

**Environmental Impact Statement/
Overseas Environmental Impact Statement
Point Mugu Sea Range
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3.13 Sea and Air Space

3.13.1 Introduction

This discussion of airspace encompasses the current uses and controls of the Point Mugu Sea Range (PMSR) airspace and includes all the existing PMSR Special Use Airspace (SUA). Sustainment of the existing PMSR SUA, or any required changes to the SUA, would be the subject of the final Federal Aviation Administration (FAA) rulemaking, subsequent to and depending upon any decision(s) ultimately made about the Navy's Proposed Action.

The PMSR sea space is the corresponding international waters outside 12 nautical miles (NM) from U.S. territory underneath the SUA, as well as continental waters underneath restricted areas. This discussion encompasses Navy actions associated with activities on the PMSR and the safety and security measures taken in support of those activities.

3.13.1.1 Sea Space

The Sea Range boundaries are consistent with those of the established PMSR SUA and encompass major sea lanes and approaches for ships to ports in Southern California. Historically, there are approximately 7,000 vessel movements through the Sea Range over any 12-month period. The sea lanes are shipping routes that cross the Sea Range through the Santa Barbara Channel (between the mainland coast and the northern Channel Islands) and through an area south of the Channel Islands. These shipping channels are major commercial marine transit areas for vessels traveling to and from areas north along the Pacific coast and Asia or westward toward Hawaii.

The sea space around the northern Channel Islands offers extensive opportunities for recreational fishing and boating. Due to the distance from the mainland and the restricted areas around the island, marine traffic in the waters around San Nicolas Island (SNI) is primarily naval and PMSR support vessels. The SNI restricted area is divided into three sections and includes all waters from the SNI shoreline out to 3 NM. The waters outside the restricted area are used for occasional commercial and sport fishing.

3.13.1.2 Airspace

The FAA manages all airspace within the United States and the U.S. territories. Airspace is defined in vertical and horizontal dimensions and by time and is considered to be a finite national resource that must be managed for the benefit of all aviation sectors, including commercial, general, and the military.

Regulations governing visual flight are called visual flight rules (VFR). Instrument routes are flown using instrument flight rules (IFR), which enable the pilot to fly without visual reference to the ground.

Federal airways are corridors for civilian air traffic. FAA Air Traffic Control utilizes high-altitude Jet (J) routes and Q-routes (routes available for use by area navigation-equipped aircraft between 18,000 feet mean sea level and Flight Level 450 inclusive), and low-altitude T routes (routes available for use by area navigation-equipped aircraft from 1,200 feet above the surface [or in some instances higher], up to but not including 18,000 feet mean sea level) and V-routes (low-altitude airways defined in straight-line segments, each of which is based on a straight line between either two Very High Frequency omnidirectional range stations, or an omnidirectional range and an omnidirectional range intersection) (Federal Aviation Administration, 2017).

Warning areas are designated areas for military activities in international airspace and are exclusively located over coastal waters of the United States and its territories. Although military flight operations and activities may be of a hazardous nature, international agreements do not provide for prohibition of

flight in international airspace. Therefore, there is no restriction of flight by non-participating aircraft. Restricted use airspace is used for military flight training; for safety reasons, when active it is not usually accessed by civilian or commercial aircraft.

Commercial air routes for aircraft with IFR clearances run north and south along the coast and do not enter the Sea Range. A Control Area Extension is a corridor through a warning area that can be opened or closed at the request of a user in coordination with the FAA. These are corridors for aircraft to cross the Sea Range while under FAA control. The Control Area Extensions are regionally significant corridors because they allow regularly scheduled air traffic to approach or leave the Los Angeles area enroute to and from Hawaii or other southwesterly transpacific destinations.

3.13.2 Region of Influence

The region of influence is the air and sea space west of Los Angeles, Ventura, Santa Barbara, and San Luis Obispo Counties and has not changed from the 2002 PMSR Environmental Impact Statement/Overseas Environmental Impact Statement. The airspace is within the FAA's Western Pacific Region. Los Angeles Air Route Traffic Control Center (ARTCC) is the controlling authorities for the PMSR's designated restricted areas and Warning Areas. Management of PMSR SUA is delegated to Commander, Naval Air Warfare Center Weapons Division (NAWCWD), Point Mugu, which is responsible for issuing airspace clearances. The ARTCC activates SUA (in this case, for military use) on an intermittent basis as defined by FAA schedule and 7400.10 (Federal Aviation Administration, 2018) series. On those occasions when activation is required outside of established hours, SUA is activated by issuing a Notice to Airmen. When the SUA is not active, the SUA returns to the national airspace system.

The corresponding sea space underneath the PMSR SUA is unrestricted to commercial and civilian activity. Scheduled hazardous Navy activities will be broadcast to commercial and civilian vessels via Notice to Mariners issued by the United States Coast Guard (USCG).

3.13.3 Approach to Analysis

The Navy analyzed impacts on air traffic and airspace management by considering the current PMSR airspace as well as the sustained, historic use. Similarly, the Navy analyzed impacts on commercial and civil maritime traffic in the sea space under and adjacent to the PMSR airspace. The overall approach to analysis includes evaluating sustained use of the current PMSR airspace and sea space based upon the anticipated FAA-approved continued use of the overall configuration of the PMSR SUA and the retention of the corresponding sea space for PMSR activities.

The FAA follows policies and procedures to ensure their compliance with the National Environmental Policy Act. The FAA has also identified numerous categories that it examines with respect to environmental impacts for most of its actions and will apply to its final rulemaking as required under Code of Federal Regulations, Title 14, Chapter 1, Subchapter B, part 11, for the sustained PMSR SUA. While the PMSR does not encompass any routine public access overland areas, the adherence to federal regulations in the management of the PMSR ensures full federal compliance. The Department of Transportation Act of 1966 (set forth in 23 United States Code section 138 and 49 United States Code section 303), Section 4(f) prohibits the Federal Transportation Agency and other U.S. Department of Transportation agencies from using land from publicly owned parks, recreation areas (including recreational trails), wildlife and water fowl refuges, or public and private historic properties, unless there is no feasible and prudent alternative to that use and the action includes all possible planning to minimize harm to the property resulting from such a use. Designation of airspace for military flight operations is exempt from section 4(f). The National Defense Authorization Act for Fiscal Year 1998

(Public Law 105-85) provided that “[n]o military flight operations (including a military test or training flight), or designation of airspace for such an operation, may be treated as a transportation program or project for purposes of section 303(c) of title 49, United States Code.” This exemption is consistent within the PMSR for the following FAA Impact Categories as defined in FAA Order 1050.1:

- Transportation
- Compatible land use
- Historical sites and buildings
- Cultural areas and specific cultural sites

Under the U.S. Department of Defense Reauthorization, P.L. 105-85, Div. A, Title X, Section 1079, Nov. 18, 1997, 111 Stat. 1916, special use airspace actions are exempt from Section 4(f) of the Department of Transportation Act as avoidance alternatives result in unacceptable and severe operational and safety concerns.

3.13.4 Affected Environment

3.13.4.1 Sea Space

The number and type of PMSR scheduled Navy or Navy support vessels operating on the Sea Range depends on the requirements for mission-essential activities, such as the test and evaluation of new weapon systems or qualification trials for upgraded existing ships. The types of Navy or Navy support vessels on the Sea Range are highly variable and range from small work boats used for nearshore work to major Navy combatants, up to and including aircraft carriers. The baseline level of Navy vessel “events” (one trip into the Sea Range for an assigned mission) on the Sea Range was obtained from NAWCWD reports (Table 3.13-1). Navy activities are conducted in large subdivisions of the total Sea Range, and blocks of range times are allocated based on activity requirements.

3.13.4.1.1 Point Mugu Sea Range Military Vessels

PMSR military vessel activity can be divided into two categories: project ships and support boats. Project ships are larger Navy combatant vessels such as destroyers, cruisers, or any other commissioned Navy or foreign military ship directly involved in events. They may operate anywhere on the Sea Range depending on activity needs, although most ship operations occur within 60 NM of SNI. Most project ships, as well as scheduled training ships, operating on the Sea Range transit to the Sea Range from off-range (e.g., San Diego). Support boats are smaller vessels directly involved in test activities and operate from the Port Hueneme Harbor. While they may also operate throughout the Sea Range, support boat operations occur mainly within the range areas receiving the most use. Smaller support boats have limited range and usually operate close to shore near Point Mugu and SNI.

The activity level of ships or boats is characterized by a ship or boat event. As shown in Table 3.13-1, for an average year, there are 300 project ship events and 198 support boat events on the Sea Range. Smaller support boat events are captured in Table 2-1. To put the PMSR Navy vessel operations level in perspective, Table 3.13-1 also includes an estimate of annual commercial shipping activity. Naval ship traffic transiting the PMSR or conducting operations outside of the PMSR schedule is not part of the Proposed Action and as such is not assessed.

Table 3.13-1: Baseline Navy and Commercial Vessel Events on the Sea Range

Vessel Type	Number of Events ¹
Project Ships	300
Support Boats	198
Small Support Boats	Up to 387 ²
Total PMSR Navy	836
Commercial Shipping Estimate	>7,000 ³

¹ "Event" is defined as one trip into the Sea Range for an assigned mission.

² Total number of HSMSTs and QST35s used as support boats

³ Data collected is for FY15.

3.13.4.1.2 Civilian Vessels

Civilian vessels fall into two general categories: commercial and recreational. The shipping density of commercial traffic transiting the Sea Range has remained consistent with the estimated number of large commercial shipping vessels that transit the Sea Range, based on continued annual observations prepared by the NAWCWD Point Mugu Test Operations Division. The USCG has indicated that no definitive study exists on recreational boating traffic on the Sea Range; only anecdotal estimates are available.

Commercial vessels enter and cross the Sea Range on a routine basis. A wide variety of commercial vessels transit the Sea Range, including container carriers, vehicle carriers, bulk ore ships, oil tankers, roll on/roll off ships, and general cargo ships. The size of these ships can range from very large oil tankers that are over 1,000 feet in length to the smaller general cargo ships, whose length can be under 300 feet. The Automatic Identification System (AIS) is an automated tracking system that displays other vessels in the vicinity in a continuous synchronization (Figure 3.13-1). It is a broadcast transponder system that operates in the very high frequency mobile maritime band. Position and timing information is obtained from an internal or external Global Positioning System receiver. Vessel Traffic Services ashore, including the USCG, use AIS to identify, locate, and monitor vessels. AIS is mandated for all vessels 300 gross tons and above engaged on international voyages as well as all passenger ships. Smaller vessels may use AIS as desired for safety. Large vessel traffic on and through the Sea Range is tracked via AIS and controlled by the USCG. The USCG also provides traffic advisories to vessels transiting the Sea Range.

There are two primary routes into and across the Sea Range (Figure 3.13-2). One is the Santa Barbara Channel route (or Northern Approach), a two-way shipping lane that generally parallels the coast and runs between the mainland and the Channel Islands. The other is the Western Approach, which is about 25 NM south of the Channel Islands. This route was established for safety reasons for supertankers entering and leaving the area. The length of the Santa Barbara Channel route is approximately 180 NM, and the Western Approach is over 270 NM long. Traveling at 15 knots, a ship can cross the Sea Range via the Northern Approach and Western Approach in about 12 and 18 hours, respectively.

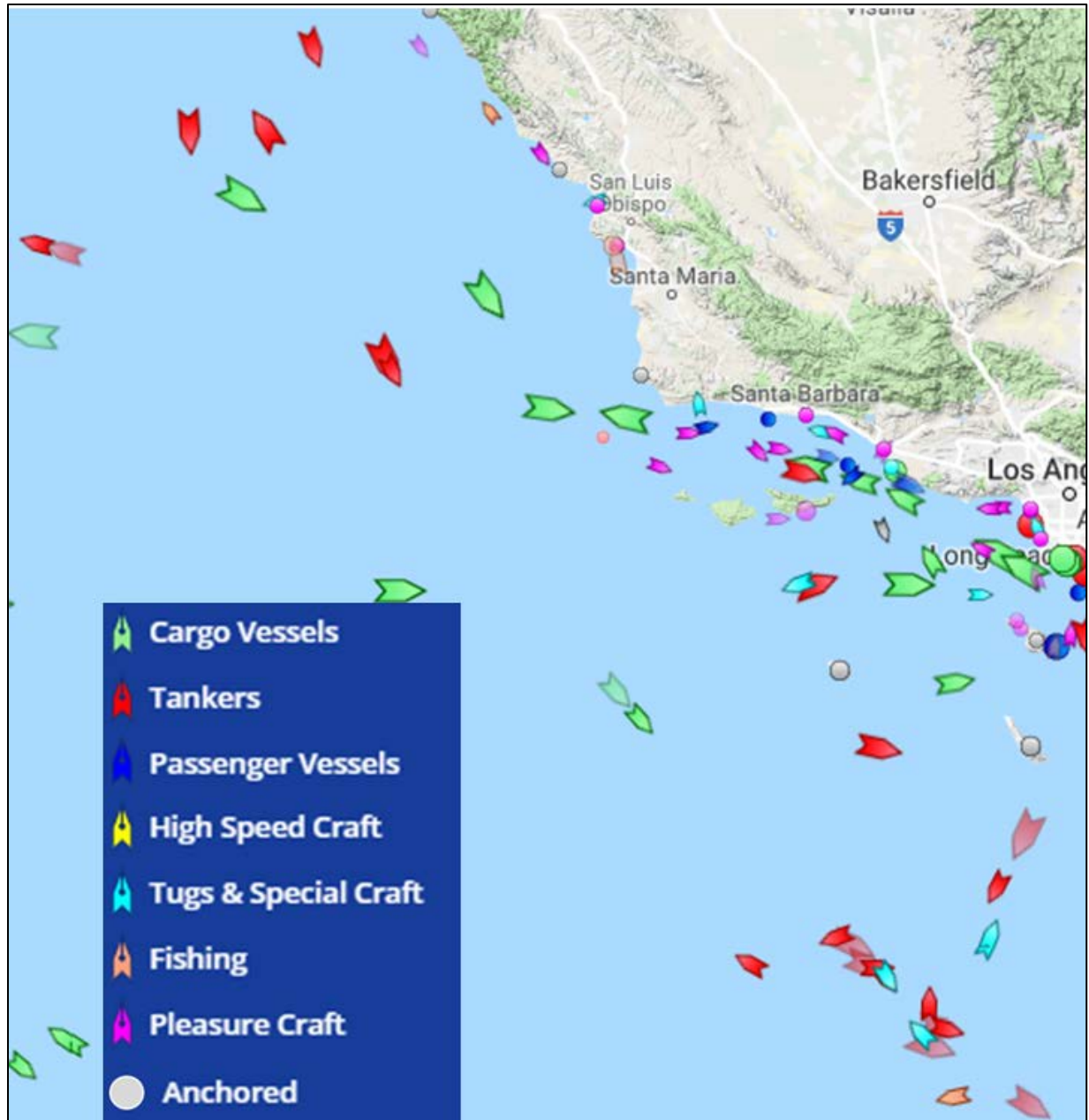


Figure 3.13-1: 2019 Automatic Identification System Snapshot PMSR Maritime Traffic

The State of California passed a regulation on July 24, 2008, that requires the use of cleaner marine distillate fuels in ocean-going vessels that visit California seaports. The California Air Resources Board adopted the regulation, "Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline." This regulation is designed to reduce particulate matter, oxides of nitrogen, and sulfur oxide emissions from ocean-going vessels; these reductions are considered necessary to improve air quality and public health in California. The impact on the PMSR has been that commercial vessels transiting the U.S. West Coast are remaining outside of the 24-NM threshold in order to burn cheaper fuel. This more westerly routing transits more vessels through the PMSR. Figure 3.13-2 depicts the latest available (2017) comprehensive depiction of vessel traffic density (Light Blue = Cargo, Light Red = Tanker) as compiled by the MarineCadastre.gov Data Registry (National Oceanic and Atmospheric Administration & Bureau of Energy Management, 2017).

The Ship Traffic Study, Southern California Operations Area cited in the current PMSR EIS/OEIS (O'Connell, 1996), provides data on ship traffic on and near the Sea Range. The USCG in their updated review of changes in vessel routing measures in the approaches to Southern California ports (U.S. Coast Guard, 2011), utilized data consistent with this study. About 4,800 commercial vessel movements occur annually to and from the ports of Los Angeles, Long Beach, and Port Hueneme. These numbers have been further disaggregated to include 2,650 vessels annually entering the Sea Range from the north and west enroute to the ports of Los Angeles, Long Beach, and Port Hueneme.

The study showed 2,220 vessel departures from the same ports to the north and west. There also is an annual average of 410 vessels observed on the Sea Range by range surveillance aircraft, individuals in the Range Surveillance Center, or through official naval message traffic. The annual traffic estimate through the Santa Barbara Channel Traffic Separation Scheme is 6,000 vessel movements; the annual estimate for the Western Approach is 1,010 vessel movements.

3.13.4.1.3 Recreational

Boating and fishing are year-round activities on the water near Point Mugu and on the Sea Range. Recreational boats include powered boats and sailboats. There is no source for official counts of recreational boats on the Sea Range. Estimates can be made based on a count of vessel movement at the nearest harbor frequented by recreational boaters. Channel Islands Harbor is 1 mile north of Port Hueneme and has facilities for launching small boats and slips for mooring them. The Channel Islands Harbor Patrol manages the small boat and commercial fishing marinas and transient docks and maintains a count of daily vessel operations at the harbor. Historically, the total boat operations count averages around 250 per day. This number represents the quantity of boats launching at the harbor and transient vessels entering the harbor. However, not all boats launched or transient at this harbor enter the Sea Range. The Channel Islands Harbor Patrol estimates that on the weekends, the aggregate number of recreational boats that are on the Sea Range in the vicinity of the Channel Islands could be 500 or more.

During weekdays or periods of marginal weather, the number of recreational boats would be substantially less. Most of the recreational boating and almost all fishing activity in the region is concentrated between the coast and the Channel Islands, outside Sea Range boundaries.

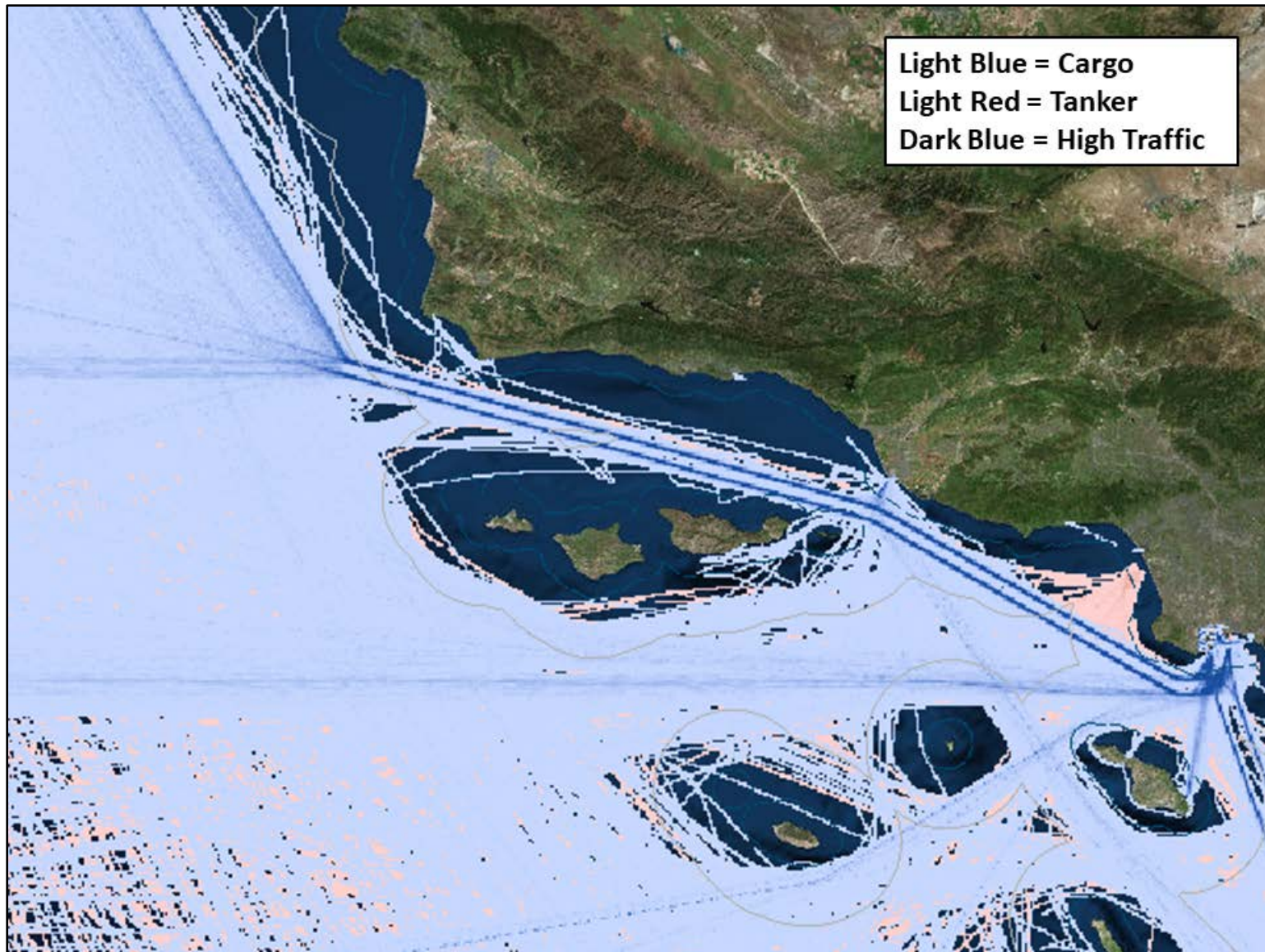


Figure 3.13-2: Point Mugu Sea Range 2017 Vessel Density

3.13.4.2 Airspace

SUA refers to airspace areas with “defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities” (Federal Aviation Administration, 2017). The PMSR SUA is released to the range by Los Angeles Center for the primary purpose of testing and selected training. When the range is closed (outside normal working hours Monday to Friday, 7 a.m. to 5 p.m.), the airspace is returned to the FAA and testing and training operations are not authorized. The Commander, NAWCWD is assigned by the FAA as the Using Agency of the PMSR SUA. NAWCWD is responsible for safety, ensuring that the SUA is used only for its designated purpose and for keeping the FAA apprised of all schedule changes.

The predominate PMSR SUA are Warning Areas (W). A Warning Area is airspace of defined dimensions, (extending from 3 NM outward from the coast of the United States), designated to contain activity that may be hazardous to nonparticipating aircraft. The purpose of a warning area is to warn nonparticipating pilots of the potential danger from activities being conducted. Warning areas may be considered for joint use if the area can be released to the FAA during periods when it is not required for its designated purpose, and provided the warning area is located in airspace wherein the FAA exercises air traffic control (ATC) authority (Federal Aviation Administration, 2018; U.S. Department of Transportation Federal Aviation Administration, 2017).

There are 11 Warning Areas that comprise the majority of the airspace over the Sea Range (Figure 3.13-3): W-289W, W-289N, W-292W, W-292E, W-412, W-532N, W-532E, W-532S, W-537, W-292E, and W-292W. All or part of these areas are in international airspace. These Warning Areas are active on an intermittent basis and are activated in coordination with the FAA. The flying public and commercial aviation are informed of their activation by Notices to Airmen issued by the FAA. The location and activation status of these Warning Areas can influence civil aviation on routes between the Southwest Pacific, Hawaii, and the U.S. West Coast.

The PMSR has one other type of SUA, Restricted Areas, that are located over and adjacent to locations associated with target and weapons launches. Restricted Areas (Figure 3.13-3) separate activities considered hazardous to other aircraft. 14 Code of Federal Regulations part 73 defines them as follows:

“A restricted area is airspace designated under Part 73 within which the flight of aircraft, while not wholly prohibited, is subject to restriction.”

Civilian aircraft are not authorized within active restricted areas. 14 Code of Federal Regulations part 73 states that: “No person may operate an aircraft within a restricted area between the designated altitudes and during the time of designation, unless he has the advance permission of the controlling agency.”

3.13.4.2.1 Air Traffic

Military

PMSR scheduled military aircraft routinely operate in international airspace over the Sea Range. These aircraft take off from the airfield at Naval Base Ventura County (NBVC) Point Mugu or from other regional military air bases. In addition, during aircraft carrier testing and training activities on the Sea Range, aircraft may take off from an aircraft carrier, conduct testing or training activities, and then subsequently land aboard the ship.

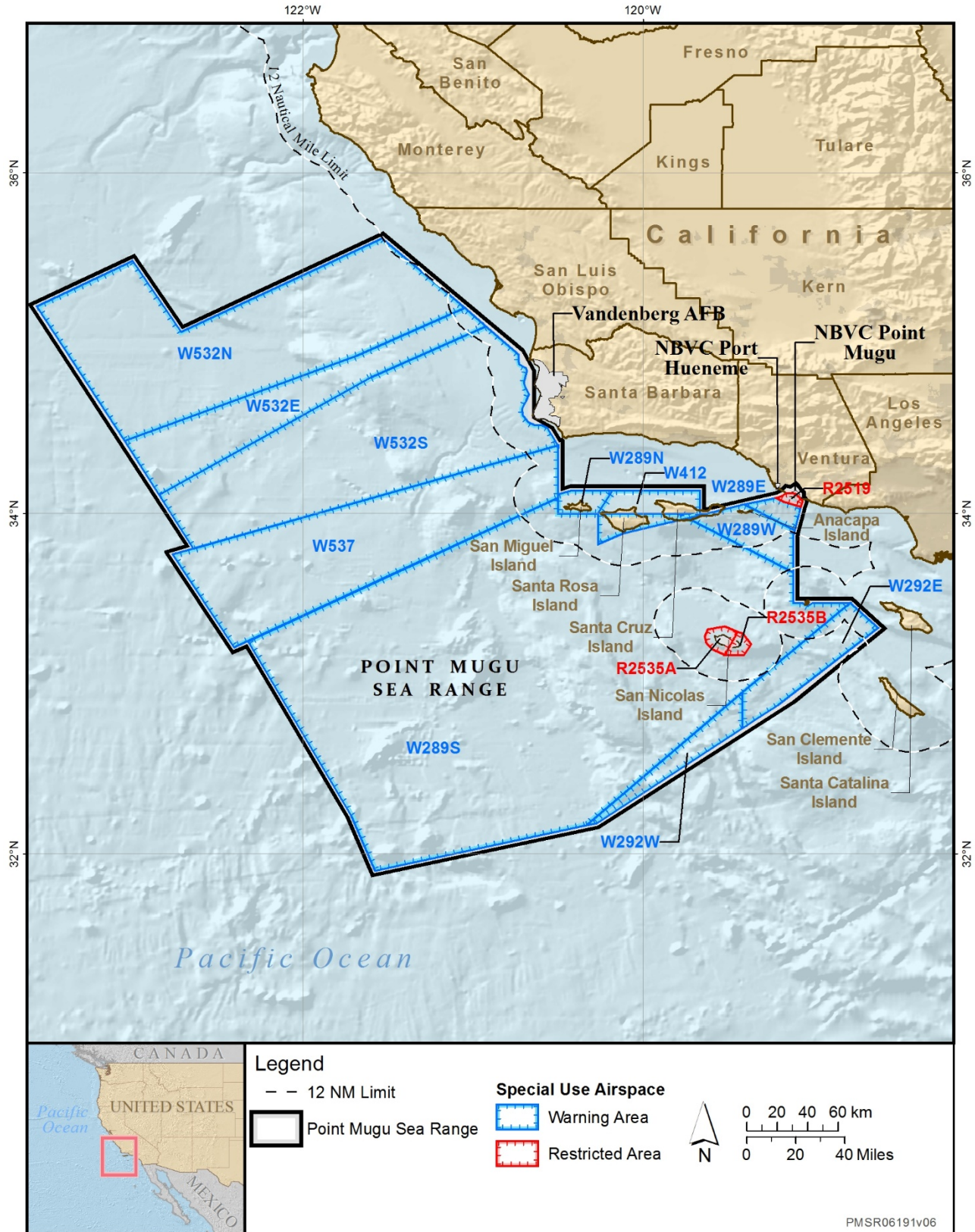


Figure 3.13-3: Point Mugu Sea Range Special Use Airspace

Aircraft that take off from NBVC Point Mugu adjacent to the PMSR have an IFR flight clearance from the FAA ATC Service through the military tower at NBVC Point Mugu. During flight on the Sea Range, no IFR clearance from the FAA is required since most of the area is in international airspace and flight is accomplished using VFR with a see-and-avoid concept. Although aircraft operate in every range area, the range areas near SNI have the heaviest usage. For the Proposed Action, military aircraft activities include active participation in a test activity, support for testing, or scheduled training events. Military aircrew proficiency training for aircraft stationed at NBVC Point Mugu, other military training, or transiting aircraft are not included in this study.

Civilian and Commercial

Civilian and commercial aircraft operating on IFR clearances under control of the Los Angeles ARTCC normally fly on formal airway route structures. In the vicinity of NBVC Point Mugu, these airways run along the coastline and to all points east. Figure 3.13-4 shows the high-altitude airway route structure adjacent to NBVC Point Mugu. The airways running north and south are among the most heavily used in the area but do not conflict with activities on the Sea Range since they are located over land or along the coast.

Since most of the Sea Range is over international waters, military and PMSR support aircraft involved in PMSR activities operate under VFR or without clearance from ATC. Flight under these conditions is conducted under a see-and-avoid concept and flown clear of clouds or other limited-visibility conditions such as rain or fog.

As the PMSR airspace lies outside of the National Airspace System, there are no defined air routes intersecting the PMSR (Figure 3.13-4). The overseas air routes terminating at defined intersections west of the PMSR SUA at the Control Area/Flight Information Region boundary require connections to and from the National Airspace System. Routes that transit to and from these intersections cross the PMSR via Control Area Extensions (Figure 3.13-5). The Control Area Extensions provide controlled airspace where there is a requirement to provide IFR enroute ATC services, and to permit the application of domestic ATC procedures in that airspace. There are four Control Area Extensions that cross the Sea Range, and one adjacent Control Area Extension on the range's southern boundary:

- 1155 (through W-532)
- 1176 (through W-537)
- 1316 & 1318 (through W-289)
- 1177 (Just to the south of the Sea Range and north of San Clemente Island)

Controls 1316 and 1318 are closed daily during daylight hours and occasionally on weekends. Control 1176 is closed for missile launches from Vandenberg Air Force Base, as well as hypersonic testing from Vandenberg and the PMSR. Control 1155 is also closed daily for other operations from the north, other than from Point Mugu. Control 1177 is the most important of the five Controls and is rarely closed. The FAA does not record the numbers of IFR flights through the Sea Range on the Control Area Extensions. However, general estimates of traffic through the Sea Range on all the Control Area Extensions is about 20 arrivals and departures daily. This is only IFR traffic and does not include aircraft flying VFR.

A Memorandum of Agreement exists between NAWCWD Point Mugu and the FAA that addresses the usage of the Warning Areas and stipulates the conditions under which the Control Area Extensions can be closed to civil traffic. Under most circumstances, at least one Control Area Extension must remain available for use by general aviation and commercial air carriers. NAWCWD Point Mugu has established procedures to minimize the disruption of other air traffic due to operations on the range.

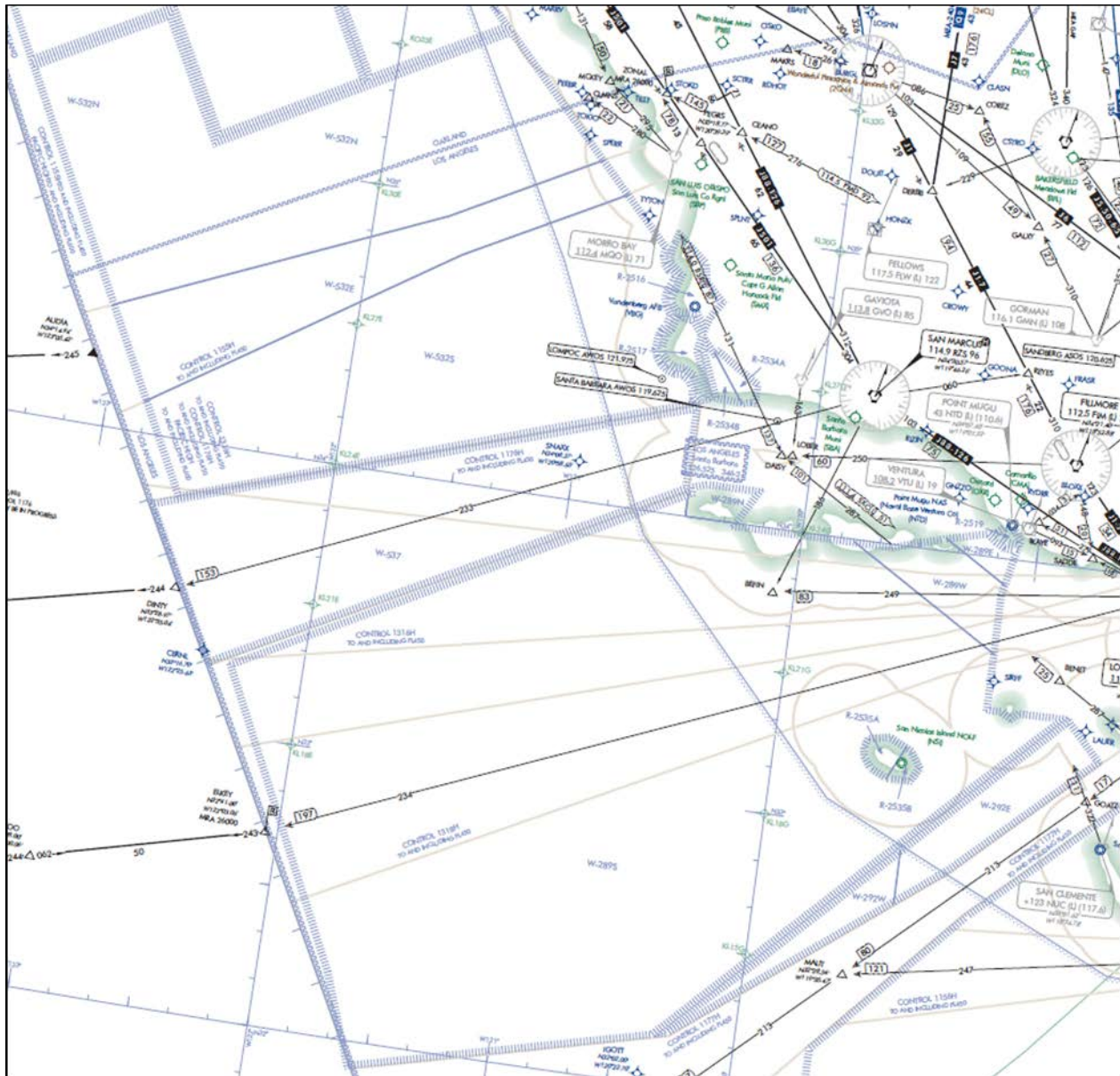


Figure 3.13-4: Federal Aviation Administration Publication Point Mugu Sea Range Special Use
Airspace and National Airspace Routes

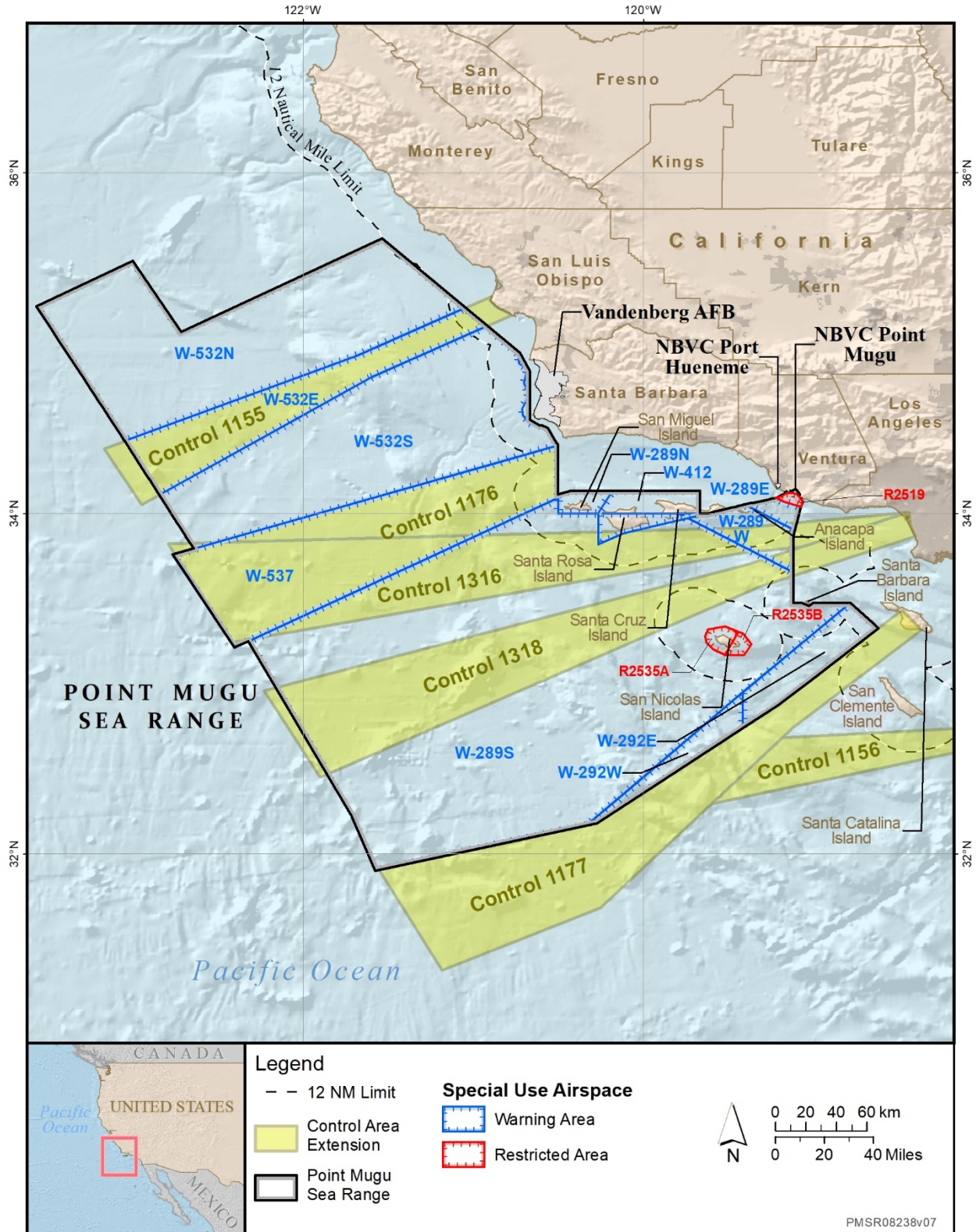


Figure 3.13-5: Control Area Extensions Through the PMSR

3.13.5 Environmental Consequences

This section evaluates how and to what degree the activities described in Chapter 2 (Description of Proposed Action and Alternatives) would potentially impact commercial and private PMSR Sea and Air Space activity. The analysis of airspace management and use involves consideration of many factors, including the types, locations, and frequency of aerial operations; the presence or absence of already designated (controlled) airspace; and the amount of air traffic using or transiting through a given area. The Navy assessed impacts on airspace with respect to the potential for disrupting existing airspace patterns and systems, safe civil airfield operations, and causing changes in existing levels of aviation safety. A principal focus of the analysis is the potential for existing PMSR military and contracted air traffic to affect existing airspace conditions.

Similarly, the analysis of sea space management and use involves consideration of contributing factors, including the types, locations, and frequency of military and contracted support vessel operations, and the amount of commercial and civil maritime traffic using or transiting through the study area.

Both military and non-military (e.g., commercial and recreational) entities have been sharing use of the airspace comprising, and the ocean surface underlying the Sea Range for more than six decades. Both entities have established an operational coexistence consistent with federal, state, and local plans and policies and compatible with each interest's varying objectives. Temporary and short-duration (hours) impacts may occur from limits on accessibility to marine areas used by the public; however, most limitations on accessibility are temporary and would be lifted upon completion of scheduled testing and training activities.

Navy vessels account for only about 9 percent of the vessel traffic on the PMSR (see Chapter 3, Affected Environment and Environmental Consequences). The Sea Range is open to commercial and private vessel traffic and is widely used by non-Navy vessels. Most scheduled Navy testing and training, aside from target launches from NBVC Point Mugu, occurs farther from shore than most commercial and recreational vessel activity. Similarly, air traffic is fully managed by the FAA to minimize impacts on commercial and recreational transit of the PMSR. The Navy's standard operating procedures for scheduled testing and training require that an area is clear of non-participating vessels and aircraft before an activity using potentially hazardous systems and munitions occurs.

3.13.5.1 No Action Alternative

Under the No Action Alternative, proposed testing and training activities would not occur within the PMSR. Other military activities not associated with this Proposed Action would continue to occur. Therefore, existing environmental conditions would either remain unchanged or could improve slightly after cessation of ongoing testing and training activities.

While discontinuing the testing and training activities may result in fewer impacts on sea and air space where testing and training activities have historically been conducted, there remains uncertainty on the future use of NBVC Point Mugu and the other activities that may continue from the Navy Installation. Discontinuing testing and training activities under the No Action Alternative could lessen the potential for impacts on sea and air space, but not measurably improve the overall quality of sea and air space.

3.13.5.2 Alternative 1 (Preferred Alternative)

A comparison of operational tempo proposed for each alternative, and proposed types and level of activities, are provided in Section 2.1.1 (Current and Proposed Activities).

Military and non-military aircraft and vessels transiting the PMSR could potentially interact with PMSR scheduled Navy aircraft, vessels, munitions, and targets. Both Navy and public vessels operate under strict maritime navigational rules requiring them to observe and avoid other vessels. Air traffic is fully managed by the FAA to minimize impacts on commercial and recreational transit of the PMSR. FAA-issued Notices to Airmen and USCG-issued Notice to Mariners advise aircraft and vessel operators about when and where Navy testing and training activities and associated PMSR closures are scheduled. Navy personnel are required to verify that the scheduled range is clear of non-participants before initiating any potentially hazardous activity. Collectively, these procedures minimize the potential for adverse interactions between PMSR scheduled Navy platforms and non-participant aircraft and vessels. Given the established advance notice system and the highly controlled nature of tests and scheduled training, Alternative 1 when compared to the baseline would not increase the risk to military and non-military aircraft and vessel transit activity. Therefore, impacts would be less than significant.

3.13.5.3 Alternative 2

A comparison of operational tempo proposed for each alternative, and proposed types and level of activities, are provided in Section 2.1.1 (Current and Proposed Activities).

Military and non-military aircraft and vessel transit of the PMSR would remain the same under Alternative 2 as described above in Section 3.13.4.2 (Airspace) for Alternative 1. The established warning protocols and procedures would continue to be carried out under Alternative 2. While the tempo of testing and training activities would increase under Alternative 2 when compared to the baseline, no increase in the risk to non-participant military and non-military aircraft and vessels traversing the PMSR would occur. Therefore, impacts would be less than significant.

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