: Point Mugu to Point Dume is and Area of Special Biogical Significance. There is a restricted area off Laguna Point.

Coastal protected areas: La Conchita Beach, Mussel Shoals Beach, Sea Cliff Beach, Hobson County Park, Faria County Park, Solimar Beach, Emma Wood State Beach, Ventura County Fairgrounds Beach, Seaside Park, Promenade Park, San Beunaventura State Beach, Marina Park, Peninsula Beach, Santa Clara Estuary Natural Preserve, McGrath State Beach, Mandalay County Park, Oxnard State Beach, Hollywood Beach, Peninsula Park, Bubbling Springs Park, Silver Strand Beach, Port Hueneme Beach Park, Ormond Beach, Point Mugu Beach, La Jolla Valley, Thornhill Broome Beach, Sycamore Canyon Campground, Sycamore Cove Beach, County Line Beach, Staircase Beach, Leo Carrillo State Beach, Nicholas Canyon County Beach, Charmlee County Park, Robert H. Meyer Memorial State Beaches, Zuma Beach County Park, Point Dume State Beach, and Point Dume State Preserve.

9.2.6 Other Issues

To be determined.

9.3 Point Dume to Newport Beach (Subregion 3)

Subregion 3 covers 283.8 mi² and 246.4 miles of coastline oriented northeast to southwest with the only major promontory being the Palos Verdes Headland. Between Point Dume and Palos Verdes Point lies Santa Monica Bay. Prominent coastal features include: Dume Cove, Santa Monica Bay, Marina Del Rey Harbor, King Harbor, Malaga Cove, Flat Rock Point, Bluff Cove, Palos Verdes Point, Lunada Bay, Resort Point, Point Vicente, Abalone Cove, Portuguese

Bend, White Point, Whites Point, Point Fermin, Los Angeles/Long Beach Harbor, and Island Chaffee.

9.3.1 Ecological Setting

Shoreline: Subregion 3 is lined mostly by sandy beaches. Broad fine to medium grain sandy beaches exist on either side of Palos Verdes. Palos Verdes is a rocky headland at the south end of Santa Monica Bay where coarse-grained gravel beaches can be found.

Estuaries: Malibu Lagoon, Anaheim Bay, Ballona Lagoon, Los Angeles Harbor/Long Beach Harbor, San Gabriel River, Bolsa Chica, Talbert Marsh

Seagrass: None mapped.

Kelp: East of Point Dume is a persistent kelp bed, and north of Palos Verdes Point in Santa Monica Bay, and along the rocky shores to the southeast of Palos Verdes Point.

Rock/Sand Bottom: Some hard substrate can be found off Huntington Beach, the south end of Palos Verdes headland, Point Dume, and off Santa Monica where several artificial reefs are sited. There are 14 artificial reefs in subregion 3, most in Santa Monica Bay and several in the southern end of the subregion near Newport Beach.

Depth Zones: Mostly soft bottom in the subtidal zone north and south of Palos Verdes. There are two submarine canyons in Santa Monica Bay, but only the one off Redondo Beach starts in state waters. Most of the subregion is soft substrate from 0 to 100 meters except off Palos Verdes Point where there are depths of more than 200 meters.

Oceanographic Habitats: Santa Monica Bay,

Seabird Colonies: Venice Beach (Least Tern), Anaheim Bay (Least Tern), San Gabriel River (Least Tern), Bolsa Chica (Least Tern, Caspian Tern, Royal Tern, Elegant Tern, Forester's Tern, Black Skimmer), Huntington Beach (Least Tern), Newport Bay (Least Tern). Many other birds are visitors to these locations which are along the Pacific Flyway.

Marine Mammal Rookeries: None.

Marine Mammal Haulouts: None.

Other Areas for Marine Mammals: Dolphins are often seen in Santa Monica Bay and forage there.

9.3.2 Land-Sea Interactions

Coastal watersheds: Santa Monica Bay, Dominguez Channel, Los Angeles River, San Gabriel River, Santa Ana River

Major rivers: Los Angeles River, San Gabriel River, Santa Ana River

Anadromous fish streams:

Hardened shoreline: There are patches of hardened shoreline throughout Santa Monica Bay, with the most significant being at Marina Del Rey and Redondo Beach. Los Angeles and Long Beach Harbors also have significant amounts of hardened shoreline, as do Alamitos Bay, and Huntington Harbor.

Key impaired water bodies: [need SCRSG input here]

Major point sources: Platforms Esther and Eva (treated sanitary waste from oil platform), AES Huntington Beach (cooling water), Sewage Treatment Plant – Orange County (treated sanitary wastewater), Scattergood Generating Station, El Segundo Generating Station, and

AES Redondo Beach Generating Station (cooling water), Hyperion WWRP (treated sanitary wastewater), El Segundo Refinery (refinery wastewater), Los Angeles County JWPCP Carson NP (treated Sanitary wastewater).

Other issues: Nonpoint source pollution.

9.3.3 Socioeconomic Setting

Counties: Los Angeles, Orange

Coastal towns/ports/harbors: Malibu, Pacific Palisades, Santa Monica, Venice, Playa del Rey, El Segundo, Manhattan Beach, Los Angeles, Redondo Beach, Hermosa Beach, Torrance, Palos Verdes Estates, Rancho Palos Verdes, San Pedro, Long Beach, Belmont Shores, Seal Beach, Huntington Beach, Newport Beach

Public access areas, boat ramps, piers, etc.: Paradise Cove (beach, fishing), Escondido Beach (fishing), Dan Blocker County Beach (fishing), Malibu Lagoon State Beach, Malibu Pier (fishing), Zonker Harris Accessway, Las Tunas State Beach (fishing), Topanga State Beach (fishing), Will Rogers State Beach (fishing), Santa Monica State Beach (fishing), Santa Monica Municipal Pier (stairs to beach, fishing), Venice City Beach, Venice Fishing Pier, Burton Chase Park (fishing), Fisherman's Village (fishing), Mother's Beach, Promenade Walkway, Admiralty Park, Marina del Rey Harbor, Del Rey Lagoon Park, Dockweiler State Beach (campground, fishing), El Segundo Beach (fishing), El Porto Beach (fishing), Manhattan County Beach (fishing), Manhattan Beach Municipal Pier (fishing), Hermosa City Beach (fishing), Hermosa Beach Municipal Pier (fishing), King Harbor (boat ramp, fishing), Seaside Lagoon (swimming), Redondo Sportfishing Pier, Redondo Beach Municipal Pier (fishing), Monstad Pier (fishing), Redondo County Beach (fishing), Torrance County Beach (fishing), Palos Verdes Estates Shoreline Preserve (fishing), Malaga Cove (beach, fishing), Point Vicente Fishins Access, Long Point (beach, fishing), Abalone Cove Beach (fishing), Ocean Trails (fishing), Royal Palms County Beach (fishing), Cabrillo Beach (fishing), Cabrillo Fishing Pier, Ports O'Call Village (fishing), Los Angeles Harbor (fishing, hoist), Long Beach Harbor (fishing), South Shore Public Boat Launch, Queensway Bay (campground), Rainbow Harbor, Shoreline Park (fishing), Downtown Shoreline Marina (public docks), Long Beach City Beach (fishing), Belmont Shore (beach, fishing), Alamitos Peninsula (fishing), Alamitos Bay (hoist, boat launch), Alamitos Bay Marina (launch ramp, hoist), Marine Park (beach), Marine Stadium (fishing, beach, launch ramp), Seal Beach (fishing), Seal Beach Pier (fishing), Surfside Beach, Sunset Beach (fishing), Huntington Harbour (fishing, launch ramp, public slips, beach), Trinidad Island (beach), Sunset Aquatic Marina (boat ramp), Bolsa Chica State Beach (campground, fishing), Huntington Beach Pier (fishing), Huntington City Beach (fishing, campground), Huntington State Beach (disabled access, fishing, five-acres Least Tern Preserve), Santa Ana Rivermount Beach (fishing).

Commercial fisheries: Important commercial fisheries include market squid, tuna, swordfish, Pacific sardine, sea urchin, mackerel/anchovy, California spiny lobster, California halibut, spot prawn, and Dover sole, thornyhead, and sablefish. Important fishing areas include [need SCRS input here]

Consumptive recreational use: Major recreational fisheries occurring in subregion 3 include kelp bass, barred sandbass, California sheephead, halibut, rockfish, scorpionfish, and [need SCRS input here]. Important areas include Santa Monica Bay, [need SCRS input here]

Non-consumptive recreational use (diving, kayaking, wildlife viewing, beaches, etc): The numerous beaches draw large crowds in this subregion, especially in the southern half of the region. Diving, surfing, and kayaking sites are plentiful. [need SCRSG input here]

9.3.4 Research and Monitoring

Research institutions: Pepperdine University (Grunion.org), Heal the Bay, Long Beach Marine Institute, Marine Mammal Center at Fort MacArthur, Santa Monica Baykeeper, Santa Monica Bay Restoration Commission, Southern California Marine Institute, University of California, Los Angeles; Marine Science Center, University of Southern California Sea Grant, and Southern California Academy of Sciences.

Existing monitoring sites: CRANE sites: King Harbor, Malibu, Point Vincente, and Rocky Point.

PISCO sites: Paradise Cove, Point Fermin (x2), Resort Point, and Shaw's Cove.

9.3.5 Existing MPAs, Marine Managed Areas, and Coastal Protected Areas

Existing state MPAs: Abalone Cove SMP, Point Fermin SMP, Bolsa Chica SMP, Upper Newport Bay SMP, Robert E. Badham SMCA, and Irvine Coast SMCA.

RCA and other fishery closures: There is an intersection of recreational, trawl, and non-trawl Rockfish Conseration Areas at Point Dume and Palos Verdes Point. Commercial fishing using set lines, trammel or gill nets, and handlines with more than two hooks has been prohibited in Santa Monica Bay (Schroeder and Love 2002, FGC §9026, §8694, §8725, §8757, §8780(b)). Troll lines are allowed in Santa Monica Bay (FGC §9025.5). Traps are banned from areas of the bay. Finfish and hagfish traps may not be used within 750 feet of any piers, jetties, and breakwaters, but are allowed outside that area (FGC §9001, §9001.7(g)). Spot prawn traps are also allowed in

Santa Monica Bay (FGC §9001, §9015). Commercial take of rock crabs and lobster is also not allowed (CCR T14 §122(a)(2), FGC §8282).

Other marine managed areas: There is a restricted area south of Marina del Rey Harbor.

Coastal protected areas: In addition to the county, state, and city beaches listed as coastal access points, there is also Malibu Bluffs State Park, Topanga Canyon State Park, Malibu Creek State Park, Peter Strauss Ranch, Rocky Oaks, Paramount Ranch, Circle X Ranch, Arroyo Sequit, Ramirez Canyon Park, Esconodido Canyon Natural Area, Solstice Canyon, Cold Creek Canyon Preserve, Will Rogers State Historic Park, Temescal Canyon Park, Palisades Park, Ballona Lagoon Walkway, Audrey E. Austin Jr. Memorial Park, Vista Del Mar Park, Veterans Park, Point Vicente Park, Frank A. Vanderfip, Sr. Park, Friendship Community Regional Park, Point Fermin Park and Lighthouse, Angels Gate Park, Lookout Point Park, John S. Gibson, Jr. Park, Bixby Park, and Bluff Park, Colorado Lagoon, Huntington Beach Wetlands (Talbert Marsh), Santa Ana River Trail.

9.3.6 Other Issues

To be determined.

9.4 Newport Beach to Agua Hedionda (Subregion 4)

Subregion 4 covers 176.6 mi² and 108.2 miles of coastline oriented northwest to southeast with major promontories being Dana Point and San Mateo Point. Prominent coastal features include: Newport Harbor, Arch Rock, Pelican Point, Crystal Cove, Reef Point, Irvine Cove, Emerald Bay, Two Rock Point, Fisherman's Cove, Divers Cove, Aliso Point, Three Arch Bay, Mussel Cove, Dana Point, Dana Point Harbor, San Mateo Point, and Oceanside Harbor.

9.4.1 Ecological Setting

Shoreline: Subregion 4 is made up almost entirely of sandy beaches backed by wave cut platforms, with some rocky shores scattered in the northern half of the region (above Dana Point).

Estuaries: Upper Newport Bay, Buena Vista Lagoon, Agua Hedionda Lagoon

Seagrass: None mapped.

Kelp: Persistent kelp beds at Dana Point and San Mateo Point and two large patches offshore and west of San Onofre.

Rock/Sand Bottom: There is hard bottom substrate south of Dana Point, and a thin strip offshore from Dana Point to San Mateo Point. Oceanside and Carlsbad also have some hard substrate next to the coast. There are four artificial reefs in this subregion; one northwest of San Mateo Point, one off San Onofre, and two offshore from Oceanside. Most of the subtidal areas are sandy.

Depth Zones: The majority of the subregion is soft substrate from 0 to 100 meters. North of Dana Point is deeper, and submarine canyons run south from Newport Beach.

Oceanographic Habitats: California Countercurrent runs along the coast.

Seabird Colonies: Newport Bay (Least Tern), Santa Margarita (Least Tern), Aliso Creek (Least Tern), Buena Vista Lagoon (Least Tern), Agua Hedionda (Least Tern). Many other birds are visitors to these locations which are along the Pacific Flyway.

Marine Mammal Rookeries: None mapped.

Marine Mammal Haulouts: None mapped.

Other Areas for Marine Mammals:

9.4.2 Land-Sea Interactions

Coastal watersheds: Santa Ana River, San Juan, Santa Margarita, San Luis Rey, Carlsbad

Major rivers: San Juan Creek, Santa Margarita River, San Luis Rey River

Anadromous fish streams:

Hardened shoreline: There is extensive hardened shoreline at Newport Harbor, Dana Point Harbor, Camp Pendleton Boat Basin/Oceanside Harbor, Carlsbad, and Agua Hedionda.

Key impaired water bodies: [need SCRSG input here]

Major point sources: SONGS Units 1,2, and 3 (cooling water), Oceanside Ocean Outfall (treated sanitary wastewater), Aliso Ocean Outfall (treated sanitary wastewater), SERRA Ocean Outfall (treated sanitary wastewater).

Other issues: Nonpoint source pollution.

9.4.3 Socioeconomic Setting

Counties: Orange, San Diego

Coastal towns/ports/harbors: Newport Beach/Newport Harbor, Laguna Beach, Dana Point/Dana Point Harbor, Capistrano Beach, San Clemente, Oceanside/Oceanside Harbor, Carlsbad

Public access areas, boat ramps, piers, etc: Newport Beach and Pier (fishing), Balboa Beach and Pier (fishing), West Jetty View Park (fishing), Balboa Pavilion (fishing), Balboa Island (fishing), Newport Harbor Beaches, Newport Dunes Resort (campground, lagoon, fishing), Bayside Drive County Beach (fishing), China Cove Beach, Rocky Point (beach), Corona Del Mar State Beach (fishing), Little Corona Del Mar Beach (fishing, tidepools), Crystal Cove State Park (campground, beach fishing, tidepools), Northern Laguna Beaches (fishing), Main Beach, Southern Laguna Beaches (fishing), Treasure Island Beach and Blufftop Park, Aliso Beach (fishing), Camel Point and West Street Beaches (fishing), Table Rock Beach (fishing), 1000 Steps Beach (fishing), Salt Creek Beach Park (fishing), Three Arch Cove Beach (fishing), Doheny State Beach (campground, fishing), Capistrano Beach Park (fishing), Poche Beach, San Clemente City Beach (fishing), San Clemente Municipal Pier (fishing), San Clemente State Beach (campground, fishing), San Onofre State Beaches North and South (campground, fishing), Camp Pendleton Beach Access (campground, fishing), Harbor Beach (campground, fishing), Oceanside City Beach (fishing), Oceanside Pier (fishing), South Oceanside Beach (fishing), Carlsbad City Beach (fishing), Carlsbad State Beach (fishing), Encina Fishing Area.

Commercial fisheries: Important commercial fisheries include Dover sole, thornyhead, and sablefish, spiny lobster, sea urchin, spot prawn, swordfish, mackerel/anchovy, rock crab, croakers, market squid, and California sheephead. Important fishing areas include [need SCRSG input here]

Consumptive recreational use: Major recreational fisheries occurring in subregion 4 include kelp bass, barred sandbass, California sheephead, halibut, rockfish, scorpionfish, yellowtail and . Important areas include [need SCRSG input here]

Non-consumptive recreational use (diving, kayaking, wildlife viewing, beaches, etc): State, county, and city beaches are heavily used in this subregion. Many popular diving, surfing, kayaking and tidepooling sites along the coast, and wildlife viewing in the estuaries. [need SCRSG input here]

9.4.4 Research and Monitoring

Research institutions: University of California, Irvine.

Existing monitoring sites: CRANE: Dana Point, San Mateo Point, San Onofre, Barn Kelp, and Carlsbad.

PISCO: Crystal Cove and Dana Point.

9.4.5 Existing MPAs, Marine Managed Areas, and Coastal Protected Areas

Existing state MPAs: Upper Newport Bay SMP, Robert E. Badham SMCA, Crystal Cove SMCA, Irvine Coast SMCA, Heisler Park SMR, Laguna Beach SMCA, South Laguna Beach

SMCA, Niguel SMCA, Dana Point SMCA, Doheny SMCA, Doheny Beach SMCA, Agua Hedionda Lagoon SMR.

RCA and other fishery closures: There is an intersection of recreational, trawl, and non-trawl Rockfish Conservation Areas in the northern portion of the subregion and along the outside of the southern portion.

Other marine managed areas: Restricted Areas off Camp Pendleton.

Coastal protected areas: Buena Vista SMP, Upper Newport Bay Ecological Reserve, Crescent Bay Point Park, Heisler Park, Ruby Street Park, Ken Sampson Lookout, Heritage Park, Lantern Bay Park, Louise Leyden Park, Linda Lane City Park, Leslie Park, Camp Joseph H. Pendleton Marine Corps Base, Buccaneer Park, Buena Vista Lagoon Ecological Reserve, Maxton Brown Park.

9.4.6 Other Issues

To be determined.

9.5 Agua Hedionda to California/Mexico Border (Subregion 5)

Subregion 5 covers 203.3 mi² and 187.64 miles of coastline oriented north to south with the major promontories Point La Jolla and Point Loma. Prominent coastal features include: La Jolla Bay, Goldfish Point, Point La Jolla, Seal Rock, False Point, Point Medanos, Mission Bay Channel and Mission Bay, Point Loma, and San Diego Bay.

9.5.1 Ecological Setting

Shoreline: Sandy beaches backed by wave cut platforms and mostly sandy subtidal areas, except around the rocky points of La Jolla and Point Loma.

Estuaries: Batiquitos Lagoon, San Elijo Lagoon, San Dieguito Lagoon, Los Penasquitos Lagoon, Mission Bay, San Diego Bay, Sweetwater Marsh and the Tijuana Estuary

Seagrass: Eelgrass in the San Diego Bay.

Kelp: There are large kelp beds off Point La Jolla and Point Loma. There are smaller scattered kelp beds close to shore from south of Solana Beach to north of Batiquitos Lagoon.

Rock/Sand Bottom: The rocky points of La Jolla and Point Loma provide for hard bottom habitat and hard bottom in the 0 to 30 meter depth range in the northern portion of the subregion. South of Point Loma the coast is dominated by soft bottom from 0 to 30 meters depth. There are six artificial reefs in the subregion 5; one off Batiquitos Lagoon, two off Torrey Pines, and three off Mission Bay.

Depth Zones: A submarine canyon reaches the nearshore area near La Jolla. Most of the subregion waters are at depths of less than 100 meters.

Oceanographic Habitats: The southward-moving California Current bends shoreward near San Diego and northward along the Southern California Bight as the Southern California Counter Current. White Point on the Palos Verdes peninsula has a somewhat unique intertidal and shallow subtidal vent community with the filamentous sulfide bacteria *Beggiatoa* at the base of its food chain. While sulfide bacteria are found also at oil seeps, I believe White Point is unique in that the other vents are co-located with oil seeps (D. Gregorio pers. comm.). San

Diego Bay is the third largest bay/estuary complex in California, and the largest in southern California. In addition, there are significant differences in the community composition of San Diego Bay as compared to other southern California bays. For example, there are many tropical/subtropical fish that inhabit San Diego Bay, so just as an example of the northernmost range of this community it is unique. Furthermore, the south bay represents a relatively large area of somewhat natural bay habitat (D. Gregorio pers. comm.).

Seabird Colonies: Batiquitos Lagoon (Least Tern), San Elijo Lagoon (Least Tern), Los Penasquitos (Least Tern), Mission Bay (Least Tern), North San Diego Bay (Western Gull, Least Tern), South San Diego Bay (Caspian Tern, Elegant Tern, Forester's Tern, Least Tern, Black Skimmer), Tijuana River Mouth (Least Tern), Del Mar (Least Tern), Sweetwater River (Least Tern), and La Jolla (Brandt's Cormorant, Western Gull). Many other birds are visitors to these locations which are along the Pacific Flyway.

Marine Mammal Rookeries: Harbor seals at Children's Pool (Casa Beach).

Marine Mammal Haulouts: Harbor seals haul out at Children's Pool, Seal Rock, and Point La Jolla Reef.

Other Areas for Marine Mammals: Harbor seals forage around their rookeries.

9.5.2 Land-Sea Interactions

Coastal watersheds: Carlsbad, San Dieguito, Penasquitos, San Diego, Sweetwater, Pueblo San Diego Bay, Otay, Tijuana

Major rivers: Escondido Creek, San Dieguito River, San Diego River, Sweetwater River, Otay River, Tijuana River

Anadromous fish streams:

Hardened shoreline: Mission Bay and San Diego Bay have extensive hardened shoreline. There is also hardened shoreline at Encinitas.

Key impaired water bodies: [need SCRSG input here]

Major point sources: San Elijo WPCF (treated sanitary wastewater), Point Loma Ocean Outfall (treated sanitary wastewater), South Bay Wastewater Treatment Plant (treated sanitary wastewater), Scripps Institution of Oceanography (marine lab and public aquarium waste seawater).

Other issues: Nonpoint source pollution.

9.5.3 Socioeconomic Setting

Counties: San Diego

Coastal towns/ports/harbors: Leucadia, Encinitas, Cardiff by the Sea, Solana Beach, Del Mar, La Jolla, Mission Beach, Ocean Beach, Fleetridge, La Playa, Roseville, San Diego, National City, Chula Vista, Coronado, Imperial Beach. The San Diego County major ports include San Diego, Mission Bay, Oceanside, and Point Loma (Commercial Basin). There is also Glorietta Bay Marina.

Public access areas, boat ramps, piers, etc: South Carlsbad State Beach (fishing), Beacon's Beach (fishing), Encinitas Beach (fishing), Stone Steps Beach (fishing), Moonlight Beach, Swami's (beach, fishing), San Elijo State Beach (campground, fishing), Cardiff State

Beach (fishing), Tide Beach Park (fishing), Fletcher Cove Park (fishing, beach), Stairway to Beach at Seascape Surf and Del Mar Shores Terrace (fishing), Del Mar City Beach (fishing), Del Mar Bluffs City Park (beach, fishing), Torrey Pines State Beach (fishing), Torrey Pines City Beach (fishing), Scripps Beach and Tidepools, La Jolla Shores Beach-Kellogg Park (fishing), Walkway to Beach at La Jolla Bay, La Jolla Cove (beach, fishing), Ellen Scripps Park (rocky shore), Children's Pool Beach, Coast Boulevard Park (beach access), Micholson Point Park (beach access, fishing), Marine Street Beach (fishing), Windansea Beach, La Jolla Strand Park (beach), Hermosa Terrance Park (beach, fishing), Bird Rock (tidepools, fishing), Sun Gold Point (fishing, rocky beach), Tourmaline Surfing Park (fishing), Pacific Beach Park (fishing), Mission Beach Park, Bonita Cove (swimming), Ventura Cove (beach), Santa Cara Point and El Carmet Point (boat launch/fishing), Dana Landing and Quivira Basin (boat launch/fishing), Fiesta Island, East Shore and De Anza Cove all have fishing and beaches, Sail bay, Riviera Shores and Crown Point Shores have beaches, Ski Beach, Dog Beach, Ocean Beach Park (fishing), Ocean Beach Municipal Fishing Pier, Ocean Beach City Beach, Sunset Cliffs Park (beach access), Shelter Island (beach, fishing), Cabrillo National Monument (tidepools), Spanish Landing Park (beach), Harbor Island (fishing), Broadway Pier, G Stree Pier (fishing), Embarcadero Marina Park (fishing), Coronado Tidelands Regional Park (beach), Cenntennial Park (fishing), Glorietta Bay Park (boat launch, beach), Coronado City Beach (fishing), Coronado Shores Beach (fishing), L.M. "Pep" Pepper Park (public ramp, fishing), Chula Vista Launching Ramp (fishing), Silver Strand State Beach (campground, fishing), Imperial Beach (fishing), and Border Field State Park (beach, fishing).

Commercial fisheries: Aquaculture in Carlsbad Lagoon produces oysters and mussels. Important fisheries include tuna, sea urchin, swordfish, spiny lobster, Pacific sardine, sharks (sharks, skates, and rays, excluding white and angel sharks), rock crabs, Dover sole, thornyhead and sablefish complex, spot prawn, California halibut and California sheephead. Important areas include [need SCRSG input here]

Consumptive recreational use: Major recreational fisheries occurring in subregion 5 include kelp bass, barred sandbass, California sheephead, white seabass, halibut, rockfish, scorpionfish, yellowtail and lingcod. Important areas include [need SCRSG input here]

Non-consumptive recreational use (diving, kayaking, wildlife viewing, beaches, etc): State, county, and city beaches have high attendance rates. Surfing, sailing, diving, tidepooling, and beach going are some of the common non-consumptive activities in the subregion. [need SCRSG input here]

9.5.4 Research and Monitoring

Research institutions: Scripps Institution of Oceanography, Southwest Fisheries Science Center, University of California, San Diego, San Diego State University, and Sea World.

Existing monitoring sites: CRANE: Cardiff, Encinitas, La Jolla, Point Loma North and Point Loma South.

PISCO: Cabrillo Zone I and II, False Point, La Jolla, Scripps, and Sunset Cliffs.

9.5.5 Existing MPAs, Marine Managed Areas, and Coastal Protected Areas

Existing state MPAs: Batiquitos Lagoon SMP, Encinitas SMCA, Cardiff-San Elijo SMCA, San Elijo Lagoon SMP, San Dieguito Lagoon SMP, San Diego-Scripps SMCA, La Jolla SMCA, and Mia J Tegner SMCA.

RCAs and other fishery closures: There is an intersection of recreational, trawl, and non-trawl Rockfish Conservation Areas at the study region boundary in the northern portion of subregion 5 that continues south outside the study region boundary.

Other marine managed areas: City Underwater Park, to the east of Point La Jolla is an Area of Biological Significance, Point Loma Ecological Reserve (only finfish take allowed), San Diego – La Jolla Underwater Park, Scripps Shoreline Underwater Reserve, San Diego – La Jolla Ecological Reserve, and large Restricted Area from Point Loma south and offshore.

Coastal protected areas: Cabrillo National Monument, Torrey Pines State Reserve, Torrey Pines State Reserve Extension, La Jolla Hermosa Park, Calumet Park, North Island Naval Air Station, Balboa Park, Bay View Park, Harbor View Park, Cays Parks, South Bay Marine Biological Study Area, Sweetwater Marsh National Wildlife Refuge, and Tijuana River National Estuarine Research Reserve.

9.5.6 Other Issues

To be determined.

9.6 Northern Channel Islands (Subregion 6)

Subregion 6 covers 645.22 mi² and 190.8 miles of coastline divided between San Miguel, Santa Rosa, Santa Cruz, and Anacapa islands. The islands face the mainland to the north and are oriented east west. Anacapa Island is closest to the mainland at a distance of about 16 miles. Prominent coastal features include: Point Bennett, Tyler Bight, Crook Point, Cardwell Point, Prince Island, Cuyler Harbor and Harris Point on San Miguel Island; Sandy Point, Cluster Point, South Point Johnsons Lee, East Point, Skunk Point, Bechers Bay, Carrington Point, Talcott Shoal and Brockway Point on Santa Rosa Island; West Point, Fraser Point, Forney's Cove, Black Point, Kinton Point, Morse Point, Puente Arena, Gull Island, Laguna Harbor, Bowen Point, Sandstone Point, Smugglers Cove, San Pedro Point, Scorpion Anchorage, Coche Point, Chinese Harbor, Prisoners Harbor, Pelican Bay, Diablo Point, Profile Point, Painted Cave, and Arch Rocks on Santa Cruz Island; Cat Rock, East Fish Camp, Arch Rock, Cathedral Cove, and Frenchy's Cove on the three islets (West, Middle, and East Anacapa) that make up Anacapa Island.

9.6.1 Ecological Setting

Shoreline: Mostly rocky shoreline backed by cliffs, some rocky to sandy beaches. There are 130 seacaves on Anacapa Island.

Estuaries: None? Largest coastal lagoon in the Channel Islands is on Santa Rosa Island.

Seagrass: Surf grass has been mapped around all the islands. The northwestern and northeastern sides of Santa Cruz Island do not have surf grass, and neither does the western point of San Miguel Island. There is an eelgrass bed near Prisoners Harbor on Santa Cruz Island.

Kelp: San Miguel Island has extensive persistent kelp beds around it, especially north of Point Bennett and up around Castle Rock, off Crook Point, and around Cuyler Harbor. The western half of Santa Rosa Island is surrounded by large kelp beds. There are also smaller kelp beds from South Point east past Ford Point, in Bechers Bay, and off Skunk Point. Fraser Point, Morse Point, and at and to the west of Sandstone Point are kelp beds on Santa Cruz Island. There is also a kelp bed from Point Arena to Gull Island on Santa Cruz Island. There is no mapped persistent kelp around Anacapa Island.

Rock/Sand Bottom: San Miguel, Santa Rosa, and Anacapa islands are immediately surrounded by hard substrate as are the eastern and western ends of Santa Cruz Island. The majority of the study area is soft substrate. There is a submarine canyon to the south and between Santa Rosa and Santa Cruz islands. There is a large reef at Talcott Shoal on the north side of Santa Rosa Island. San Miguel Island is surrounded by submerged pinnacles.

Depth Zones: Over half the study area is soft substrate from 30 to 100 meters depth, hard substrate occurs from 0 to 30 meters around the islands.

Oceanographic Habitats: San Miguel, Santa Rosa, and the west side of Santa Cruz islands are bathed in the cooler, nutrient-rich waters of the California Current and are more characteristic of the Oregonian biogeographic province. The east end of Santa Cruz and Anacapa islands, are bathed in warmer waters of the California Countercurrent.

Seabird Colonies: San Miguel Island: Point Bennett (Brandt's Cormorant, Pelagic Cormorant, Western Gull, Cassin's Auklet), Harris Point to Cuyler Harbor (Brandt's Cormorant, Pelagic Cormorant, Western Gull, Pigeon Guillemot), Prince Island (Leach's Storm Petrel, Ashy-Storm Petrel, Double-crested Cormorant, Brandt's Cormorant, Pelagic Cormorant, Black Oystercatcher, Western Gull, Pigeon Guillemot, Xantus' Murrelet, Cassin's Auklet), and Castle Rock (Ashy-Storm Petrel, Brandt's Cormorant, Pelagic Cormorant, Black Oystercatcher, Western Gull, Pigeon Guillemot, Cassin's Auklet). Santa Rosa Island: Carrington Point (Brandt's Cormorant, Pelagic Cormorant, Western Gull, Cassin's Auklet), and off Brockway Point (Brandt's Cormorant, Pelagic Cormorant, Black Oystercatcher, Western Gull, Pigeon Guillemot). Santa Cruz Island: Scorpion Rock (Ashy-Storm Petrel, Black Oystercatcher, Western Gull, Pigeon Guillemot, Cassin's Auklet), Coche Point (Western Gull), Spit Rock (Ashy-Storm Petrel, Black Oystercatcher, Cassin's Auklet), west of Morse Point (Ashy-Storm Petrel, Brandt's Cormorant, Pelagic Cormorant, Western Gull) and Gull Island (Ashy-Storm Petrel, Brandt's Cormorant, Black Oystercatcher, Western Gull, Xantus' Murrelet, Cassin's Auklet). Anacapa Island: West Anacapa (Brown Pelican, Double-crested Cormorant, Pigeon Guillemot), Middle Anacapa (Brandt's Cormorant, Pelagic Cormorant, Western Gull), and East Anacapa (Western Gull).

Marine Mammal Rookeries: San Miguel Island: west of Simonton Cove (California sea lion), east of Castle Rock (California sea lion, Northern elephant seal), south and southeast of Castle Rock (Northern elephant seal), Castle Rock (California sea lion, Northern fur seal), Point Bennett area (California sea lion, Northern elephant seal, Northern fur seal), Ferrello Point to Tyler Bight (California sea lion, Northern elephant seal), southern shoreline between Tyler Bight and Cardwell Point (Northern elephant seal), northeast of Crook Point (California sea lion), Cardwell Point (California sea lion, Northern elephant seal), northwest of Bay Point (Northern elephant seal), Cuyler Harbor (Northern elephant seal), just south of Harris Point (California sea lion, Northern elephant seal), East and West Simonton Cove (Northern elephant seal). Santa Rosa Island: Northern elephant seals at Sandy Point, east of Sandy

Point, southwest of Brockway Point, and between Sandy Point and South Point. Santa Cruz Island: Gull Island (California sea lion). Anacapa Island: south shoreline of East Anacapa (California sea lion).

Marine Mammal Haulouts: Guadalupe fur seals haul out at Peterson Cove on San Miguel Island. Harbor seals, Northern elephant seals, Northern fur seals, and California sea lions haul out on the entire San Miguel Island. Harbor seals and Northern elephant seals haul out at and around South Point, Brockway Point, Sandy Point, East Point, Ford Point, Cluster Point, Carrington Point, Corral Point, and between Sandy Point and South Point on Santa Rosa Island. California sea lions haul out at and around South Point and between Cluster Point and South Point. California sea lions haul out at Gull Island at Santa Cruz Island. Also on Santa Cruz Island, harbor seals haul-out at and around West Point, Arch Rock, Profile Point, Fraser Point, West Point, Black Point, Kinton Point, San Pedro Point, Sandstone Point, Bowen Point, Coche Point, Prisoners Harbor, Diablo Point, Gull Island, Ladys Harbor, Laguna Harbor, Platts Harbor, Smugglers Cove, Posa Anchorage, Twin Harbors, Valley Anchorage, Puente Arena, between Chinese Harbor and Prisoners Harbor, between Morse Point and Laguna Harbor and between Twin Harbors and Platts Harbor. California harbor seals haul out on the south shoreline of East Anacapa Island. Harbor seals haul out on the south shore of Middle and West Anacapa Island, east and southwest of Cat Rock Point, and north and northeast on West Anacapa Island.

Other Areas for Marine Mammals: Blue whales, humpback whales and gray whales enter the study region following migration routes between warm southern waters and cold northern waters, and can be seen from the Channel Islands, along with dolphins. Harbor seals forage around their rookeries.

9.6.2 Land-Sea Interactions

Coastal watersheds: Each island is a watershed.

Major rivers: none

Anadromous fish streams: none

Hardened shoreline: none

Key impaired water bodies: none

Major point sources: none

Other issues: Oil seeps north of Anacapa Island and near Chinese Harbor on Santa Cruz Island.

9.6.3 Socioeconomic Setting

Counties: Santa Barbara, Ventura

Coastal towns/ports/harbors: None

Public access areas, boat ramps, piers, etc: Cuyler Harbor on San Miguel Island (landing, campground, beach), Bechers Bay on Santa Rosa Island (landing, campground, beach), no permit needed east of property line between Prisoners Harbor and Valley Anchorage on Santa Cruz Island (8 anchorages, 2 campgrounds, beaches), East Anacapa landing cove (campground), and Frenchy's Cove (landing, beach) on West Anacapa.

Commercial fisheries: Some of the major commercial fisheries are mackerel and anchovy, California sheephead, white seabass, Pacific bonito, nearshore rockfish, sea cucumbers, spiny lobster, market squid, red urchin, and spot prawn. Important areas include [need SCRSG input here]

Consumptive recreational use: Major recreational fisheries occurring in subregion 6 include kelp bass, ocean whitefish, California sheephead, rockfish, lingcod, halibut, California scorpionfish, white seabass, spiny lobster, barracuda, and calico bass. Also, the south side of Anacapa Island for yellowtail, and between Anacapa and Santa Cruz islands for surfperch. Other important areas include [need SCRSG input here]

Non-consumptive recreational use (diving, kayaking, wildlife viewing, beaches, etc): Important areas include the north side of Santa Cruz and Anacapa for diving and kayakers. Each island has a campground, and there is wildlife viewing around the islands. [need SCRSG input here]

9.6.4 Research and Monitoring

Research institutions: none

Existing monitoring sites: CRANE sites: East Isle, Middle Isle, West Isle, Cat Rock, and Southwest lighthouse on Anacapa Island; Crook Point, Cuyler, Harris Point, and Tyler Bight on San Miguel Island; Cache Point, Forney, Gull Isle, Hazards, Painted Cave, Pelican, Scorpion, Valley, and Yellowbanks on Santa Cruz Island; Beacon Reef, Bee Rock, Chickasaw, Cluster Point, Johnsons Lee, Jolla Vieja, Monacos, and Rodes Reef on Santa Rosa Island. PISCO sites: Crook Point (3 sites), Cuyler Harbor, Cuyler eastside and westside, Hare Rock, Prince Island (north and south), San Miguel Island Bay (3 sites), San Miguel Island north (3 sites) and south (3 sites); Carrington (6 sites), Ford Point, Fossil Reef, Johnsons Lee, Talcott, and South Point (3 sites) on Santa Rosa Island; Blue Gum, East Point, Forney, Fraser, Frasier Point, Hazards West (3 sites), Hazards, Morse Point (3 sites), Painted Cave (3 sites), Pelican, Pelican West (3 sites), Prisoners, Scorpion (3 sites), and Smugglers on Santa Cruz Island; and Cathedral Cove, Landing Cove, Middle Isle, West Isle, Anacapa South (3 sites), Anacapa Win. (3 sites), Cat Rock, and Frenchy's Cove on Anacapa Island.

9.6.5 Existing MPAs, Marine Managed Areas, and Coastal Protected Areas

Existing state MPAs: Richardson Rock SMR, Judith Rock SMR, Harris Point SMR, South Point SMR, Carrington Point SMR, Skunk Point SMR, Painted Cave SMCA, Gull Island SMR, Scorpion SMR, Footprint SMR, Anacapa Island SMCA, Anacapa Island SMR.

RCAs and other fishery closures: There is an intersect of recreational, trawl, and non-trawl RCAs surrounding these four islands.

Other marine managed areas: San Miguel Island Special Closure, Anacapa Island Special Closure, Channel Islands National Marine Sanctuary (6 nautical miles off the coast of each island).

Coastal protected areas: Channel Islands National Park includes all four islands in subregion 6. The Nature Conservancy owns 76% of Santa Cruz Island.

9.6.6 Other Issues

To be determined.

9.7 Santa Catalina and Santa Barbara Islands (Subregion 7)

Subregion 7 covers 642.4 mi² and 162.6 miles of coastline divided between Santa Barbara, Santa Catalina, San Nicolas, and San Clemente islands. Prominent coastal features include: Webster Point, Sutil Island, Arch Point, and Shag Rock on Santa Barbara Island; Lands End, Lobster Point, Two Harbors Isthmus, China Point, Salta Verde Point, Seal Rocks, White Cove, Long Point, Isthmus Cove, Lover's Cove, Avalon Harbor, Casino Point, Lion Head, and Arrow Point on Santa Catalina Island; Dutch Harbor and Begg Rock off San Nicolas Island; Castle Rock, West Cove, Seal Cove, China Point, Pyramid Cove, Pyramid Head, Wilson Cove, and Northwest Harbor on San Clemente Island.

9.7.1 Ecological Setting

Shoreline: Small rocky to sandy beaches backed by cliffs, and steep cliffs rising out of the ocean. Santa Catalina and San Clemente islands have larger portions of sand than the other Channel Islands. San Nicolas and Santa Barbara islands are mostly rocky.

Estuaries: Catalina Harbor (offshore salt marsh).

Seagrass: Surfgrass has been mapped around Santa Barbara Island.

Kelp: Persistent kelp canopy along the western edge of San Clemente and the northwest of Santa Barbara islands. Large persistent kelp canopy surrounding the northern half of San Nicolas Island, and at its southeastern edge.

Rock/Sand Bottom: The islands are surrounded by hard substrate. Farnsworth Bank seamount is located off the windward side of Santa Catalina Island, and the Catalina Canyon lies to the north.

Depth Zones: About a third of the area is hard substrate from 30 to 200 meters depth and a quarter of it is soft substrate from 200 to 3000 meters depth. Santa Catalina and San Clemente Islands have very steep bathymetry near their coastlines, with extensive cliff-like submerged topography that descend to deep basins within state waters.

Oceanographic Habitats: Santa Barbara is the peak of a larger submerged bank. San Nicolas is situated on a similar offshore bank. Both islands are mostly rocky and support diverse marine life. Santa Catalina is located between the Santa Monica-San Pedro basin and the Catalina Basin and supports warm-water species. San Clemente has a relatively shallow slope to the west and a much steeper slope to the east, and also supports warm-water species. The deepest point in the study region is located off the northwest corner of San Clemente Island. San Nicolas Island is located between these warm-water sites and cold-water sites, like Santa Barbara Island. Farnsworth Bank is the only completely submerged pinnacle in the study region (D. Gregorio pers. comm.).

Seabird Colonies: Shag Rock (Western Gull, Xantus' Murrelet), Santa Barbara Island (Ashy-Storm Petrel, Black Storm Petrel, Brown Pelican, Double-crested Cormorant, Brandts Cormorant, Pelagic Cormorant, Black Oystercatcher, Western Gull, Pigeon Guillemot, Xantus' Murrelet, Cassin's Auklet), Sutil Island (Ashy-Storm Petrel, Black Storm Petrel, Double-crested Cormorant, Brandts Cormorant, Pelagic Cormorant, Black Oystercatcher, Western Gull,

Pigeon Guillemot, Xantus' Murrelet, Cassin's Auklet), Bird Rock off Santa Catalina Island (Western Gull), San Nicolas Island (Brandt's Cormorant, Black Oystercatcher, Western Gull), Bird Rock off San Clemente Island (Brandt's Cormorant, Western Gull), and Seal Cove on San Clemente Island (Brandt's Cormorant, Western Gull).

Marine Mammal Rookeries: China Point (California sea lion), Mail Point (California sea lion, Northern elephant seal), Northwest Harbor Islet (California sea lion), Seal Cove (California sea lion), and Tiki (California sea lion) on San Clemente Island; west, southwest, southeast side and southern shoreline of the east side (California sea lion), Webster Point area and south of Webster Point (California sea lion, Northern elephant seal), northeast of Elephant Seal Cove (Northern elephant seal), north end of the west side (California sea lion, Northern elephant seal), Elephant Seal Cove (California sea lion, Northern elephant seal), east side (California sea lion, Northern elephant seal) of Santa Barbara Island; north shoreline (Northern elephant seal), south shorelines east of Dutch Harbor (California sea lion, Northern elephant seal), south shoreline northwest and southeast of Grenadier Point (California sea lion, Northern elephant seal), south Vizcaino Point area and southeast of Vizcaino Point (California sea lion, Northern elephant seal) on San Nicolas Island.

Marine Mammal Haulouts: Almost the entire coastline of San Nicolas Island and Santa Barbara Island. Arrow Point, Ben Weston, Bird Rock, China Point, Church Rock, Salta Verde, Seal Rocks, Ship Rock, and West End on Catalina Island. China Point, Northwest Harbor, and Seal Cove on San Clemente Island.

Other Areas for Marine Mammals:

9.7.2 Land-Sea Interactions

Coastal watersheds: Each island is a watershed.

Major rivers: None

Anadromous fish streams: None

Hardened shoreline: Avalon Bay and southeast of Avalon, White Cove, Two Harbors on Santa Catalina Island, one location in the eastern section of San Nicolas Island, and two locations in the northeastern section of San Clemente Island.

Key impaired water bodies: Avalon Beach (fecal coliform)

Major point sources: Avalon Wastewater Treatment Plant (treated sanitary wastewater), Pebbly Beach Desalination Plant (desalination brine), USC Wrigley Institute Marine Science Center (marine lab waste seawater), San Nicholas Island (desalination brine), and San Clemente Island (treated sanitary wastewater).

Other issues: To be determined.

9.7.3 Socioeconomic Setting

Counties: Los Angeles, Ventura

Coastal towns/ports/harbors: Avalon and Two Harbors on Santa Catalina Island.

Public access areas, boat ramps, piers, etc: Santa Barbara Island (campground, beach, ranger's station); Hamilton Cove (pier), Descanso Beach (private, open to public May-September), Avalon Bay (beach, pier/hoist, fishing), Crescent Beach (disabled access), Two

Harbors Campground, Parson's Landing Campground (beach), Two Harbors (dock, beach, fishing), Little Harbor Campground (beach), Ben Weston Beach on Santa Catalina Island.

Commercial fisheries: Some of the major commercial fisheries are Pacific sardine, mackerel and anchovy, nearshore rockfishes, California sheephead, cabezon, swordfish, spiny lobster, market squid, red urchin, and spot prawn. Important areas include [need SCRSG input here]

Consumptive recreational use: Major recreational fisheries occurring in subregion 7 include kelp bass, rockfish, surfperch, ocean whitefish, white seabass, California sheephead, halibut, yellowtail, scorpionfish, lingcod, and spiny lobster. Important areas include Italian Gardens, White's Landing, Bird Rock and Ship Rock, Empire Landing, Farnsworth Bank and Eagle Reef around Catalina Island; all around Santa Barbara Island; Seal Cove and the southeast tip of San Clemente Island. [need SCRSG input here]

Non-consumptive recreational use (diving, kayaking, wildlife viewing, beaches, etc.): Santa Catalina Island is a popular diving location, with boat accessible dive sites around the island. The Avalon Underwater City Park is used heavily by divers and snorklers. Guided Discoveries, Inc. and Boy Scouts of America own camps on the island. San Nicolas, San Clemente, and Santa Barbara islands all have diving sites around them that are accessible by boat. [need SCRSG input here]

Non-consumptive/consumptive non-recreational use: San Nicolas and San Clemente islands are owned and operated by the U.S. Navy as testing/training facilities.

9.7.4 Research and Monitoring

Research institutions: University of Southern California, Philip K. Wrigley Marine Science Center and Catalina Island Conservancy on Santa Catalina Island.

Existing monitoring sites: CRANE monitoring sites at Intakes, Isthmus Reef, Little Harbor, Lobster Bay, Catalina Harbor, East Quarry, Johnson's Rocks, Pin Rock, Ripper's Cove, West Kelp, and West Quarry on Santa Catalina Island. CRANE monitoring sites at South Kelp and Arch Point on Santa Barbara Island, Sand Spit and Dutch Harbor on San Nicolas Island, and China Point, Little Flower, and Pyramid Cove on San Clemente Island. PISCO sites on San Nicolas Island at Marker Poles, Santa Barbara Island at the Sea Lion Rookery and Landing Cove, and Santa Catalina Island at Bird Rock, Blue Cavern Cove, Howlands Landing, and Little Harbor.

9.7.5 Existing MPAs, Marine Managed Areas, and Coastal Protected Areas

Existing state MPAs: Santa Barbara Island SMR, Catalina Marine Science Center, Farnsworth Bank SMCA, and Lover's Cove SMCA.

RCAs and other fishery closures: Cowcod Conservation Area overlaps San Nicolas and Santa Barbara islands, and there is an intersection of recreational, trawl, and non-trawl Rockfish Conservation Areas around Santa Catalina and San Clemente islands.

Other marine managed areas: Arrow Point to Lion Head Special Closure, state waters around Santa Barbara Island are part of the Channel Islands National Marine Sanctuary (to six nautical miles offshore), Avalon City Underwater Park off Casino Point on Santa Catalina Island (no take, no boats). The U.S. Navy limits access around San Nicolas and San Clemente Islands.

Coastal protected areas: Santa Barbara Island is part of Channel Islands National Park. San Nicolas and San Clemente islands.

9.7.6 Other Issues

To be determined.