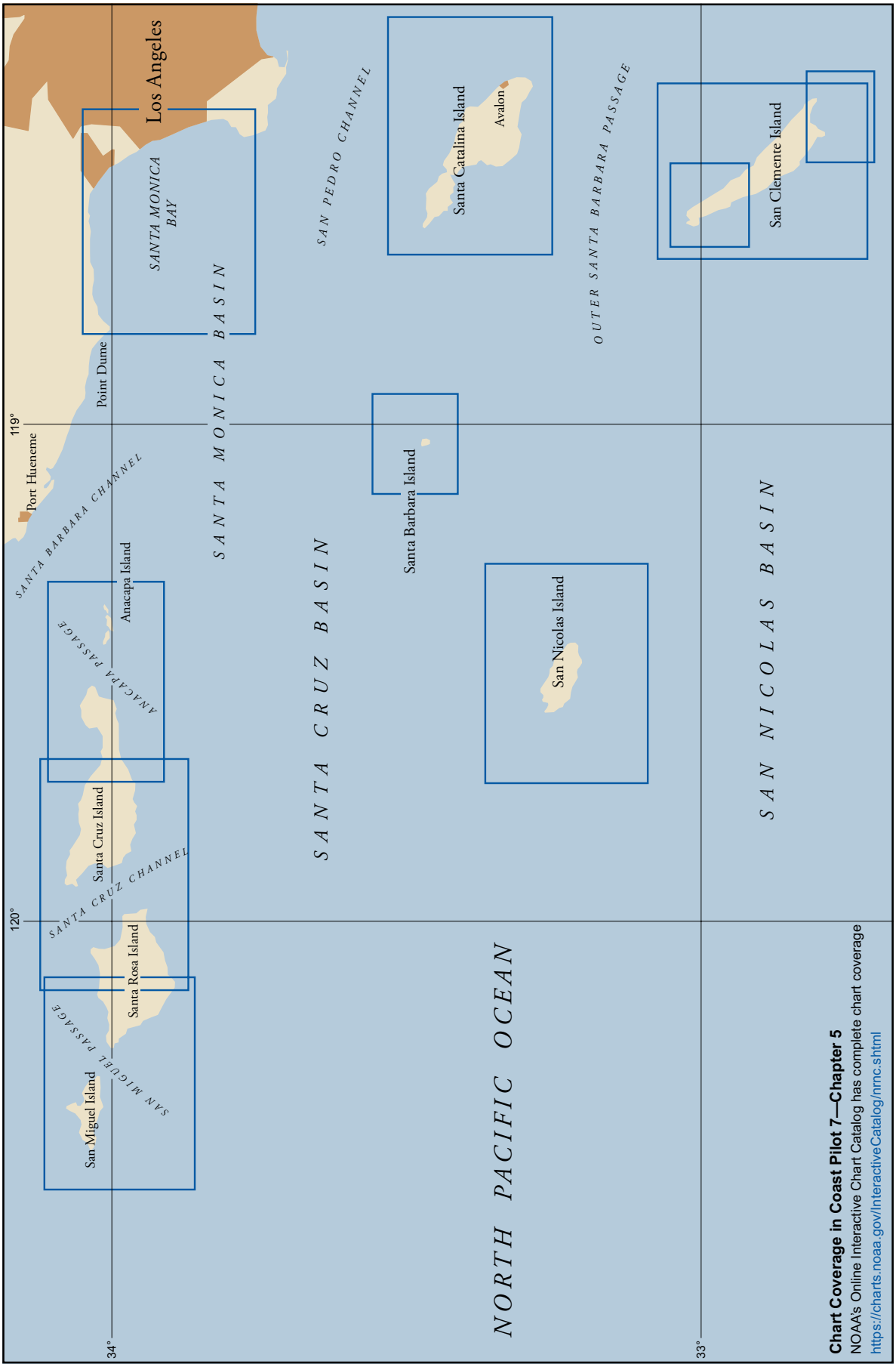
Los Angeles
SANTA MONICA BAY
Point Dume
Port Hueneme
SANTA BARBARA CHANNEL
Anacapa Island
ANACAPA PASSAGE
Santa Cruz Island
SANTA CRUZ CHANNEL
Santa Rosa Island
SAN MIGUEL PASSAGE
San Miguel Island
SANTA MONICA BASIN
SAN PEDRO CHANNEL
Santa Barbara Island
SANTA CRUZ BASIN
San Nicolas Island
NORTH PACIFIC OCEAN
Santa Catalina Island
Avalon
OUTER SANTA BARBARA PASSAGE
San Clemente Island
SAN NICOLAS BASIN
119°
120°
34°
33°
Chart Coverage in Coast Pilot 7—Chapter 5
NOAA's Online Interactive Chart Catalog has complete chart coverage
https://charts.noaa.gov/InteractiveCatalog/nrnc.shtml

Channel Islands, California

(1) This chapter describes the eight **Channel Islands** that extend for 130 miles in a northwest direction off the coast of southern California from San Diego to Point Conception. They include the four islands of the southern group: San Clemente, Santa Catalina, San Nicolas and Santa Barbara; and the four islands of the northern group also referred to as the **Santa Barbara Islands**: Anacapa, Santa Cruz, Santa Rosa and San Miguel. Also described are the passages and channels between these islands including Outer Santa Barbara Channel, San Pedro Channel, Anacapa Passage, Santa Cruz Channel, San Miguel Passage, Santa Barbara Passage and Avalon Bay on the southeast side of Santa Cataline Island, the most active harbor in the area, as well as many smaller harbors and landings.

(2)

COLREGS Demarcation Lines

(3) The lines established for this part of the coast are described in **33 CFR 80.1102**, chapter 2.

(4)

Blue, fin and humpback whales

(5) All whales are protected under the Marine Mammal Protection Act (MMPA) and, when in Sanctuary waters, under the National Marine Sanctuaries Act (NMSA). Certain large whales, including blue, fin and humpback whales, are also listed as endangered under the Endangered Species Act (ESA). See chapter 3 for more information.

(6)

Channel Islands

(7) San Clemente, San Nicholas and San Miguel Islands are military reservations and, except for San Miguel Island, off limits to the public.

(8) Santa Barbara, Anacapa, Santa Cruz, Santa Rosa and San Miguel Islands form **Channel Islands National Park**. The park was created in 1980 to protect the extensive flora and fauna of the islands. The park is under the supervision of the National Park Service, Department of the Interior.

(9) In the approach from the south, several banks are encountered before reaching the Channel Islands. **Sixtymile Bank**, 62 miles south-southwest of Point Loma (32°39.9'N., 117°14.5'W.), has a least depth of 53 fathoms over it.

(10) **Channel Islands National Marine Sanctuary** has been established to protect and preserve the natural, cultural and historical resources in the waters surrounding the northern Channel Islands and Santa Barbara Island. The sanctuary encompasses the waters within six nautical miles of Santa Barbara Island and the northern Channel Islands (Anacapa, Santa Cruz, Santa Rosa and San Miguel Islands), including Castle and Richardson Rocks. Visitor use is encouraged for boating, diving, snorkeling, fishing, swimming, kayaking and wildlife viewing. (See **15 CFR 922.70** through **922.74**, chapter 2, for limits and regulations.)

(11)

Area to be Avoided, Channel Islands

(12) The International Maritime Organization (IMO) has adopted the waters surrounding the Channel Islands as areas to be avoided. In order to avoid risk of pollution in the area designated as the Channel Islands National Marine Sanctuary, all ships, except those bound to and from ports on one of the islands within the area, engaged in the trade of carrying hazardous cargo, including but not limited to tankers and other bulk carriers and barges, should avoid the areas in the region of San Miguel, Santa Rosa, Santa Cruz and Anacapa Islands bounded by a line connecting the following points:

(13) 34°27.2'N., 121°07.8'W.
(14) 34°02.0'N., 119°16.6'W.
(15) 33°59.8'N., 119°11.8'W.
(16) 33°54.0'N., 119°16.9'W.
(17) 33°46.0'N., 120°09.6'W.
(18) 33°49.0'N., 120°54.4'W.
(19) 34°14.0'N., 121°11.9'W.
(20) <20-21 Deleted>

(22)

Local magnetic disturbance

(23) Differences of 4° or more from the normal magnetic variation have been observed within a radius of 8 miles of Sixtymile Bank.

(24)

Bishop Rock to Tanner Bank

(25) **Bishop Rock**, in about 32°27'N., 119°08'W. and which the clipper ship BISHOP struck in 1855, is awash and marked by a lighted bell buoy. The rock, about 40 miles southwest of San Clemente Island, is the farthest outlying danger along the coast. A wreck, covered ½ fathom and about 0.1 mile southeast of the rock, is the shallowest point on **Cortes Bank**. The currents are largely nontidal in character; velocities between 1 and 2 knots have been measured. These currents cause considerable swell, and even in moderate weather the sea usually breaks at this rock.

(26) The area for about 2.5 miles east-southeast of Bishop Rock should be avoided because of the broken bottom. Deep-draft vessels should also avoid a 9-fathom spot 5 miles west-northwest of the rock where the bottom is extremely broken, although no breakers have been reported.

(27) **Tanner Bank** covers an area about 12 miles long in a west-northwest direction and about 5 miles wide. The least survey depth over it is 9 fathoms. The northwest end of the bank is about 28 miles southeast of San Nicolas Island.

(28) A bank covered 45 to 70 fathoms is 18 miles northwest of Tanner Bank. The bank extends 9 miles in a northwest-southeast direction and has an average width of 2 miles. The bottom is hard with fine gray sand and shells. The bank is fished extensively during the winter.

(29)

San Clemente Island to Outer Santa Barbara Passage

(30) **San Clemente Island** is 43 nautical miles south-southwest of Point Fermin and 57 nautical miles west-northwest of Point Loma. The island is oriented in a northwest direction and is 21 miles long and 4 miles wide at the widest part and reaches an elevation of 1,965 feet. Since 1934, the island has been owned and operated by various naval commands. More than a dozen range and operational areas are clustered within a 60-mile radius of the island. The island is closed to the public, and the waters around the island may be restricted at any time to non-military users. Vessels including yachts and fishing craft are warned that these waters may be dangerous at any time due to naval activities, including gunfire, bombing and rocket fire. Non-military users wishing to navigate through these waters should refer to *scisland.org* for schedule updates of hazardous conditions, limiting waterway access to the public and information on the eight sections surrounding San Clemente Island. Restricted access areas and times are highlighted in red and listed in the associated table on the website. If a safety zone section is green, mariners may access the waters for recreational or commercial uses.

(31) Waterway clearances are apt to change on a daily basis, thus, mariners should be acquainted with the information on the website and be prepared to change navigation plans if directed by the U.S. Navy or U.S. Coast Guard. Mariners should further note that the safety zones of Section G and the Wilson Cove section are always closed to marine traffic. If there is a need to transit through Section G, Wilson Cove or any closed section, contact the U.S. Navy on VHF-FM channel 82A via call sign *KRAKEN* or Coast Guard Sector San Diego on VHF-FM channel 16. (See **33 CFR 165.1131**, **165.1141**, **334.920**, **334.921**, **334.950**, **334.960** and **334.961**, chapter 2, for limits and regulations.) Regulation violations of the safety and security zones may carry fines up to $40,000 and criminal Class C or D felony violations.

(32)

Local magnetic disturbance

(33) Differences of as much as 5° from normal variation have been observed up to 3 miles offshore along the north, east and south coasts of the island.

(34) The top of the island appears as a tableland from a distance. A prominent white radar dome (32°53.1'N., 118°27.0'W.), on the highest part of the island, is visible from both the east and west sides of the island.

(35) The northeast side of the island is bold, with rocky cliffs. The water is generally deep close inshore, and kelp grows close to the beach. On this side of the island a prominent white rock is close inshore, 6 miles northwest of Pyramid Head. On the beach behind this rock is a freshwater spring, the only one available during the dry season.

(36) The southwest side of the island is more irregular, but it is lower and has more gentle slopes. Here the kelp extends several hundred yards offshore, and generally to or beyond the 10-fathom curve. Rocks are numerous close inshore and inside the kelp, but outside the kelp line, the bottom slope is more gradual than on the other side of the island, and there are many places where vessels might anchor safely in the lee of the island during the northeast storms, known as the Santa Anas.

(37) **Seal Cove**, on the southwest side of the island midway between the two ends, affords a boat landing and indifferent anchorage for small craft in northwest weather.

(38) **Outer Santa Barbara Passage** lies between San Clemente and Santa Catalina Islands.

(39)

China Point to Pyramid Head

(40) **China Point** is the southwest extremity of San Clemente Island and on the west side of Pyramid Cove. A light is shown from a white pyramidal structure on the point.

(41) **Pyramid Cove**, the deep bight in the south end of San Clemente Island, is used as a naval shore bombardment area and is included in a **danger zone**. (See **33 CFR 334.950**, chapter 2, for limits and regulations.) The cove offers protected anchorage in 10 fathoms or more in northwest weather. Vessels should not enter the kelp as there are indications of other dangers in addition to those already charted. Some swell makes into the cove most of the time.

(42) **Pyramid Head**, the southeast point of San Clemente Island and the east side of Pyramid Cove, is about 900 feet high, sharp, jagged and prominent. **Pyramid Head Light** (32°49'13"N., 118°21'12"W.), 226 feet above the water, is shown from a post with red and white diamond-shaped daymark.

(43)

Wilson Cove to West Cove

(44) **Wilson Cove**, on the northeast shore of San Clemente Island, 15.5 miles northwest of Pyramid Head, is a fair anchorage in the prevailing west weather but is uncomfortable at times as the swells make around the point from the northwest. A strong wind usually blows down off the hills in the afternoon. A **restricted anchorage area** and a **naval restricted area** and **security zone** are in the vicinity of the cove. (See **33 CFR 110.218**, **165.1131**, and **334.920**, chapter 2, for limits and regulations.)

(45) **Wilson Cove Light** (33°00'14"N., 118°33'10"W.), 125 feet above the water, is shown from a post with a red and white diamond-shaped daymark.

(46) Wilson Cove should be approached from the northeast to avoid the numerous buoys north and south of the cove.

(47) The buildings on the hill overlooking Wilson Cove are prominent from the southeast. The best anchorage for small craft is in the lee of the kelp making off from a point nearly a mile northwest of the pier.

(48) The Navy pier in the middle of Wilson Cove is of steel construction and extends 550 feet from shore. A landing section at the outboard end of the pier is 38 feet wide and 210 feet long and has a deck height of 18 feet. Depths alongside the landing section range from 14 feet inboard to 24 feet outboard. The two breasting mooring buoys on each side opposite the landing should be used to avoid danger of damage from surge. Time of the tide is about the same as that for Los Angeles.

(49) **Northwest Harbor**, on the northwest end of the island, affords shelter in south weather and is a comfortable anchorage in the prevailing west weather, as the large beds of kelp and the low islet to the north of the anchorage afford protection. It is open north and is unsafe in heavy northwest weather.

(50) **San Clemente Island Light** (33°01'50"N., 118°35'47"W.), 202 feet above the water, is shown from a post with red and white diamond-shaped daymark on the headland at the north end of the island.

(51) A line of rocks extends west from the northwest extremity of San Clemente Island, terminating about 0.4 mile off the point in bold and rocky **Castle Rock**. A **danger area** for aerial bombing, rocket firing and strafing extends 300 yards around this prominent islet.

(52) **West Cove**, on the northwest side of San Clemente Island, 1.5 miles southeast of Castle Rock, offers some shelter from Santa Ana winds; holding ground is good. A **safety zone, naval restricted area and a danger zone** extend off the west coast of San Clemente Island from West Cove. (See **33 CFR 334.921**, **334.960**, and **334.961**, chapter 2, for limits and regulations.)

(53) A **150°-330°** measured nautical mile is 1.3 miles south from West Cove. The 70-foot towers of the front and rear markers on San Clemente Island are more than 500 feet high.

(54)

Santa Catalina Island to Ballast Point

(55) **Santa Catalina Island**, 18 miles south of Point Fermin, is 18.5 miles long in a southeast direction and has a greatest width of 7 miles. The island is privately owned. Arrangements for overnight permits and the leasing of the many mooring buoys found throughout the area may be made through Two Harbors Enterprises at Two Harbors. Except at Avalon, permits are required for activities other than day use on the other islands.

(56) The island is almost divided by a deep north cut about 6 miles from the west end. The cut forms coves less than 0.5 mile apart at their heads, and because the isthmus separating these coves is low, the island appears as two from a few miles off. Rugged and mountainous, the island has steep, precipitous shores intersected occasionally by deep gulches and valleys and is covered with a thick growth and some scrub oak. The highest peak, 2,125 feet, is near the middle of the east part of the island.

(57) Much of the north shore is free from kelp, but the south side in general has a narrow fringe of kelp close to the beach. The island rises abruptly from deepwater, the 30-fathom curve being close inshore. Most of the dangers in the approaches to the island are inside the kelp.

(58) Lights are shown from a pole with a red and white diamond-shaped daymark on the south end, **Long Point** (east side), and **West End** (northwest point) of the island.

(59) **Ribbon Rock**, on the west side of Santa Catalina Island, 2.9 miles southeast of West End, shows as a dark vertical rock wall with a gigantic ribbon of quartz veining that is visible for many miles.

(60) **Farnsworth Bank**, 9.2 miles south-southeast of West End and 1.6 miles offshore, has a least known depth of 9 fathoms over it.

(61) Shelter from Santa Ana winds can be had by anchoring in the bight near the **Palisades** on the south side of the island, 2 to 3 miles northwest of the south extremity.

(62) Two prominent rock quarries are on the island; one is on the east end of the island, about 1.5 miles southeast of Avalon Bay, and the other is about 1.5 miles southeast of Isthmus Cove. Private lighted mooring buoys are off the quarry at the east end of the island.

(63) **White Cove**, 3.5 miles northwest of Avalon, affords anchorage in 8 fathoms and provides almost the same protection as that found at Avalon. The beach in White Cove is known as **Whites Landing**.

(64)

COLREGS Demarcation Lines

(65) The lines established for Santa Catalina Island are described in **33 CFR 80.1102**, chapter 2.

(66) **Avalon Bay**, on the north shore of Santa Catalina Island, 2.5 miles from its southeast extremity is entered between **Casino Point**, breakwater on the north and the breakwater extending from **Cabrillo Peninsula**, on the

south. The breakwaters are marked by lights on their seaward ends.

(67) The small bay has depths of 2 to 13 fathoms; a depth of 20 fathoms is immediately outside the points of the bay. The **harbormaster** reports that shelter is good during southwest, northwest and southeast weather if the wind does not exceed 20 knots. The breakwater provides limited protection in the northwest and southeast ends of the harbor during northeast Santa Ana winds that occasionally blow during the fall and winter.

(68) A large white circular building, brilliantly illuminated for about half the night during summer, is on Casino Point.

(69) **Avalon**, an incorporated city and part of Los Angeles County, is an extensive resort and the principal settlement of the island. Daily ferry and helicopter service is maintained year round to San Pedro, Long Beach, Newport Beach, Marina del Rey and Dana Point. A road along the beach extends some distance on each side of the cove, and at night the lights along this road are conspicuous from San Pedro Channel.

(70) The bay is extremely popular as a yacht haven and vacation resort during the summer. Yachting and fishboat supplies, limited engine and underwater repair facilities and towing service are available at Avalon.

(71) A pleasure pier with various loading floats, concessions, equipment rental firms and a 2-ton hoist are in the south part of Avalon Bay. There are three 100-foot floating docks, with reported depths of 30 feet alongside, on the east side of the **Cabrillo Mole** (Cabrillo Peninsula.) The Cabrillo Mole floats are used by passenger vessels that operate to the mainland and are available to any vessel through prior arrangement with the harbormaster.

(72) Yachts and other small craft moor to buoys in the bay; there are no alongside berths. The mooring buoys in the bay are privately owned. The harbormaster will rent mooring buoys that are not reserved by the owner to vessels on a daily basis. The **harbormaster**, located on the pleasure pier, offers 24-hour service year round and can be reached on VHF-FM channel 12 and 16 or call 310–510–0535. A harbor patrol boat will meet visiting yachts at the harbor entrance upon arrival and will assign them to a mooring if desired; a fee is collected for the daily use of moorings. Shoreboats can be reached on VHF-FM channel 9.

(73) Emergency rescue services are available at Avalon. The fire and rescue boat can be contacted through the Coast Guard or the harbormaster at Avalon on VHF-FM channel 16, 24 hours a day; the call sign is "Baywatch Avalon."

(74) Weather information for Avalon is broadcast by NOAA weather radio Channel 1.

(75)

Anchorage

(76) A **small-craft anchorage** is in Descanso Bay, just north of Casino Point. Three **anchorage areas**, used for large passenger vessels and assigned by VTS Los Angeles/Long Beach, are just outside Avalon Bay. (See **33 CFR 110.1** and **110.216**, chapter 2, for limits and regulations.) In 1978, it was reported that the holding ground was poor and that heavy concentrations of kelp made anchoring difficult in the Descano Bay anchorage.

(77) **Isthmus Cove**, on the north shore 6 miles from the west end of the island, affords shelter for small vessels in south and west weather but is dangerous in north and northeast weather. Several prominent buildings are on shore. Isthmus Cove and Avalon are connected by a road, and during the tourist season launch service is maintained between the two points. Two Harbors Enterprises manages and leases all coves and moorings outside the City of Avalon. Isthmus Harbor Base can be reached on VHF-FM channel 9 or call 310–510–4254.

(78) A pier at the head of the cove extends out to a depth of about 12 feet; a fuel dock is on the east side of the pier. Water, ice, marine supplies and limited repairs are available; a general store and restaurant are ashore.

(79) Emergency rescue service is available at Two Harbors. The fire and rescue boat can be contacted through the Coast Guard or on VHF-FM channel 16 from 0900 to 1700 daily; the call sign is "Baywatch Isthmus."

(80) **Fourth of July Cove** and **Cherry Cove**, just northwest of Isthmus Cove, are popular overnight mooring destinations for yachts using the facilities at Two Harbors. There are a number of leased moorings in both coves. The shore areas are leased by camps or yacht clubs with restricted shore access.

(81)

Anchorage

(82) A **restricted** and **nonrestricted anchorage** area is in Isthmus Cove. (See **33 CFR 110.1** and **110.216**, chapter 2, for limits and regulations.)

(83) The approach to Isthmus Cove alongshore from the east is clear, but west of the entrance is **Eagle Reef**, covered 3 feet. The reef is marked by growing kelp and by a buoy about 100 yards to the east. In the approach from the north, **Ship Rock**, about 1 mile north of the cove, is the guide. A light is shown from a pole on the rock. From the channel the rock resembles a black haystack; the top is mostly white because of bird droppings. A reef extends about 120 yards south of Ship Rock, ending in a rock that uncovers 3 feet.

(84) **Bird Rock**, 37 feet high and about 150 yards long, is about 500 yards off the beach north from the east part of the cove entrance. The rock is covered with sand and grass. In places, reefs extend off the rock more than 100 yards, but it may be approached close-to on the east side.

(85) **Harbor Reefs**, about 400 yards southwest of Bird Rock, are about 450 yards long, oriented in a northwest direction, and about 250 yards wide. They are usually well marked by kelp. A rock near the southeast end uncovers about 2 feet. The reef is marked by a light on the east side and a lighted buoy on the west side.

(86) **Fisherman Cove**, in the east part of Isthmus Cove, is small but is said to be the only shelter against Santa Ana

winds on the north shore of Santa Catalina Island. The cove is privately operated by the USC Marine Science Center with restricted access for visiting boaters.

(87) **Catalina Harbor**, on the south side of the isthmus separating it from Isthmus Cove, affords excellent shelter for small vessels in all but south weather. **Catalina Harbor Light** (33°25'24"N., 118°30'50"W.), 400 feet above the water, is shown from a pole on **Catalina Head**, on the west side of the harbor entrance. The harbor, a popular yacht anchorage, is funnel-shaped, open to the south and easy of access. Small and bare **Pin Rock**, close inside the east head of the harbor, is 150 yards offshore and has deep water around it. The anchorage is in 4 to 5 fathoms, soft bottom, abreast **Ballast Point**, the long low point on the east shore. The head of the harbor is shoal. The 3-fathom curve is marked by kelp, and vessels entering should give the shores a berth of 150 yards. The facilities on Ballast Point are leased by a yacht club. From the head of the harbor it is only about 0.3 mile overland to Two Harbors.

(88)

San Pedro Channel

(89) **San Pedro Channel** is about 17 miles wide between the mainland, Point Fermin to Point Vicente, and Santa Catalina Island. Current observations have been made 7 miles south of San Pedro Breakwater. Two periodic currents occur at this location: a tidal current and a daily current apparently due to a land and sea breeze. Both are rotary, turning clockwise, and each is weak, having a velocity of 0.2 knot. The tidal current is very complicated, but the daily current is simple, maintaining on the average an approximately constant velocity and shifting direction to the right about 15° each hour. It sets north about 0900, east at 1500, south at 2100 and west at 0300.

(90)

Currents

(91) Currents due to winds and oceanic drifts vary in velocity and direction. The average current for the period of observations sets 112° with a velocity of 0.1 knot. Currents greater than 1 knot occur infrequently. The greatest velocity during 5 months of observations was 1.5 knots. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(92)

San Nicolas Island

(93) **San Nicolas Island**, the outermost of the group off southern California, is 53 miles off the nearest point of the mainland, 43 miles west-northwest of San Clemente Island and 24 miles southwest of Santa Barbara Island. The island is a military reservation and off limits to the public.

(94) A **naval restricted area** extends 3 miles from the shoreline around the island. (See **33 CFR 334.980**, chapter 2, for limits and regulations.)

(95) The island is 8 miles long in an east direction, 3 miles wide, and 907 feet high at its highest point; it is visible about 38 miles. The island has a gently rounding profile from a distance. The west part is covered with sand, some of which has drifted to the middle north shore. The rest of the island is cut by deep arroyos, and the top of the mesa is spotted with patches of burr clover and bunch grass. With the exception of the rocky points, the beaches are all sand. The island is practically surrounded by kelp. At the west end the kelp extends west about 3 miles over very irregular bottom. Two reefs in the kelp extend 1.6 miles west from the west extremity of the island. In thick weather great caution must be exercised in approaching from west and vessels should in no case pass inside the kelp. No dangers are known to exist outside the kelp.

(96) An aerolight, 981 feet above the water, is near the center of San Nicholas Island. A light is on the east side of the island.

(97) **Begg Rock**, 15 feet high, is 8 miles northwest of the west point of San Nicolas Island. A reef extends north and south of the rock over 100 yards in each direction. The rock rises abruptly from depths of 50 fathoms.

(98) A bank covered 30 to 50 fathoms extends 7.8 miles east from the east point of San Nicolas. From the 50-fathom curve the depths increase rapidly to the east and south.

(99) A **restricted anchorage area** surrounds the east end of San Nicolas Island. (See **33 CFR 110.1** and **110.220**, chapter 2, for limits and regulations.) Upon approval by naval authorities, indifferent anchorage may be had on the south side of the 0.6-mile-long sandspit on the east end of the island. Small craft anchor in 8 fathoms, hard sand bottom, near the inshore edge of the kelp. Larger vessels anchor farther offshore in 10 to 17 fathoms, hard sand bottom. The anchorage is often uncomfortable because the island tends to split the west seas and they break with equal force on both sides and meet off the end of the spit in a maelstrom of breakers. This condition tends to move the sand from the west end of the island and builds up the sandspit. After sunset a strong wind frequently blows off the mesa, making holding difficult. In a blow, local fishermen usually leave this anchorage, preferring the one at Santa Barbara Island. A landing can usually be made at the east end on the south side of the island during the summer without difficulty.

(100)

Orson Bank

(101) **Osborn Bank**, about 22 miles east-northeast of San Nicolas Island and 6.5 miles south of Santa Barbara Island, is 5 miles long in a west northwest/east southeast

direction and has an average width of 1 mile. The least depth found over it is 19 fathoms.

(102) A submerged pinnacle rock of very small area covered by at least 17 fathoms is 16 miles north-northwest of Santa Barbara Island.

(103)

Channel Islands National Park

(104) Santa Barbara Island, Anacapa Island, Santa Cruz Island, Santa Rosa Island, San Miguel Island and areas within 1 mile of the shoreline of these islands, except for certain described parcels of land, have been reserved as Channel Islands National Park and are subject to rules and regulations prescribed by the Secretary of the Interior and administered by the National Park Service. Landing on rocks and islets is prohibited. Additional information may be obtained from Channel Islands National Park, 1901 Spinnaker Drive, Ventura, CA 93001.

(105)

Santa Barbara Island to Sutil Island

(106) **Santa Barbara Island**, 33 miles south-southwest of Point Dume and 21 miles west from the west end of Santa Catalina Island, is 1.5 miles long in a north direction and has a greatest width of 1 mile. The profile of the island is saddle shaped, and at a considerable distance it appears to be two islands. The greatest elevation is 635 feet on the south side of the saddle, and the island is visible for over 25 miles in clear weather. The shores are bold and precipitous and well marked by kelp extending to about 10 fathoms at irregular distances from the shore. West of the island the kelp makes out more than a mile over very irregular bottom; a rock that breaks in moderate swells is 0.7 mile west of the point. This rock may not break in a calm sea and is dangerous, even for small craft. The water around the island is deep except where the kelp indicates foul or rocky bottom.

(107) **Santa Barbara Island Light** (33°29'15"N., 119°01'49"W.), 195 feet above the water, is shown from a post located on the northeast point of the island.

(108) **Sutil Island**, a rocky islet 300 feet high and surrounded by kelp, is 0.4 mile west from the south point of Santa Barbara Island; its north face is steep. A smaller 145-foot-high rock islet is 200 yards offshore about 0.2 mile west from the north point of Santa Barbara Island.

(109)

Anchorage

(110) A **general anchorage area** extends 2 miles off the east coast of Santa Barbara Island. (See **33 CFR 110.1** and **110.222**, chapter 2, for limits and regulations.) For yachtsmen desiring to go ashore, an anchorage reported to give fair protection for small craft in the prevailing west weather is in the small cove about 700 yards south of Santa Barbara Island Light. If the water is too deep or too rough to anchor off the cove, anchor inside, but maintain an anchor watch. Swinging room on a single anchor is restricted in the cove. The cove affords no landing beach; yachtsmen can debark from a dinghy onto rock steps in the side of the cliff. Large vessels can anchor within the 30-fathom curve with hard gray sand bottom.

(111)

Anacapa Island to Anacapa Passage

(112) **Anacapa Island**, 11 miles southwest of Point Hueneme, is the easternmost of the northern group of Channel Islands and consists of three islands separated by two very narrow openings that cannot be used as passages. The east opening is filled with rocks and is bare. The west opening is only 50 feet wide and is blocked by sand. **Anacapa Island Light** (34°00'57"N., 119°21'34"W.) is shown from a 40-foot white cylindrical tower on the east end of the island.

(113) From its east point the island extends 4.5 miles in a general west direction. The east and lowest island of the Anacapa group is 1 mile long, 0.2 mile wide, 250 feet high and rather level on top. The middle one is 1.5 miles long, 0.2 mile wide, and 325 feet high. The west and largest island is 2 miles long and 0.6 mile wide and rises to a 930-foot peak. The westernmost island is visible at a distance of 35 miles in clear weather; the other two at 15 to 20 miles. The shores of Anacapa Island are perpendicular and filled with numerous caves. The east extremity terminates in 80-foot **Arch Rock**, with a 49-foot arch and a pyramidal rock just south of its east end. The island is surrounded by kelp except in a few small places.

(114) The National Park Service rangers are on Anacapa Island. Seals and pelicans are present in large numbers. The cream-colored houses with tile roofs of the park service rangers are 300 to 400 yards west of the light. A single large white building is 100 yards farther to the west.

(115)

Anchorages

(116) The best anchorage in southeast storms is on the north side about 0.2 mile north of the center of the middle island in depths of 9 to 12 fathoms. In northwest weather the best anchorage is 0.3 mile south of the east opening in depths of 8 to 12 fathoms. However, it is best for larger vessels to lie at Smugglers Cove, on the east side of Santa Cruz Island, where the bottom is not so steep-to. Small boats anchor in 5 to 7 fathoms in **East Fish Camp**, a bight about 0.4 mile southwest of the east opening. About the only protection from northeasters is to anchor as close as possible in the bight immediately west of **Cat Rock**, on the south side of the west island, taking care to avoid the 2-fathom spot west-southwest of Cat Rock. The National Park Service maintains a boat landing and kayak hoist on the north side near the east extremity. Landings can also be made on either side of the island near the west opening and at East Fish Camp. In thick weather, vessels in the area should stay in 50 fathoms or more, because the island rises abruptly from deep water.

(117) **Anacapa Passage**, between Anacapa and Santa Cruz Islands, is 4 miles wide and free of dangers. It is

steep-to on the Anacapa Island side and has a gradual slope to the shore of Santa Cruz Island. The passage is seldom used and should not be attempted in thick weather as soundings give no warning of a close approach to the islands. Tide rips are strong under certain conditions of wind and current, especially during southeast storms and northeasters.

(118)

Santa Cruz Island to Smugglers Cove

(119) **Santa Cruz Island**, 17 miles west-southwest of Point Hueneme, is the largest of the Channel Islands. The Nature Conservancy, a private, non-profit organization dedicated to preserving unique islands, owns most of Santa Cruz Island. It is considered an inholding within the National Park. Landing permits may be obtained from Santa Cruz Island Preserve, 213 Sterns Wharf, Santa Barbara, CA 93101 (telephone 805–964–7839). The eastern quarter of the island is public land administered by the National Park Service.

(120) The island is about 21 miles long in a west direction and has an average width of 5 miles. The highest peak, in the west part of the island, rises to 2,434 feet; in the east part the land attains an elevation of about 1,800 feet. The east part is very irregular and barren; the west part has a few trees, is well covered with grass, and has several springs. The shores are high, steep and rugged, with deep water close inshore, and there is considerably less kelp than around the other islands. The reefs, extending a mile offshore on the south coast at Gull Island, are the only outlying dangers.

(121) **San Pedro Point** is the east extremity of the island. There is a small-boat landing in **Scorpion Anchorage**, a shallow bight 1.8 miles northwest of San Pedro Point; it consists of a cribbed area with a float and gangway at the end of the roadway. Several large buildings are along the roadway. Large clumps of trees are near the houses. A rock covered 8 feet is located at 34°02'53"N., 119°32'59"W., 300 feet southeast of the 10-foot pinnacle rock in Scorpion Anchorage.

(122) **Chinese Harbor**, in the east part of the broad bight on the north shore, 4.5 miles west of San Pedro Point, affords anchorage in the kelp in 5 to 6 fathoms. The northeast part of the harbor is an excellent anchorage in southeast to southwest weather in 9 to 10 fathoms. This harbor affords the best shelter on the island from northeast winds.

(123) **Prisoners Harbor**, in the west part of the bight on the north shore 8 miles west of San Pedro Point, affords shelter from all winds except from northeast to west. Some protection from northwest weather is afforded by the kelp, but a heavy swell rolls in. In northeast weather the anchorage is unprotected and dangerous. A wharf with 16 feet at its face is in the harbor. There are buildings back of the wharf. The best anchorage is in 12 to 15 fathoms, sandy bottom, abreast a distinct rock on the west shore of the bight that is angled, solid and smooth, and the outer end of the wharf in range with the buildings at the inner end.

(124) **Pelican Bay**, a small indentation in the north shore of Santa Cruz Island, 1 mile west-northwest of Prisoners Harbor, is used as a yacht anchorage during the summer. In northwest weather small boats anchor close to the cliff that forms the west shore of the bay.

(125) **Painted Cave**, 3 miles east of **West Point**, the northwest extremity of the island, is a large cave into which dinghies may be rowed for a considerable distance. The entrance is over 150 feet high. The inner end of the first chamber, 600 feet from the entrance, has depths of more than 2 fathoms.

(126) **Forney Cove**, 1 mile east of **Fraser Point** at the west end of the island, affords shelter in north weather in 7 to 8 fathoms. The surf is heavy on the beach, but the rocky islet west and the reef connecting it with the shore lessen the swell at the anchorage.

(127) **Gull Island**, 65 feet high and about 0.2 mile in extent, is the largest and outermost of a group of small rocky islets, 0.7 mile south of **Punta Arena**, on the south side of Santa Cruz Island. Kelp surrounds Gull Island, and the bottom in the vicinity of the group is foul.

(128) **Willows Anchorage**, on the south shore 3.6 miles east of Gull Island, can be used by small craft in northwest weather and affords a good boat landing.

(129) **Smugglers Cove**, 1.2 miles southwest of San Pedro Point, affords shelter in northwest weather in 5 fathoms, sandy bottom.

(130)

Santa Rosa Island to San Miguel Passage

(131) **Santa Rosa Island**, 24.5 miles southwest of Goleta Point on the mainland, is 15 miles long in a west direction and has a greatest width of nearly 10 miles. No landing fee or permit is required.

(132) The highest point, near the middle of the island, is 1,589 feet high and visible over 40 miles. The island has some water and is partially covered with vegetation. The shores are bold, high and rocky; kelp surrounds most of the island. Depths in the approaches to the island shoal more abruptly from south than from north, where the 100-fathom curve is over 5 miles and the 20-fathom curve about 2 miles from the beach.

(133) There are no harbors, but anchorage may be made in Bechers Bay and Johnsons Lee. There are several good boat landings and a pier near Northwest Anchorage.

(134) **East Point**, the east extremity of Santa Rosa Island, is moderately high, sharp and bold. A rock covered 2¾ fathoms is in the kelp 0.7 mile north from the point, and a shoal with a least depth of 2¾ fathoms is 2 miles north of the point.

(135) **Skunk Point**, 2.5 miles north of East Point, is formed of drifts of sand; it is difficult to see on dark nights. There are sand beaches west and south, and the sand dunes behind the point are as much as 300 feet high. Care should be taken to avoid the sandspit off the point

where the sea breaks heavily in bad weather. The current is sometimes strong in the vicinity of the point.

(136) **Bechers Bay**, a broad semicircular bight on the northeast side of Santa Rosa Island, is 4.5 miles wide between Skunk and Carrington Points and 1.5 miles in depth. **Southeast Anchorage**, 1.3 miles west of Skunk Point, affords protection in southeast weather in about 6 fathoms, sandy bottom. **Northwest Anchorage**, in the west part of the bight and 1.5 miles south from Carrington Point, affords fair shelter in northwest weather.

(137) A **naval operating area** is in Bechers Bay bounded by the following:

(138) 34°02'12"N., 120°01'34"W.,

(139) 34°00'58"N., 120°02'17"W.,

(140) 34°00'04"N., 120°02'02"W.,

(141) 33°59'18"N., 120°00'32"W.,

(142) 33°59'33"N., 119°59'02"W.,

(143) 34°00'32"N., 119°59'05"W.,

(144) 34°01'40"N., 120°00'25"W.

(145) Anti-ship mining operations take place at frequent and irregular intervals, including weekends, throughout the year. They are conducted as air drops from low-flying aircraft or released from submarines. Submerged metallic remains from these operations may pose a hazard to fishing operations conducted along the seabed. Particular operations are published in Eleventh Coast Guard District Local Notices to Mariners. Announcements are also made locally on VHF-FM channel 16, at 0800 local time, 1200 local time, and/or 1 hour prior to mining operations. Status of the zone and/or permission to enter may be requested by calling PLEAD CONTROL on VHF-FM channel 16, or by telephone to the Pacific Marine Test Center at 805–989–8280/8841, or 805–816–0792 RODO (Range Operation Duty Officer) after 1800; fax 805–989–0102.

(146) **Carrington Point**, the north point of the island, has a seaward face 0.8 mile in length. It is bold and rocky and rises rapidly to an elevation of 452 feet.

(147) Foul ground extends about 0.3 mile north from Carrington Point and terminates in **Beacon Reef**, which covers 2¼ fathoms. The reef rarely breaks, and there is no safe passage behind it.

(148) **Brockway Point**, high, bold and rounding, is about midway along the north shore of Santa Rosa Island. **Rodes Reef**, marked by kelp, is a submerged reef with three high points, 1.7 miles east-northeast from Brockway Point and 0.8 mile offshore. It breaks in nearly all weather.

(149) **Sandy Point**, the west extremity of the island, is moderately bold and rocky, with a detached rock lying close inshore and sand dunes more than 400 feet high extending inland. These white dunes are prominent when approaching from south or west. Shallow water extends off the point. During the general northwest weather, swells form at a considerable distance from the shore. The swell also reaches the point from the southwest direction.

(150) **Talcott Shoal** lies near the edge of the kelp, 1.5 miles north-northeast of Sandy Point, and has a least depth of 1¾ fathoms. Depths surrounding the shoal range from 2 to 10 fathoms. The shoal breaks only in heavy weather. In calm weather there is little indication of the shoal's location, as the kelp is light and there is very little lumping of the water. A detached kelp patch is 1 mile north of the shoal.

(151) **Bee Rock**, 0.8 mile offshore 3.6 miles south-southeast of Sandy Point, is 5 feet high but is not easily seen. It is surrounded by kelp that stretches from South Point to Sandy Point. A rock with a height of 10 feet is about 100 yards southeast of Bee Rock. A submerged rock, covered 1¼ fathoms, is 0.3 mile northwest of Bee Rock and occasionally breaks in ordinary weather. Two other submerged rocks are close south of Bee Rock, covered 1¼ fathoms, and southeast of Bee Rock, covered 2¼ fathoms. Several other rocks and shoals exist inside the kelp—vessels should not go inside the kelp in this area.

(152) **South Point**, the south point of Santa Rosa Island, terminates in a rocky bluff 100 feet high and rises rapidly to a height of 460 feet, then to 603 feet. Cliffs, several hundred feet high and about 0.5 mile in extent, form the southwest face of the point. **South Point Light** (33°53'50"N., 120°07'08"W.), 530 feet above the water, is shown from a small white house on the point.

(153) **Johnsons Lee**, an open roadstead immediately east of South Point, affords fair shelter from west and northwest winds with good holding ground but is dangerous in south weather. The Coast Guard makes landings on the west shore of Johnsons Lee with supplies for South Point Light.

(154) **San Miguel Passage**, between Santa Rosa and San Miguel Islands, is 1.7 miles wide between the ledges that project from Sandy Point and Cardwell Point, the closest points between the two islands. There is much broken water with many current rips near these ledges. To avoid Talcott Shoal, vessels making the passage from the southwest should not allow the outer rock off the west point of Santa Rosa Island to bear west of south until clear of the shoal. Sailing vessels should avoid this passage as the light airs and calms under the lee of San Miguel Island and the currents frequently combine to set a vessel toward Talcott Shoal.

(155)

Danger zone

(156) A **naval danger zone** surrounds the eastern half of San Miguel Island and extends into San Miguel Passage. (See **33 CFR 334.1140**, chapter 2, for limits and regulations.)

(157)

San Miguel Island to Crook Point

(158) **San Miguel Island**, 23 miles south-southeast of Point Conception, is the westernmost of the Channel Islands and the most dangerous to approach. The island is irregular in shape and 7.6 miles long in an east-west direction, with an average width of 2 miles; the highest points, 831 and 817 feet, are near the middle of the island and are visible about 35 miles. The island is covered with

grass, but there are no trees. The west part has more sand dunes on it than any of the other islands in the group. The shores are bold, broken and rocky, with a few short stretches of beach; the south shore is more precipitous than the north.

(159) San Miguel Island, although a military reservation, is administered on a day-to-day basis by the National Park Service. Cuyler Harbor is the only place landing is allowed. A permit is required for other than beach use.

(160) **Cardwell Point** is the east extremity of the island. A low sandy area that uncovers extends 0.5 mile east of the point and a dangerous reef extends an additional 0.4 mile from the tip of the area. A detached shoal covered 21 feet is 0.9 mile east-southeast of Cardwell Point. In 1994, a shoal with breakers was reported in about 34°01'06"N., 120°17'24"W. A submerged rock and rock awash are about 400 yards south of the middle of the sandy point. During prevailing weather, breakers off this point are caused by the meeting of the seas.

(161) **Prince Island**, 296 feet high, is 2.6 miles northwest of Cardwell Point and 0.4 mile off the east head of Cuyler Harbor. The island is dark in color and rocky, with a precipitous seaward face.

(162) **Cuyler Harbor** is a bight 1.2 miles long and 0.6 mile wide on the north shore southwest of Prince Island. The anchorage is in the west part of the harbor; the east part is foul. Good shelter may be had in south weather, but the holding ground is poor. In strong northwest weather the heavy swells that sweep around the north shore and into the harbor make the anchorage dangerous. The harbor is not safe in rare north or east winds. Water may be obtained at a small spring abreast the anchorage. Prince Island and Harris Point are prominent in the approaches.

(163) **Middle Rock** is 0.5 mile west-southwest of Prince Island; foul ground surrounds the rock for a distance of 200 yards on the southeast and southwest sides and up to 350 yards northwest of the rock. **Can Rock**, 4 feet high, is 0.3 mile southwest of Prince Island; there is foul ground between the rock and the south shore of the harbor. Kelp grows all over the bight.

(164) To enter Cuyler Harbor, bring Harris Point to bear **261°**, distant 1.7 miles, and the west point of Prince Island to bear **186°**, distant 1.3 miles; thence steer **209°**, heading midway between Middle Rock and the west point at the entrance, and when the south point of Prince Island bears **084°**, anchor in 5 to 7 fathoms. The course heads for **Judge Rock**, small and black, near the west end of the sand beach. The west point at the entrance off **Bat Rock** should be given a berth of about 0.3 mile to avoid the shoal extending east for over 300 yards. Anchorage may be made about 0.2 mile south of Bat Rock where better protection is afforded in northwest weather. The passage between Prince Island and the east head should be attempted only by small craft.

(165) **Harris Point**, the north extremity of the island, is bold and precipitous, rising to a hill, 485 feet high, 1 mile south of the point.

(166) **Wilson Rock**, 2.2 miles northwest of Harris Point, is 19 feet high and black. A reef, extending about 1 mile west-northwest from the rock, uncovers in two places; foul ground is a short distance north of the reef. It breaks in any light swell from the northwest. There is foul ground south and southwest of the rock. The covered rock 0.3 mile south of Wilson Rock breaks. This locality should not be approached in thick weather, as the dangers rise abruptly from deep water and are not marked by kelp; soundings give no positive warning of their proximity.

(167) **Simonton Cove**, on the northwest side of San Miguel Island, is a very shallow bight 2.4 miles long and 0.6 mile wide. This cove has considerable kelp and a few covered rocks. From the southwest head of Simonton Cove, foul ground extends northwest for nearly 1 mile.

(168) **Castle Rock**, 180 feet high, is a three-headed islet 1.6 miles north-northeast from Point Bennett, in the middle of the kelp field, and 0.5 mile offshore. A shoal spot 0.5 mile west of the rock is near the edge of the kelp.

(169) **Westcott Shoal**, covered 4¾-fathoms, is 0.8 mile north from Castle Rock. A 2¾ fathom spot near an oil spring is about 0.6 mile north from the shoal.

(170) **Point Bennett**, the west point of the island, is a long, narrow, jagged bluff, 74 feet high, rising rapidly to 337 feet. High sand dunes extend from the point for 2 miles. There are two rocky islets south of and close under the point, and foul ground extends about 0.5 mile west and 1 mile north of the point but inside the limit of the kelp. Navigation in this area should not be attempted without local information.

(171) **Richardson Rock**, 6 miles northwest from Point Bennett, is 53 feet high, white-topped and small in area. Two smaller and lower rocks are close-to on the east side. Richardson Rock rises abruptly from deep water, 30 to 40 fathoms being found within 0.3 mile. The rock is prominent in clear weather, but in thick weather the locality should be avoided, as soundings give no warning of a near approach.

(172) **Tyler Bight** is on the south shore 1.8 miles east of Point Bennet and has a sand bottom. In moderate northwest weather, the winds may attain velocities up to 45 knots 0.5 mile offshore; the sea in the bight, however, is quite smooth.

(173) **Wyckoff Ledge**, 1.4 miles west from Crook Point and 0.5 mile offshore, is covered 1½ fathoms.

(174) **Crook Point**, the south point of the island, is low and irregular. Any type of landing here would be difficult and the holding ground for anchorage is not good.

(175)

Santa Barbara Channel

(176) **Santa Barbara Channel** is 63 miles long and increases gradually in width from 11 miles at the east end to 23 miles at the west end. The channel is free of dangers and has depths of 40 to more than 300 fathoms along the recommended track from San Diego and Los Angeles to northern ports.

(177) Offshore oil wells and oil drilling platforms, some privately marked by lights, buoys and sound signals, extend as much as 10 miles offshore between Point Hueneme and Point Conception.

(178)

Safety zones

(179) **Safety zones** have been established around the oil drilling platforms and an offshore storage and treatment vessel mooring area in:

(180)

34°07'02"N., 119°16'35"W.	Platform Gina (§147.1103)
34°07'30"N., 119°24'01"W.	Platform Gail (§147.1113)
34°10'56"N., 119°25'07"W.	Platform Gilda (§147.1107)
34°10'47"N., 119°28'05"W.	Platform Grace (§147.1102)
34°23'27"N., 120°07'14"W.	Platform Hondo (§147.1105)
34°24'19"N., 120°06'00"W.	Santa Ynez offshore storage and treatment vessel safety zone (§147.1106)
34°22'36"N., 120°10'03"W.	Platform Harmony (§147.1114)
34°21'01"N., 120°16'45"W.	Platform Heritage (§147.1115)
34°27'19"N., 120°38'47"W.	Platform Hermosa (§147.1109)
34°28'09.5"N., 120°40'46.1"W.	Platform Harvest (§147.1110)
34°29'42"N., 120°42'08"W.	Platform Hidalgo (§147.1112)
34°36'37.5"N., 120°43'46.0"W.	Platform Irene (§147.1116)

(181) See **33 CFR 147.1** through **147.20** for general regulations and the specific regulations listed above in chapter 2; also see **Oil Well Structures** in chapter 3 for additional information.

(182) On the north side of Santa Barbara Channel is the mainland between Point Hueneme and Point Conception. On the south side is the northern group of the Channel Islands—Anacapa, Santa Cruz, Santa Rosa and San Miguel—which break the force of the heavy westerly Pacific swell and afford a lee in winter from the full force of the southeast gales.

(183) The east entrance to Santa Barbara Channel has a clear width of 2 miles between the 100-fathom curves and lies between Anacapa Island and Point Hueneme. On the north side of this entrance is deep **Hueneme Canyon**, which extends from Point Hueneme in a south-southwest direction across the channel. The west entrance to the channel has a clear width of 10 miles between the 100-fathom curves and lies between Richardson Rock and Point Conception. (See chapter 4 for details about the **Traffic Separation Scheme** between Point Fermin and Point Conception.)

(184)

Weather, Channel Islands

(185) The prevailing winds are west and northwest and blow nearly every day, especially in the afternoon. Strong southeast winds occur in the winter, and at times the sea is too rough for several days to permit the passage of small vessels.

(186) In the summer the winds in the channel are wholly different from those outside the islands and off the coast to the northwest. Under the north shore, which is protected by the bold range of the Santa Ynez Mountains, the west winds do not reach far east of Point Conception with much strength but are felt towards the islands, a strong northwest wind and heavy swell coming in from the open ocean. The climate in the Santa Barbara Channel, because of this blocking of the winds, is much milder than to the north along the coast. However, during northwest weather boats crossing the channel from the mainland usually encounter heavier seas as the islands are approached. The belt of rough seas, locally known as **Windy Lane**, lies along the north shores of the islands and is about 6 miles (11 km) wide. This sea condition is the opposite to that experienced in the crossing from Los Angeles-Long Beach to Santa Catalina Island. Strangers are cautioned that good seamanship sometimes calls for returning to the mainland rather than attempting Windy Lane when rough seas are encountered. These west winds usually begin about 1000 and grow progressively stronger until sundown.

(187) During heavy northwest weather strong squally winds draw down the canyons between Point Conception and Capitan and pass directly offshore, causing a severe choppy sea. Heavy northwest gales are often encountered off Point Conception on coming through Santa Barbara Channel, and great changes of climatic and meteorological conditions are experienced; the transition is often remarkably sudden and well defined.

(188) In the fall and winter, stiff northeasters are occasionally experienced at and near the east end of the channel. They come up without warning, usually at night in clear dry weather, and when the barometer is either high or rising rapidly. At such times small boats should be prepared to seek shelter at a moment's notice.

(189) During the summer heavy fogs are a common occurrence in the Santa Barbara Channel and envelop the main shore, channel and islands. Sometimes the mainland and channel are clear while the islands alone are hidden. At other times all are clear during the day but wrapped in dense wet fog nights and mornings. This condition, the fog lying offshore during the day and enveloping the land at night, is characteristic of the whole southern California coast. The fogs occur mostly during calm weather and light winds and are generally dissipated by the strong northwest winds.

(190) Winds at **San Nicolas Island**, located about 75 miles (140 km) southwest of Los Angeles, average 12 knots from the northwest on an annual basis. A peak wind of 57 knots was recorded in both July and August 1979. The average annual temperature for San Nicolas is 61°F (16.1°C). The average maximum is 66°F (18.9°C) and the average minimum is 55°F (12.8°C). An extreme maximum temperature of 103°F (39.4°C) was recorded in August 1976, and an extreme minimum of 30°F (-1.1°C) was recorded in January 1978. San Nicolas Island averages only 34 days each year with measurable precipitation. Snowfall has never been reported on the island.

(191) At **San Clemente Island**, about 60 miles (111 km) northwest of San Diego, west winds dominate at a lower average speed of only seven knots. The average annual temperature for San Clemente is 61°F (16.1°C). The average maximum temperature is 66°F (18.9°C) and the average minimum is 56°F (13.3°C). An extreme maximum temperature of 97°F (36.1°C) was recorded in April 1989 and extreme minimum of 33°F (0.6°C) was recorded in January 1976. San Clemente averages only 49 days each year with measurable precipitation. Snowfall has never been reported on the island.

(192)

Currents

(193) Currents in Santa Barbara Channel are variable, depending to a great extent upon the wind. It appears that a weak nontidal flow sets east in the spring and summer, and west in autumn and winter.

(194) It has been observed that a strong inshore set prevails on a rising tide in the deep waters of Hueneme Canyon. In general, there are conflicting currents, at times quite strong, around the slopes of the submarine valleys both here and off Point Mugu.

(195) The tidal current sets along the north shore of Santa Barbara Channel with velocities of 0.5 to 1 knot. In heavy northwest weather, the current and heavy swells make into the south side of the west entrance to the channel and along the north shore of San Miguel Island.

(196) The currents in the vicinity of the Channel Islands frequently follow the direction of the wind, with eddies under the lee of the islands and projecting points. Tidal currents of about 1 knot set through the passages between the islands. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.