

**Environmental Impact Statement/  
Overseas Environmental Impact Statement  
Point Mugu Sea Range  
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## ES Executive Summary

### ES.1 Introduction

The United States (U.S.) Department of the Navy (Navy) prepared the *Point Mugu Sea Range Environmental Impact Statement/Overseas Environmental Impact Statement* to assess the potential environmental consequences associated with continuing military readiness activities addressed in the March 2002 Naval Air Warfare Center Weapons Division Point Mugu Sea Range (PMSR) Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS), and Environmental Assessments completed at PMSR since 2002. In addition to consolidating previously analyzed actions into one comprehensive document, it also addresses proposed increases in activity frequency of military Research, Development, Acquisition, Testing, and Evaluation (RDAT&E) and scheduled training activities at the PMSR. These military readiness activities are generally consistent with those analyzed in the 2002 PMSR EIS/OEIS, and are representative of testing and training that the Navy has been conducting in the PMSR for decades. The Navy prepared this EIS/OEIS to comply with the National Environmental Policy Act (NEPA), Executive Order 12114 and other environmental statutes by assessing potential environmental impacts associated with testing and training activities at the PMSR. This EIS/OEIS will address current and future testing and training activity requirements at the PMSR.

The Naval Air Warfare Center Weapons Division PMSR is located along the Pacific Coast of Southern California and includes a 36,000-square-mile Sea Range (Figure ES-1). PMSR is a designated Major Range and Test Facility Base (MRTFB) consisting of controlled sea and airspace designated for military testing and training activities and is considered a national asset that exists primarily to provide test and evaluation information for Department of Defense (DoD) decision makers and to support the needs of weapon system development programs and DoD research needs. PMSR is one of 23 component activities that make up the DoD MRTFB. DoD Directive 3200.11 defines the MRTFB as the designated core set of DoD Test and Evaluation infrastructure and associated workforce to provide Test and Evaluation capabilities to support the DoD acquisition systems. A MRTFB activity is defined as an organizational command element of a DoD component responsible for managing MRTFB capabilities and resources. As a MRTFB, PMSR supports test and evaluation of a wide variety of weapons, ships, aircraft, and specialized systems. PMSR serves a broad spectrum of Department of Defense, Homeland Defense, National Aeronautics and Space Administration, foreign ally, and commercial/private sector programs, from small-scale static tests to complex multi-participant, multi-target operations.

### ES.2 Purpose of and Need for the Proposed Action

The Navy (as the lead agency) and the National Marine Fisheries Service (NMFS) (as a cooperating agency) have coordinated from the outset and developed this document to meet each agency's distinct NEPA obligations and support the decision making of both agencies (Appendix G, Agency Correspondence). The Navy's purpose of the Proposed Action is to provide modern instrumented airspace, sea space, testing and training areas and facilities, and range infrastructure to fully support current, emerging, and foreseeable future RDAT&E and Fleet testing and training requirements; and to ensure long-term viability of the PMSR while protecting human health and the environment. The need for the Proposed Action is to allow for continued testing and training in support of military readiness and DoD mission requirements as required by Title 10 and to provide combat ready forces. NMFS's purpose is to evaluate the Navy's Proposed Action pursuant to NMFS's authority under the Marine Mammal Protection Act (MMPA), and to make a determination whether to issue incidental take regulations and a Letter of Authorization, including any conditions needed to meet the statutory mandates of the MMPA.

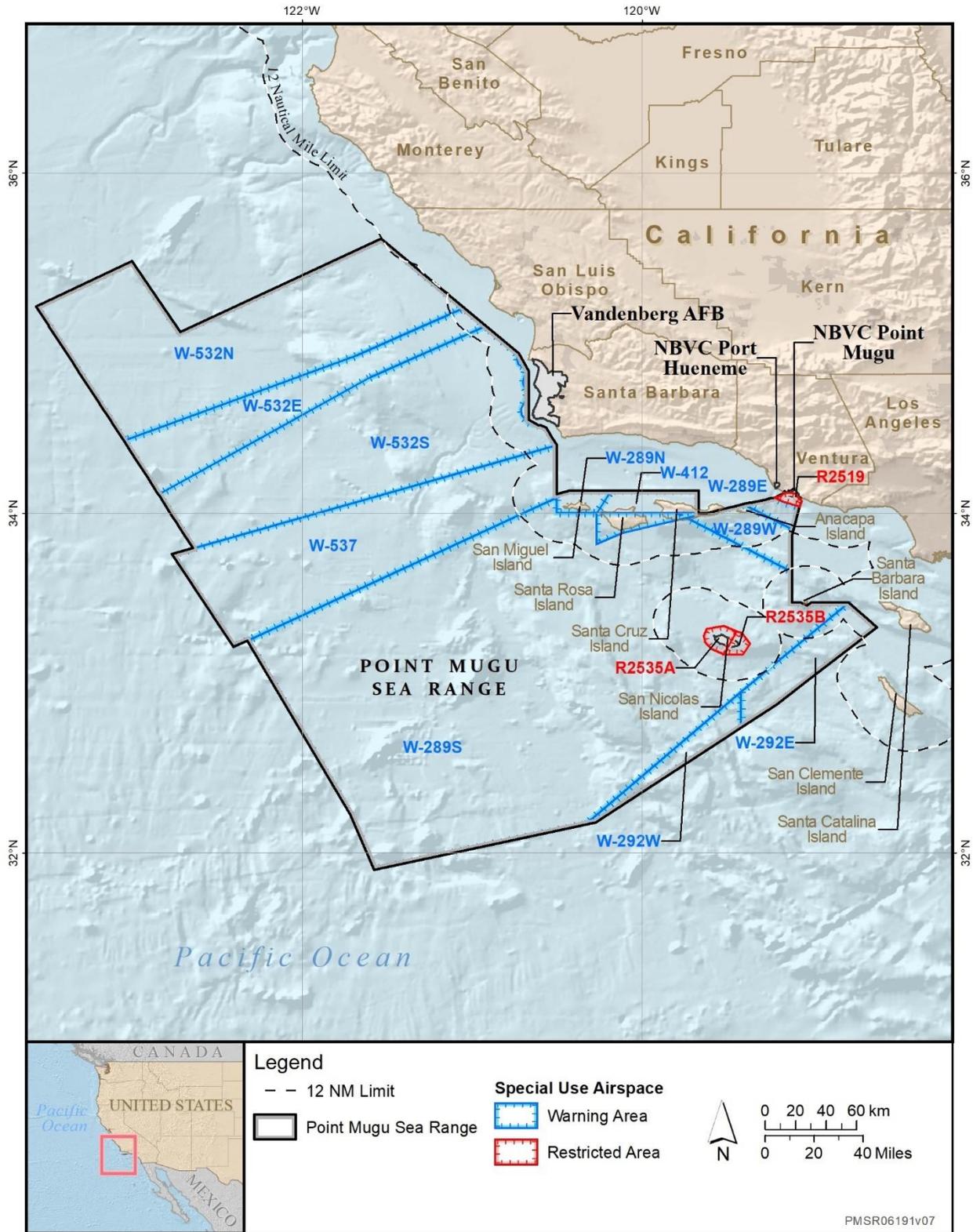


Figure ES-1: Point Mugu Sea Range Study Area

### **ES.3 Scope and Content of the Environmental Impact Statement/Overseas Environmental Impact Statement**

The EIS/OEIS was prepared to assess potential impacts of the Proposed Action on the environment. The document assesses potential impacts of all the alternatives (Alternative 1, Alternative 2, and the No Action Alternative). The potential environmental impacts associated with implementing the alternatives are identified, including impacts resulting from the No Action Alternative, where the Navy would cease conducting testing and training associated with the Proposed Action in the PMSR Study Area. Alternatives are analyzed against the current environmental baseline. In this EIS/OEIS, the Navy analyzes direct, indirect, and cumulative impacts. The Navy is the lead agency for the Proposed Action and is responsible for the scope and content of this EIS/OEIS. NMFS is a cooperating agency pursuant to 40 Code of Federal Regulations section 1501.6 because of its expertise and regulatory authority over certain marine resources. Additionally, NMFS plans to use this document as its NEPA documentation for the rule-making process under the MMPA.

The Navy must comply with all applicable federal environmental laws, regulations, and Executive Orders, including, but not limited to, those listed below.

- Abandoned Shipwrecks Act
- Antiquities Act
- Clean Air Act
- Clean Water Act
- Coastal Zone Management Act
- Endangered Species Act
- Magnuson-Stevens Fishery Conservation and Management Act
- MMPA
- Migratory Bird Treaty Act
- National Historic Preservation Act
- National Marine Sanctuaries Act
- Executive Order 12962, *Recreational Fisheries*
- Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*
- Executive Order 13158, *Marine Protected Areas*
- Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*

### **ES.4 Government and Public Involvement**

Public scoping began with the publication of the Notice of Intent to prepare an EIS/OEIS for Point Mugu Sea Range and to announce public scoping meetings in the *Federal Register* (FR) on April 27, 2018 (83 FR 18543). To further notify the public of the scoping period, the Navy published advertisements in six newspapers, distributed press releases, mailed notification letters or postcards to key stakeholders, tribes, agencies, and parties expressing an interest in this project, and provided notification via the project website. Public scoping meetings were held in Ventura on May 15, 2018, and in Santa Barbara on May 16, 2018. Public scoping comments were accepted during the 60-day scoping period from April 27, 2018, to June 26, 2018. In total, the Navy received 12 comment submissions from either federal agencies, state agencies, federally recognized tribes, nongovernmental organizations, individuals, or community groups. The Navy considered all scoping comments in preparing the Draft EIS/OEIS.

#### **ES.4.1 Draft Environmental Impact Statement/Overseas Environmental Impact Statement**

The Draft EIS/OEIS was prepared to assess potential impacts of the Proposed Action on the environment. On April 24, 2020, notices of availability were published in the *Federal Register* (85 FR 23011 and 85 FR 23022), and advertisements were placed in six newspapers announcing the availability of the Draft EIS/OEIS. Press releases were distributed, and notification letters and postcards were mailed to key stakeholders, tribes, agencies, and interested parties. The Draft EIS/OEIS review and comment period was open from April 24, 2020, to June 8, 2020. Due to federal and state guidance on social distancing in response to COVID-19, the Navy was unable to hold in-person public meetings as planned in May 2020. In lieu of the Draft EIS/OEIS public meetings, a dedicated voicemail line and email address was set up to facilitate verbal and written questions from the public. The public was also able to submit comments on the Draft EIS/OEIS through previously established channels (website and mail). In total, the Navy received six comment submissions from federal agencies, state agencies, federally recognized tribes, nongovernmental organizations, and individuals. Comments included concerns about potential impacts on marine species, marine habitat, and cultural resources, as well as recommendations to avoid or minimize impacts from proposed activities. In the Final EIS/OEIS, the Navy addressed substantive public comments received during the Draft EIS/OEIS public review and comment period (Appendix H, Public Comments and Responses). For more information about the public involvement process, please refer to Section 7.0 (Public Involvement and Distribution).

#### **ES.5 Proposed Action and Alternatives**

The Proposed Action is to conduct military readiness activities within the PMSR. The Proposed Action includes testing and training activities analyzed in the 2002 PMSR EIS/OEIS and other actions analyzed since 2002. The proposed tempo is above and beyond the tempo covered in the 2002 PMSR EIS/OEIS and includes activities covered in Environmental Assessments for the PMSR completed after 2002. Testing and training activities would be conducted at sea and in designated airspace within the PMSR Study Area. Additionally, the missile launch operations and Directed Energy (DE) activities originating from Naval Base Ventura County Point Mugu and San Nicolas Island are analyzed as part of the Proposed Action.

The Navy has been conducting test and training activities in the PMSR Study Area since the PMSR was established in 1946. The types and tempo of test and training activities have fluctuated because of the introduction of new technologies, the evolving nature of international events, advances in warfighting doctrine and procedures, and changes in force structure (organization of ships, submarines, aircraft, and weapons). Such developments influence the frequency, duration, intensity, and location of required testing and training activities.

##### **ES.5.1 No Action Alternative**

The Council on Environmental Quality implementing regulations require inclusion of a No Action Alternative and analysis of all reasonable alternatives to provide a clear basis for choice among options by the decision maker and the public (40 Code of Federal Regulations section 1502.14). Council on Environmental Quality guidance identifies two approaches in developing the No Action Alternative (46 Federal Register 18026). One approach for activities that have been ongoing for long periods of time is for the No Action Alternative to be thought of in terms of continuing the present course of action, or current management direction or intensity, such as the continuation of Navy testing and PMSR scheduled training in the PMSR Study Area at current levels. The second approach depicts a scenario where the No Action reflects cessation of current activities; in this case, it reflects cessation of the

current PMSR scheduled testing and training. The Navy applied the second approach in this EIS/OEIS as it further supports NMFS's regulatory process by presenting the scenario where no authorization will be issued.

Under the No Action Alternative analyzed in this EIS/OEIS, the Navy would not conduct the proposed testing and training activities in the PMSR Study Area. Other military activities not associated with this Proposed Action would continue to occur. Consequently, the No Action Alternative of not conducting the proposed testing and training activities in the Study Area is inherently unreasonable in that it does not meet the purpose and need. However, the analysis associated with the No Action Alternative is carried forward in order to compare the degree of the potential environmental effects of the Proposed Action with the conditions that would occur if the Proposed Action did not occur (see Section 3.0.5, Overall Approach to Analysis).

From NMFS's perspective, pursuant to its obligation to grant or deny permit applications under the MMPA, the No Action Alternative involves NMFS denying Navy's application for an incidental take authorization under Section 101(a)(5)(A) of the MMPA. If NMFS were to deny the Navy's application, the Navy would not be authorized to incidentally take marine mammals and the Navy would not conduct the proposed testing and training activities in the PMSR Study Area.

### **ES.5.2 Alternative 1: Projected Maximum Activity Levels Plus New Requirements (Preferred Alternative)**

Alternative 1 is based on the highest potential annual level of increased tempo for planned operations as identified during interviews with range test managers, historical operational data, test and scheduled training mission requirements, or existing NEPA documents for flight operations, vessel operations, aerial targets, surface targets, and ordnance. The majority of test and scheduled training activities proposed under Alternative 1 are the same as or similar to those conducted currently but also include emergent mission areas and new technologies, systems, and platforms. This alternative includes activities subject to previous analysis that are currently ongoing and have historically occurred on the PMSR. Alternative 1 meets the purpose of and need for the Proposed Action, and provides the Navy with the capacity to meet long-term testing and scheduled training requirements. Alternative 1 represents a varying level of changes in tempo over existing activities, though emphasis is placed on the specific variations in tempo for limited types of activities. Alternative 1 allows for increased tempo in the northern half of the Sea Range (W-532), primarily increases in electronic warfare and DE events that are reasonably expected to occur over the long term. Alternative 1 covers operations and activities that were not reasonably foreseeable at the time of the 2002 PMSR EIS/OEIS, such as DE, electronic warfare, long-range weapons, and unmanned systems. The proposed types and level of activities with respect to aircraft operations, vessel operations, target use, and ordnance use for all alternatives and baseline are provided in Chapter 2 (Description of Proposed Action and Alternatives) and details of activity scenarios are provided in detail in Appendix A (PMSR Scenario Descriptions).

### **ES.5.3 Alternative 2: Historical Peak Activity Levels Plus New Requirements**

Alternative 2 includes all activities under Alternative 1, but with an overall decreased annual tempo from that of Alternative 1. Alternative 2 accommodates variability in tempo in any given year due to emerging technologies that need to be tested. Alternative 2 is based on actual peak (highest levels) operational tempo data between 2011 and 2018, as reported in the Test Resource Management System database and other sources, and reflects an overall increase in annual tempo from the current baseline activity. The historical peak operational tempo represents the highest levels required historically and

would capture the future needs of the PMSR. The majority of test and training activities that would be conducted under Alternative 2 are the same as or similar as those conducted currently and subject to previous analysis. Alternative 2 also encompasses the increased use of the northern half of the Sea Range (W-532).

Alternative 2 reflects the highest level of historical testing and scheduled training tempo. Alternative 2 meets the purpose and need of the Proposed Action and differs from Alternative 1 in that Alternative 1 reflects the projected maximum tempo as identified through operational interviews. Alternative 2 reflects the historical peak as reflected in data collected over the last decade.

The proposed types and level of activities with respect to aircraft operations, vessel operations, target use, and ordnance use for all alternatives and baseline are provided in Chapter 2 (Description of Proposed Action and Alternatives) and details of activity scenarios are provided in detail in Appendix A (PMSR Scenario Descriptions).

## **ES.6 Summary of Environmental Effects**

Environmental effects which might result from implementing the Navy's Proposed Action or alternatives have been analyzed in this EIS/OEIS. Resource areas analyzed include air quality, sediments and water quality, marine habitats, marine vegetation, marine invertebrates, marine fishes, marine mammals, sea turtles, marine birds, cultural resources, socioeconomic resources, recreation, sea and air space, and public health and safety. Table ES-1 provides a comparison of the potential environmental impacts of the No Action Alternative, Alternative 1 (Preferred Alternative), and Alternative 2.

The EIS/OEIS covers similar types of Navy testing and training activities in the same study area as was analyzed in the 2002 PMSR Final EIS/OEIS. The Navy has re-evaluated impacts from these testing and training activities. The Navy analyzed new or changing military readiness activities into the reasonably foreseeable future based on evolving operational requirements, including those associated with new platforms and systems not previously analyzed. Additionally, the Navy thoroughly reviewed and incorporated the best available science relevant to analyzing the environmental impacts of the proposed activities.

The Navy proposes to implement mitigation measures to avoid or minimize the effects of the Proposed Action under both action alternatives. The mitigation measures are summarized in Table ES-2 and Table ES-3 and are discussed in detail in Chapter 5 (Standard Operating Procedures and Mitigation).

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2**

<b>Resource Category</b>	<b>Summary of Impacts</b>
<p>Section 3.1 Air Quality</p>	<p>The Navy considered emissions from the Proposed Action that could potentially affect air quality. The following conclusions have been reached for the project alternatives:</p> <p><b>No Action Alternative:</b></p> <ul style="list-style-type: none"> <li>Discontinuing testing and training under the No Action Alternative would result in fewer pollutant emissions within the Study Area where testing and training activities have historically been conducted.</li> </ul> <p><b>Alternative 1 (Preferred Alternative):</b></p> <ul style="list-style-type: none"> <li>All of the air emissions sources proposed do not impact the current attainment status of the South Central Coast Air Basin. Therefore, it is unlikely that the implementation of Alternative 1 would significantly affect ambient air quality or potentially result in a violation of the State Implementation Plan or National Ambient Air Quality Standards.</li> </ul> <p><b>Alternative 2:</b></p> <ul style="list-style-type: none"> <li>The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1; changes to air quality from hazardous air pollutants are not expected to be detectable.</li> </ul>
<p>Section 3.2 Sediments and Water Quality</p>	<p>The Navy considered all activities from the Proposed Action that could potentially affect sediments and water quality. The following conclusions have been reached for the project alternatives:</p> <p><b>No Action Alternative:</b></p> <ul style="list-style-type: none"> <li>Discontinuing testing and training under the No Action Alternative would lessen the potential for impacts on sediments and water quality within the Study Area where testing and training activities have historically been conducted.</li> </ul> <p><b>Alternative 1 (Preferred Alternative):</b></p> <ul style="list-style-type: none"> <li>Explosives and explosives byproducts, metals, chemicals, and other materials expended during testing and training could result in short-term impacts on sediments and water quality. Some chemical, physical, or biological changes in sediment or water quality could be measurable, but most would be negligible. Regulatory thresholds and guidelines established for measuring impacts on sediment and water quality would not be exceeded.</li> </ul> <p><b>Alternative 2:</b></p> <ul style="list-style-type: none"> <li>The number of testing and training activities with the potential to impact sediments and water quality under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1. Regulatory thresholds and guidelines established for measuring impacts on sediments and water quality would not be exceeded.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.3 Marine Habitats</p>	<p>The Navy considered all potential stressors that marine habitats could potentially be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>• Discontinuing testing and training under the No Action Alternative would result in various stressors not being introduced into the environment and would lessen the potential for impacts on marine habitats from testing and training activities, but would not measurably improve the condition of marine habitats throughout the Study Area.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>• Under Alternative 1, bottom substrate would not be affected from the use of explosives because detonations would occur in-air or at or near the surface. Military expended materials associated with testing and training activities are not likely to result in the degradation or loss of habitat in the Study Area. Much of the Study Area encompasses sandy bottom and rocky substrate that is not considered “sensitive” and would not be affected by military expended materials.</li> </ul> <p><b><u>Alternative 2:</u></b></p> <ul style="list-style-type: none"> <li>• The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for marine habitats; impacts to marine habitats from physical disturbance and strike of expended military materials would be negligible.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.4 Marine Vegetation</p>	<p>The Navy considered all potential stressors that marine vegetation could potentially be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>• Discontinuing testing and training under the No Action Alternative would result in various stressors not being introduced into the environment and would lessen the potential for impacts of these testing and training activities on marine vegetation, but would not measurably improve the status of marine vegetation in the Study Area.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>• Marine vegetation would not be affected from the use of explosives because detonations would occur in-air or at or near the surface. Physical disturbance and strike from military expended materials could affect marine vegetation by destroying individual plants or damaging parts of plants, but are not expected to result in detectable changes in survival or propagation, and are not expected to result in population-level impacts on marine plant species. Secondary impacts such as changes in sediment and water quality due to these testing and training activities are not likely to be detectable; thus, no detectable changes are expected in marine vegetation growth, survival, propagation, or population-level impacts.</li> </ul> <p><b><u>Alternative 2:</u></b></p> <ul style="list-style-type: none"> <li>• The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for marine vegetation.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.5 Marine Invertebrates</p>	<p>The Navy considered all potential stressors that marine invertebrates could potentially be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>• Discontinuing testing and training under the No Action Alternative would result in various stressors not being introduced into the environment and would lessen the potential for impacts of these testing and training activities on marine invertebrates, but would not measurably improve the status of marine invertebrates in the Study Area.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>• Under Alternative 1, the overall impacts of explosions near the surface on widespread invertebrate populations would likely be undetectable. Although individuals of marine invertebrate species would likely be injured or killed during an explosion, the number of such invertebrates affected would be small relative to overall population sizes, and activities would be unlikely to impact survival, growth, recruitment, or reproduction of populations or subpopulations.</li> <li>• Under Alternative 1, testing and training activities that would generate military expended material large enough to cause injury to marine invertebrates would generally occur in offshore areas where the presence and abundance of marine invertebrates is generally low.</li> <li>• Impacts on individuals related to ingestion of military expended materials are unlikely, and impacts on populations would not be detectable.</li> </ul> <p><b><u>Alternative 2:</u></b></p> <ul style="list-style-type: none"> <li>• The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for marine invertebrates.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.6 Marine Fishes</p>	<p>The Navy considered all potential stressors that marine fishes could potentially be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>Discontinuing testing and training under the No Action Alternative would result in various stressors not being introduced into the environment and would lessen the potential for impacts from these testing and training activities on fishes, but would not measurably improve the status of fish populations or subpopulations.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>The use of explosives may affect fishes. Impacts, however, are expected to be temporary and infrequent as most activities would be temporary, localized, and infrequent. More severe impacts such as mortality or injury could lead to permanent or long-term consequences for individuals, but overall long-term consequences for fish populations are not expected.</li> <li>The use of vessels, aircraft, weapons, military expended materials, parachutes/decelerators, and military expended materials of ingestible size associated with testing and training activities may affect fishes. However, because the number of fishes potentially impacted by these activities is low, population-level impacts are unlikely.</li> </ul> <p><b><u>Alternative 2:</u></b></p> <ul style="list-style-type: none"> <li>The number of testing and training activities under Alternative 2 would decrease s over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for fishes.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.7 Marine Mammals</p>	<p>The Navy considered all potential stressors that marine mammals could potentially be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>• Discontinuing testing and training under the No Action Alternative would result in various stressors not being introduced into the environment and would lessen the potential for impacts on marine mammals that may result from testing and training activities.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>• The use of explosive munitions resulting in detonations at or near the water's surface present a risk to marine mammals located in close proximity to the explosion. Based on the analyses presented, there are no non-auditory injuries to marine mammals predicted or otherwise expected to result from the Proposed Action. Because most estimated impacts from explosions are behavioral responses or temporary hearing threshold shifts, and because the numbers of marine mammals potentially impacted by explosives are small as compared to each species' respective abundance, long-term consequences for the species or stocks would not be expected.</li> <li>• The use of DE systems (high energy lasers and high power microwave systems) do not have the potential to result in impacts on marine mammals.</li> <li>• The use of vessels and military expended materials have the potential to result in physical disturbance and strike impacts on marine mammals. Since the Navy does not anticipate a substantive change in the level of vessel use for testing and training compared to current baseline levels, the potential for striking a marine mammal with a vessel is negligible given there is no record of a Navy vessel ever striking a marine mammal within the PMSR. Physical disturbance of individual marine mammals due to vessel movements may occur, but any stress response associated with avoidance behavior would not have long-term consequences for individual marine mammals. Potential impacts from military expended materials are determined through statistical probability analyses. These analyses suggest an extremely low potential for marine mammals to be struck by expended materials. Long-term consequences to marine mammal populations from vessels and military expended materials associated with Navy testing and training activities are not anticipated.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.7 Marine Mammals (continued)</p>	<ul style="list-style-type: none"> <li>• The use of decelerators/parachutes would have the potential to result in impacts on marine mammals through entanglement. The potential for impacts is dependent on the probability that a marine mammal would encounter an expended item, the physical properties of the item, and the likelihood that a marine mammal could become entangled in a particular item. The physical characteristics (e.g., strength, flexibility, length) of decelerators/parachutes suggest that, although unlikely, it would be possible for a marine mammal to become entangled in these items. However, there have been no known instances of entanglement of any marine mammals involving the use of decelerators/parachutes associated with any Navy testing and training activities. Short-term impacts on individual marine mammals and long-term impacts on marine mammal populations from entanglement associated with Navy testing and training activities are not anticipated.</li> <li>• Use of military expended materials have the potential to result in impacts on marine mammals due to ingestion of expended materials by marine mammals. Marine mammals that forage along the water surface or within the water column are less likely to encounter ingestion stressors as they sink through the water column to the seafloor. Most expended materials that would remain floating or suspended within the water column are typically too small to pose a risk of intestinal blockage to any marine mammal that encounters them. Bottom-feeding marine mammals would be more likely to encounter expended materials that have already sunk to the seafloor. The likelihood that a marine mammal would first encounter and then ingest a military expended item associated with Navy testing and training activities is considered so extremely low that it can be discounted. Short-term impacts on individual marine mammals and long-term consequences to marine mammal populations from expended materials associated with Navy testing and training activities are not anticipated.</li> <li>• Marine mammals have the potential to be exposed to several indirect effects associated with Navy testing and training activities in the Study Area. These indirect effects, which include (1) explosives byproducts and unexploded ordnance, (2) metals, and (3) chemicals, would result from direct impacts on marine mammal habitat or an effect on prey availability in the Study Area. In-water explosions have the potential to injure or kill small numbers of prey species; however, based on the conclusions in Section 3.3 (Marine Habitats), Section 3.5 (Marine Invertebrates), and 3.6 (Fishes), impacts would not substantially impact prey availability. As described in Section 3.2 (Sediments and Water Quality), explosives byproducts and unexploded munitions would have no lasting or meaningful effects on water quality, would therefore not impact marine mammal habitat, and would not constitute an indirect effect on marine mammals.</li> <li>• Metals are introduced into the water and sediments from targets, munitions, and other expended materials. Evidence from a number of studies indicate that elevated metal concentrations are localized to the immediate vicinity of the degrading item and that no bioaccumulation of metals was observed in studies specifically designed to look for bioaccumulation of metals. Secondary impacts on marine mammals from Navy testing and training activities in the Study Area are not expected to have short-term or long-term impacts on individual marine mammals or on marine mammal populations.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
Section 3.7 Marine Mammals (continued)	<p><b>Alternative 2:</b></p> <ul style="list-style-type: none"> <li>The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for marine mammals.</li> </ul>
Section 3.8 Sea Turtles	<p>The Navy considered all stressors that sea turtles could potentially be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives:</p> <p><b>No Action Alternative:</b></p> <ul style="list-style-type: none"> <li>Discontinuing testing and training under the No Action Alternative would result in various stressors not being introduced into the environment and would lessen the potential for impacts on sea turtles, but would not measurably improve the status of sea turtle populations.</li> </ul> <p><b>Alternative 1 (Preferred Alternative):</b></p> <ul style="list-style-type: none"> <li>The use of explosive munitions in the water or near the water's surface presents a risk to sea turtles located in close proximity to the explosion, because the resulting shock waves can cause behavioral reactions, loss of hearing sensitivity, injury, or result in the death of a sea turtle depending on the proximity of the explosion. Potential impacts on sea turtle hearing abilities are limited because the hearing sensitivity of sea turtles is limited to lower frequencies. If a sea turtle is close enough to a detonation that generates acoustic energy within a sea turtle's hearing range, the sea turtle may experience temporary or permanent hearing loss, exhibit short-term behavioral reactions, or the sea turtle may exhibit no reaction at all. The Navy's acoustic impacts analysis predicted no mortality, injury, permanent loss of hearing sensitivity, or temporary loss of hearing sensitivity in leatherback sea turtles, the only species with regular occurrence in the Study Area. The analysis of impacts predicted up to 10 behavioral reactions annually on leatherback sea turtles. These types of short-term behavioral responses by individual sea turtles are not expected to result in long-term consequences to individual sea turtles or sea turtle populations. The use of explosives would not affect the primary constituent elements, specifically prey and primarily jellyfish, of leatherback sea turtle critical habitat, because the areas of the PMSR that overlap leatherback critical habitat are rarely used for testing and training activities, and any use of those areas would not affect the distribution or availability of prey</li> <li>The use of DE systems (high-energy lasers and high-power microwave systems) associated with testing and training would not impact sea turtles. The use of DE systems would not affect the primary constituent elements, specifically prey and primarily jellyfish, of leatherback sea turtle critical habitat, because the areas of the PMSR that overlap leatherback critical habitat are rarely used for testing and training activities and the DE system stressors do not penetrate the water's surface where prey are found.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.8 Sea Turtles (continued)</p>	<ul style="list-style-type: none"> <li>• The use of vessels and military expended materials have the potential to result in physical disturbance and strike impacts on sea turtles. The potential for impacts mainly depends on the proximity of the vessel or expended material to a sea turtle. Since the Navy does not anticipate a substantive change in the level of vessel use for testing and training compared to current baseline levels, the potential for striking a sea turtle with a vessel or expended material would continue to be low. Physical disturbance of individual sea turtles due to vessel movements may also occur, but a temporary increase in stress level associated with avoidance behavior would not have long-term consequences for individual sea turtles or the population. The use of vessels and military expended materials would not affect the primary constituent elements, specifically prey and primarily jellyfish, of leatherback sea turtle critical habitat, because the distribution and availability of prey would not be affected by vessel movement of expended materials.</li> <li>• The use of decelerators/parachutes, specifically large and extra-large parachutes used by aerial target drones, have the potential to result in impacts on sea turtles through entanglement. Large and extra-large parachutes and their suspension lines could be encountered by sea turtles and, if encountered, have the potential to entangle sea turtles at the surface, in the water column, or at the seafloor. Short-term disturbance or long-term impacts to an individual sea turtle could occur. However, sea turtles are unlikely to encounter large or extra-large parachutes or their suspension lines, because minimal spatial overlap would occur between sea turtle distributions and the locations of testing and training activities using these parachutes. In addition, most drones and parachutes are recovered within hours of landing on the water’s surface, further reducing the likelihood that a sea turtle is exposed to an entanglement stressor. No long-term consequences to sea turtle populations are expected. Smaller decelerators/parachutes are designed to sink to the seafloor after impacting the water’s surface. Neither the large or extra-large parachutes or smaller decelerators/parachutes would affect the primary constituent elements (primarily jellyfish prey) of leatherback sea turtle critical habitat, because the prey are found in the water column and are not dependent on seafloor habitat.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.8 Sea Turtles (continued)</p>	<ul style="list-style-type: none"> <li>• The use of military expended materials may cause short-term or long-term disturbance to an individual sea turtle due to ingestion of munitions and military expended materials other than munitions used in testing and training activities. The potential impacts from ingesting these materials are dependent upon the probability of a sea turtle encountering these items in their environment, which is primarily contingent on where the items are expended and how a sea turtle species forages. Leatherback sea turtles, the only species expected to occur regularly in the PMSR, feed at or near the water’s surface and are unlikely to encounter most expended materials, which are composed of metals and would quickly sink to the seafloor. Loggerhead sea turtles, which may occur sporadically when sea surface temperatures are unusually warm, are known to forage at the seafloor, but would do so at depths shallower than the depths where most expended materials will ultimately reside, limiting any potential for encountering ingestible expended materials. The number of leatherback and loggerhead sea turtles potentially impacted by ingestion of military expended materials would be low, and neither individual nor population-level impacts are likely to occur. The use of military expended materials would not affect the primary constituent elements, primarily jellyfish prey, of leatherback sea turtle critical habitat, because leatherback prey would not encounter or be capable of ingesting the vast majority of (or potentially any) expended materials.</li> <li>• Indirect effects (secondary stressors) on leatherback and loggerhead sea turtles are mainly associated with the occurrence and availability of prey species. The occurrence and distribution of jellyfish and several other types of zooplankton (e.g., larval shrimp and crabs) preyed on by leatherback and loggerhead sea turtles are dependent on the physical oceanographic conditions in the California Current Ecosystem and would not be impacted by the proposed testing and training activities. In its 2012 <i>Final Rule to Revise the Critical Habitat Designation for the Endangered Leatherback Sea Turtle</i> (77 Federal Register 4169-4201), NMFS concluded that the types of Navy activities conducted in the PMSR are not the types of activities that may adversely modify critical habitat designated for the leatherback, specifically the prey species, which are the basis for the critical habitat designation.</li> </ul> <p><b>Alternative 2:</b> The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for sea turtles.</p>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.9 Marine Birds</p>	<p>The Navy considered all potential stressors that marine birds could potentially be exposed to from the Proposed Action. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>• Discontinuing testing and training under the No Action Alternative would result in various stressors not being introduced into the environment and would lessen the potential for impacts on birds, but would not measurably improve the status of bird populations.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>• The use of explosives at or near the surface and sonic booms during testing and training activities could result in a disturbance to a bird’s behavior, and/or lethal or non-lethal injuries. Explosives are used either far offshore where bird occurrence is less likely or on established ranges where the explosive activity is closely monitored.</li> <li>• Impacts from the use of in-air electromagnetic devices (primarily radar) would be very unlikely due to the dispersed nature of the activities that include radar use. The use of DE systems (high-energy lasers and high-power microwave systems) is extremely unlikely to result in a direct strike of a marine bird.</li> <li>• Birds are unlikely to be impacted by physical disturbance and strike stressors (aircraft, aerial targets, vessels, and military expended materials).</li> <li>• Ingestion of military expended material from testing and training activities may cause short-term or long-term disturbance to an individual bird but is not expected to result in population-level impacts.</li> <li>• Birds are unlikely to be entangled by decelerators and parachutes, which have weights and metal clips attached to them that facilitate their descent to the seafloor and minimize the time when entanglement could occur.</li> <li>• Stressors from testing and training activities could pose secondary or indirect impacts on birds via reduced habitat, sediment, and water quality. These include (1) impacts on habitats for birds, and (2) impacts on prey availability. Secondary impacts from explosions at or near the surface would be temporary, and no lasting impact on prey availability or the pelagic food web would be expected. Testing and training activities would not result in a decrease in the quantity or quality of bird populations or habitats, or prey species and their habitats. Although metals are introduced into seawater and sediments from Navy testing and training activities, it is unlikely that birds would be indirectly impacted by these metals via the water.</li> </ul> <p><b><u>Alternative 2:</u></b></p> <ul style="list-style-type: none"> <li>• The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for marine birds.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.10 Cultural Resources</p>	<p>The Navy considered all activities from the Proposed Action that could potentially affect cultural resources (including submerged and terrestrial) in the Study Area. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>• Discontinuing the testing and training activities would result in fewer potential impacts to cultural resources within the marine and terrestrial environments where testing and training activities have historically been conducted. Therefore, discontinuing testing and training activities under the No Action Alternative would lessen the potential for impacts on prehistoric terrestrial cultural resources on San Nicolas Island (SNI) and submerged cultural resources.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>• Potential impacts on cultural resources are limited to military expended material (MEM) (target and weapons debris) and vibration (from sonic booms and surface explosions) associated with weapons tests activity scenarios (air-to-air, air-to-surface, surface-to-air, surface-to-surface, and subsurface-to-surface).</li> <li>• Operations at-sea that have the potential for MEM, sonic booms and surface explosions are off-shore, generally greater than 3-12 nautical miles from shore. There are no proposed changes to operations or operational tempo on SNI and Naval Base Ventura County (NBVC) Point Mugu.</li> <li>• There is a low potential for impacts since military expended material is small, and there is a low density of historic properties located outside of missile launch areas. In addition, the terminal velocity reached by sinking objects is relatively slow (compared to falling objects in air). As a result, debris is unlikely to land with sufficient force to damage any object on the bottom, and in any case would affect only a minute portion of the seabed.</li> <li>• Shock waves from missiles and projectiles exploding at or near the surface of the water (within 10 meters) would not reach historic resources on the ocean floor. In addition, underwater sound field and vibration associated with sonic booms would not be transmitted at depths that would adversely affect known or unknown submerged cultural resources within the PMSR.</li> <li>• The Navy would continue to use the Land Impact Site, the Alpha Launch Complex, Building 807 Launch Complex (including the Rock Crusher site), and the DE Test Facility on SNI as well as Building PM-55 and the Launch Complex (Buildings PM 727, PM-728, and PM-729) at NBVC Point Mugu. There would be no change in the type or tempo of activities and the resources would continue to be used for their current purposes and maintained accordingly.</li> <li>• Therefore, air-to-air, air-to-surface, surface-to-air, surface-to-surface, and subsurface-to-surface would not adversely affect historic properties, and no significant impacts on cultural resources would occur within the PMSR or on NBVC Point Mugu and SNI.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
Section 3.10 Cultural Resources (continued)	<p><b><u>Alternative 2:</u></b> The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for cultural resources.</p>
Section 3.11 Socioeconomic Resources	<p>The Navy considered all activities from the Proposed Action that could potentially affect socioeconomic resources within the Study Area. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>• Discontinuing testing and training under the No Action Alternative would lessen the potential for impacts socioeconomic resources where testing and training activities have historically been conducted. Therefore, discontinuing testing and training activities under the No Action Alternative would lessen the potential for impacts on socioeconomic resources.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>• Impacts on socioeconomic resources are expected to be minor because inaccessibility to areas of co-use would be localized and temporary, the Navy’s strict standard operating procedures would minimize potential conflicts with commercial and recreational watercraft, and most airborne activities would occur well out to sea far from tourism and recreation locations.</li> <li>• There would be no disproportionately high impacts or adverse effects on any low-income populations or minority populations.</li> </ul> <p><b><u>Alternative 2:</u></b> The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for socioeconomics.</p>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.12 Recreation</p>	<p>The Navy considered all activities from the Proposed Action that could potentially affect recreation in the Study Area. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>• Discontinuing testing and training under the No Action Alternative would lessen the potential for impacts on recreation from the proposed testing and training activities, but ceasing the proposed testing and training activities may increase recreational activities within the PMSR where testing and training activities have historically been conducted.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>• Range closures to certain areas of the PMSR due to Navy testing and training activities could increase under Alternative 1 compared with the baseline. However, despite a potential increase in periodic closures of certain areas of the range, access to the Channel Islands National Marine Sanctuary and Channel Islands National Park would not be affected.</li> <li>• The number of closures for recreational boaters could increase, but closures would typically be limited to specific areas and of short duration (typically less than 24 hours), and areas would reopen when the testing and training activity is complete.</li> <li>• Additional closures and overflights could occur, but aircraft would not fly close to the Northern Channel Islands and the duration would be temporary.</li> </ul> <p><b><u>Alternative 2:</u></b></p> <ul style="list-style-type: none"> <li>• The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for recreation.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
<p>Section 3.13 Sea and Air Space</p>	<p>The Navy considered all activities from the Proposed Action that could potentially affect sea and air space within the Study Area. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>Discontinuing testing and training 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 within the PMSR, where testing and training activities have historically been conducted.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>Maritime navigational 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 would not increase the risk to military and non-military aircraft and vessel transit activity.</li> <li>Air traffic is fully managed by the Federal Aviation Administration to minimize impacts on commercial and recreational transit of the PMSR. Federal Aviation Administration-issued Notices to Airmen and U.S. Coast Guard-issued Notices to Mariners advise aircraft and vessel operators about when and where Navy testing and training activities and associated PMSR closures are scheduled. Given the established advance notice system and the highly controlled nature of tests and scheduled training, Alternative 1 would not increase the risk to military and non-military aircraft and vessel transit activity.</li> </ul> <p><b><u>Alternative 2:</u></b></p> <ul style="list-style-type: none"> <li>The number of testing and training activities under Alternative 2 would decrease over what is proposed for Alternative 1. However, this decrease as compared to Alternative 1 would have no appreciable change on the impact conclusions as summarized above under Alternative 1 for sea and air space.</li> </ul>

**Table ES-1: Summary of Environmental Impacts for the No Action Alternative, Alternative 1, and Alternative 2 (continued)**

<i>Resource Category</i>	<i>Summary of Impacts</i>
Section 3.14 Public Health and Safety	<p>The Navy considered all activities from the Proposed Action that could potentially affect public health and safety. The following conclusions have been reached for the project alternatives:</p> <p><b><u>No Action Alternative:</u></b></p> <ul style="list-style-type: none"> <li>• Discontinuing testing and training under the No Action Alternative would lessen the potential for health and safety impacts from the testing and training activities to the public, but would not measurably improve the public’s health and safety, where testing and training activities have historically been conducted.</li> </ul> <p><b><u>Alternative 1 (Preferred Alternative):</u></b></p> <ul style="list-style-type: none"> <li>• The use of explosives, radar, lasers, aircraft, vessels, targets, and munitions would not adversely affect public health and safety because standard operating procedures are in place to ensure that there is no overlap between military and non-military activities.</li> </ul> <p><b><u>Alternative 2:</u></b></p> <ul style="list-style-type: none"> <li>• The number of testing and training activities under Alternative 1 would decrease under Alternative 2, but the types of impacts would be the same as under Alternative 1. Testing and training activities would not impact public health and safety because standard operating procedures prevent overlap between military and non-military activities.</li> </ul>

### **ES.6.1 Cumulative Impacts**

Cumulative impacts were analyzed for each resource addressed in Chapter 3 (Affected Environment and Environmental Consequences) for the No Action Alternative, Alternative 1 (Preferred Alternative), and Alternative 2 in combination with past, present, and reasonably foreseeable future actions. For past actions, the cumulative impacts analysis only considers those actions or activities that have had ongoing impacts that may be additive to impacts of the Proposed Action. Likewise, present and reasonably foreseeable future actions selected for inclusion in the analysis are those that may have effects additive to the effects of the Proposed Action as experienced by specific environmental receptors.

The Action Alternatives would contribute incremental effects on the ocean ecosystem, which is already experiencing and absorbing a multitude of stressors to a variety of receptors. In general, it is not anticipated that the implementation of the Proposed Action would have meaningful contribution to the ongoing stress or cause significant collapse of any particular marine resource, but it would further cause minute impacts on resources that are already experiencing various degrees of interference and degradation. Mitigation measures described in Chapter 5 (Standard Operating Procedures and Mitigation) are intended to avoid and minimize potential impacts of the Proposed Action to the maximum extent practicable and to ensure that impacts do not become cumulatively significant to any marine resource.

The aggregate impacts of past, present, and other reasonably foreseeable future actions (Table 4.2-1) would result in significant impacts on some marine mammal and all sea turtle species in the Study Area; however, the decline of these species is chiefly attributable to other stressors in the environment, including the synergistic effect of bycatch, entanglement, vessel traffic, ocean pollution, and coastal zone development. The analyses presented in Chapter 4 (Cumulative Impacts) and Chapter 3 (Affected Environment and Environmental Consequences) indicate that there would be incremental contributions of the Proposed Action to cumulative impacts on some individual marine mammal and all sea turtle species in the Study Area. Even though the Proposed Action would contribute to cumulative impacts, non-Navy actions associated with commercial fisheries, commercial vessel strikes, and entanglement in marine debris are the leading causes of direct mortality to marine mammals and sea turtles. Therefore, the Proposed Action would contribute to cumulative impacts to marine mammals, sea turtles, and marine birds, but the relative contribution would be negligible compared to other non-Navy actions. The Proposed Action would not significantly contribute to cumulative stress on other resources, including air quality, sediments and water quality, marine habitats, marine vegetation, marine invertebrates, marine fishes, cultural resources, socioeconomics, recreation, sea and air space, and public health and safety.

### **ES.7 Standard Operating Procedures and Mitigation**

This section describes standard operating procedures and mitigation measures that the Navy will implement to avoid or minimize potential effects from Navy activities in the PMSR. In many cases, standard operating procedures provide a secondary benefit to environmental and cultural resources, some of which have high socioeconomic value in the Study Area. Standard operating procedures differ from mitigation measures because standard operating procedures are designed to provide for safety and mission success, whereas mitigation measures are designed specifically to avoid or reduce potential environmental impacts resulting from an action or activity. An example of a standard operating procedure is that ships operated by or for the Navy have personnel assigned to stand watch at all times when underway. Watch personnel monitor their assigned sectors for any indication of danger to the ship and the personnel on board, such as a floating or partially submerged object or piece of debris,

periscope, surfaced submarine, wisp of smoke, flash of light, or surface disturbance. In addition to standard operating procedures designed to avoid collision hazards for the safety of the ship and personnel on board the vessel, watch personnel also monitor for marine mammals that have the potential to be in the direct path of the ship.

In addition to the mitigation measures and standard operating procedures specific to the Proposed Action, the Navy has existing routine operating instructions (e.g., training manuals) and local installation instructions (e.g., Integrated Natural Resource Management Plans) that were developed to meet other safety and environmental compliance requirements or initiatives. For example, the Naval Air Training and Operating Procedures Standardization General Flight and Operating Instructions Manual (CNAF M-3710.7) contains naval air training procedures pertaining to safe operations of aircraft, which includes requirements to minimize the disturbance of wildlife. Aviation units are required to avoid noise-sensitive areas, such as breeding farms, resorts, beaches, national parks, national monuments, and national recreational areas. They are also required to avoid disturbing wild fowl in their natural habitats and to avoid firing directly at large fish, whales, or other wildlife. These requirements are in addition to the measures identified for the Proposed Action. The Navy will continue complying with applicable operating instructions and local installation instructions within the Study Area, as appropriate.

#### **ES.7.1 Standard Operating Procedures**

For testing or training to be effective, units must be able to use their weapon systems safely and as they are intended for use in military missions and combat operations and to their optimum capabilities. Navy publishes or broadcasts standard operating procedures via numerous naval instructions and manuals. Because they are essential to safety and mission success, standard operating procedures are part of the Proposed Action and considered in the Chapter 3 (Affected Environment and Environmental Consequences) environmental analysis for applicable resources.

#### **ES.7.2 Mitigation Measures**

In developing mitigation, the Navy considered the practicality of implementation and impacts on military readiness, in addition to the potential effectiveness of the mitigation in reducing or avoiding environmental impacts. In achieving this balance, the operational community, Navy planners, and Navy scientific experts worked very closely to develop mitigation options. The Navy has developed mitigation that is likely to be effective at avoiding or reducing impacts on one or more biological or cultural resources and is practicable to implement from a military readiness (i.e., operational) perspective.

The Chapter 3 (Affected Environment and Environmental Consequences) environmental analyses indicate that certain acoustic, explosive, and physical disturbance and strike stressors have the potential to impact certain biological resources. The Navy designed procedural mitigation to avoid or reduce potential impacts from those stressors.

The Navy will implement procedural mitigation for at-sea activities under Alternative 1 or Alternative 2 of the Proposed Action whenever and wherever the applicable activities occur within the Study Area (Table ES-2).

**Table ES-2: Summary of At-Sea Procedural Mitigation**

<i>Stressor or Activity</i>	<i>Mitigation Zone Sizes and Other Requirements</i>	<i>Protection Focus</i>
Weapons Firing Noise	<ul style="list-style-type: none"> <li>• 30° on either side of the firing line out to 70 yd.</li> </ul>	Marine mammals, Sea turtles
Explosive Medium-Caliber and Large-Caliber Projectiles	<ul style="list-style-type: none"> <li>• 1,000 yd. around the intended impact location (large-caliber projectiles)</li> <li>• 600 yd. around the intended impact location (medium-caliber projectiles during surface-to-surface activities)</li> <li>• 200 yd. around the intended impact location (medium-caliber projectiles during air-to-surface activities)</li> </ul>	Marine mammals, Sea turtles
Explosive Missiles and Rockets	<ul style="list-style-type: none"> <li>• 2,000 yd. around the intended impact location (21–500 lb. net explosive weight)</li> <li>• 900 yd. around the intended impact location (0.6–20 lb. net explosive weight)</li> </ul>	Marine mammals, Sea turtles
Explosive Bombs	<ul style="list-style-type: none"> <li>• 2,500 yd. around the intended impact location</li> </ul>	Marine mammals, Sea turtles
Vessel Movement	<ul style="list-style-type: none"> <li>• 500 yd. distance from the vessel (whales)</li> <li>• 200 yd. distance from the vessel (other marine mammals)</li> <li>• Within the vicinity of the vessel (sea turtles)</li> </ul>	Marine mammals, Sea turtles
Small-, Medium-, and Large-Caliber Non-Explosive Practice Munitions	<ul style="list-style-type: none"> <li>• 200 yd. around the intended impact location</li> </ul>	Marine mammals, Sea turtles
Non-Explosive Missiles and Rockets	<ul style="list-style-type: none"> <li>• 900 yd. around the intended impact location</li> </ul>	Marine mammals, Sea turtles
Non-Explosive Bombs	<ul style="list-style-type: none"> <li>• 1,000 yd. around the intended impact location</li> </ul>	Marine mammals, Sea turtles

Notes: yd. = yard(s), lb. = pound(s)

For some activities, the Navy will continue to implement extra procedural mitigation that was developed through previous consultations with NMFS or the U.S. Fish and Wildlife Service that has been tailored to the discrete locations where the activities may occur (Table ES-3).

As a result of the mitigation development and assessment process, the Navy found that some of the measures it considered were impracticable or not likely to be effective at avoiding or reducing impacts on biological resources. The measures considered but eliminated include limiting the number and size of explosives and eliminated some geographic mitigation. The Navy considered avoiding certain geographic areas (i.e., blue whale feeding areas, humpback whale feeding areas, gray whale mitigation areas, and Morro Bay harbor porpoise small and resident population area) but determined it would be impracticable or not likely to be effective at reducing impacts (see Section 5.3.6.2, Geographic

Mitigation). In some cases, the Navy determined that it would be impractical to develop additional mitigation areas that could limit the locations or types of explosive testing and training activities in the PMSR.

**Table ES-3: Summary of Procedural Mitigation for Land-Based Activities**

Stressor or Activity	Mitigation Requirements	Protection Focus
Vehicle Launches from San Nicolas Island (SNI)	<ul style="list-style-type: none"> <li>• Navy personnel shall not enter pinniped haulouts. Personnel may be adjacent to pinniped haulouts prior to and following a launch for monitoring purposes.</li> <li>• Missiles and targets shall not cross over pinniped haulouts at elevations less than 305 meters (m) (1,000 feet [ft.]) unless necessary to meet test mission objectives.</li> <li>• The Navy may not conduct more than 10 launch events at night unless necessary to meet test mission objectives.</li> <li>• Launch events shall be scheduled to avoid the peak pinniped pupping seasons (January through July), to the maximum extent practicable.</li> <li>• For unmanned aircraft systems (UAS), the following minimum altitudes must be maintained over pinniped haulout areas and rookeries: Class 0–2 UAS must maintain a minimum altitude of 300 ft.; Class 3 UAS must maintain a minimum altitude of 500 ft.; Class 4 or 5 UAS must not be flown below 1,000 ft.</li> </ul>	Hauled-out pinnipeds
Vehicle Launches from SNI	<ul style="list-style-type: none"> <li>• The NBVC Environmental Division closes the south side of SNI to all activities to protect the western snowy plover.</li> <li>• All western snowy plover nesting areas are closed for the duration of the breeding season.</li> <li>• Signs and barricades are erected to denote closures, and the environmental staff patrol the beaches periodically.</li> <li>• Western snowy plover nests shall be monitored prior to and during missile or target launches.</li> </ul>	Western snowy plover

**Table ES-3: Summary of Procedural Mitigation for Land-Based Activities (continued)**

Stressor or Activity	Mitigation Requirements	Protection Focus
Vehicle Launches from Point Mugu	<ul style="list-style-type: none"> <li>• If a listed species nest is on or in close proximity (within 500 ft.) to the launch, the Navy will utilize a different site.</li> <li>• The Navy will not allow operational personnel on the beach year-round unless authorized or escorted by Natural Resource personnel.</li> <li>• Natural Resource personnel will coordinate placement of equipment on the beach to minimize any impacts to nesting birds and ensure equipment is a minimum of 100 ft. away from active nests.</li> <li>• If equipment on the beach requires personnel continually at or visiting the site, the Navy will place equipment a minimum of 300 ft. from active nests.</li> <li>• If beach equipment is in place longer than a week, the Navy will place spike stripping on equipment as needed if it acts as a perch for raptors.</li> </ul>	Western snowy plover, California least terns
Aircraft Operations and Support	<ul style="list-style-type: none"> <li>• Outside of take-off and landing, the Navy will keep fixed-winged and rotorcraft at or above 500 ft. above ground level over all listed species habitat.</li> <li>• The Navy will instruct any aircraft transiting Point Mugu to stay above 500 ft. above ground level.</li> </ul>	All federally protected bird species
Unmanned Aircraft Operations	<ul style="list-style-type: none"> <li>• Unmanned aerial vehicles and supporting aircraft flights will be restricted to an altitude of 1,000 ft. above ground level or greater.</li> <li>• A designated observer will be present during all activities that involve weapons testing, firing, or launching to ensure that these activities will not result in adverse effects to marine mammals, sea turtles, or birds.</li> <li>• Before a weapon (including lasers) can be fired, the Navy will require as standard procedure that no persons, wildlife, reflective surfaces, or non-target obstructions of any sort are present within the hazard area, which is specific to the type of weapon used, between the firing point and the target.</li> </ul>	All federally protected species

**Table ES-3: Summary of Procedural Mitigation for Land-Based Activities (continued)**

Stressor or Activity	Mitigation Requirements	Protection Focus
Directed Energy activities on SNI	<ul style="list-style-type: none"> <li>• Avoid activities when western snowy plovers are present, if feasible.</li> <li>• During plover nesting season (March 1–September 15), a qualified biologist will (i) educate operational personnel about sensitive habitats and how to implement avoidance and minimization measures, (ii) delineate any areas adjacent to the site that should be avoided, and (iii) attend operation-related meetings as needed.</li> <li>• During plover nesting season, if plovers are present within 1,000 ft. of the action area, a qualified biologist will remain on site during activities (if safety constraints allow) to monitor movement and behavior of western snowy plovers.</li> <li>• During plover nesting season, access to the test site will be restricted to operational activities only.</li> <li>• Unless operationally necessary, personnel will not occupy the site between dusk and dawn. No artificial lighting will be used.</li> <li>• Before directed energy systems are fired, the Navy will require that no persons, listed species (or other wildlife), reflective surfaces, or non-target obstructions of any sort are present within the hazard area (which is specific to the type of system being used) between the shooter site and the target or immediately behind the target.</li> </ul>	Western snowy plover
Close-in weapons systems (CIWS), small arms testing and training and other countermeasure testing and training at NBVC Point Mugu and SNI	<ul style="list-style-type: none"> <li>• CIWS, small arms, and other countermeasures testing and training will not occur when snowy plover, least tern, or light-footed Ridgway’s rail nests are within 500 ft. of the operational area.</li> <li>• Pre- and post- operation surveys for all listed species nesting within 1,000 ft. of testing or training site will confirm no abandonment occurred due to testing or training.</li> <li>• The CIWS would only be fired at aerial targets flying at normal operating altitudes well above the horizon to reduce potential of striking typically low-flying birds.</li> <li>• Before the CIWS is fired, the Navy would require as standard procedure that no listed species or other wildlife are present between the shooter site and the target or immediately behind the target. A qualified biologist will monitor the hazard area with binoculars or remote cameras as necessary to ensure that the CIWS system is not fired if wildlife is within the expected debris pattern.</li> </ul>	Western snowy plover, California least terns, Light-footed Ridgway’s rail

### **ES.7.3 Monitoring and Reporting**

Many of the Navy's monitoring programs, research programs, and public reporting initiatives have been ongoing for more than a decade and will continue as a compliance requirement for the MMPA, Endangered Species Act, or both. The Navy and NMFS will use the information contained within monitoring, research, activity, and incident reports when evaluating the effectiveness and practicality of mitigation and determining if adaptive adjustments to mitigation may be appropriate. Numerous reports are generated during monitoring, as well as during testing and training activities, including marine species research and monitoring reports, testing and training activity reports, and incident reports. These reports also facilitate better understandings of the biological resources that inhabit the Study Area and the potential impacts of the Proposed Action on those resources.

Regarding cultural resources, the Navy has committed to providing federally recognized tribes with annual reported levels of activity that are conducted on San Nicolas Island. In addition, the Navy reports activities that are conducted within the five defined biologically important areas to the California Coastal Commission.

### **ES.7.4 Other Considerations**

#### **ES.7.4.1 Consistency with Other Federal, State, and Local Plans, Policies, and Regulations**

Based on an evaluation of consistency with statutory obligations, the Navy's proposed testing and training activities would not conflict with the objectives or requirements of federal, state, regional, or local plans, policies, or legal requirements. The Navy will consult with regulatory agencies as appropriate during the NEPA process and prior to implementation of the Proposed Action to ensure all legal requirements are met.

#### **ES.7.4.2 Relationship Between Short-Term Use of the Environment and Maintenance and Enhancement of Long-Term Productivity**

In accordance with NEPA, this EIS/OEIS provides an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. The Proposed Action may result in both short- and long-term environmental effects. However, the Proposed Action would not be expected to result in any impacts that would reduce environmental productivity, permanently narrow the range of beneficial uses of the environment, or pose long-term risks to health, safety, or the general welfare of the public.

#### **ES.7.4.3 Irreversible or Irrecoverable Commitment of Resources**

For both Alternative 1 and Alternative 2, most resource commitments are neither irreversible nor irretrievable. Most impacts are short-term and temporary or, if long lasting, are negligible. No habitat associated with threatened or endangered species would be lost as result of implementation of the Proposed Action. Since there would be no building or facility construction, the consumption of materials typically associated with such construction (e.g., concrete, metal, sand, fuel) would not occur. Energy typically associated with construction activities would not be expended and irreversibly lost.

Implementation of the Proposed Action would require fuels used by aircraft and vessels. Since fixed- and rotary-wing flight and ship activities could increase, relative total fuel use could increase. Therefore, if total fuel consumption increased, this nonrenewable resource would be considered irretrievably lost.

#### **ES.7.4.4 Energy Requirements and Conservation Potential of Alternatives and Efficiency Initiatives**

Resources that will be permanently and continually consumed by project implementation include water, electricity, natural gas, and fossil fuels; however, the amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. Prevention of the introduction of potential contaminants is an important component of standard procedures followed by the Navy. To the extent practicable, considerations in the prevention of introduction of potential contaminants are included.

Sustainable range management practices are in place that protect and conserve natural and cultural resources and preserve access to training areas for current and future training requirements while addressing potential encroachments that threaten to impact range and training area capabilities.