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### 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes existing environmental conditions (affected environment) for resources potentially affected by the Alternatives described in Chapter 2. Potential biological, physical, cultural, and social resource impacts (environmental consequences) are identified, described, and evaluated for the Proposed Action and its Alternatives. As discussed in Chapter 2 under the No Action Alternative, training activities would continue at current levels. Although the No Action Alternative would not meet the Navy's long-term training needs in the Northwest Training Range Complex (NWTRC), existing conditions serve as the baseline for analyzing the impacts of the Action Alternatives (Alternative 1 and Alternative 2, the Preferred Alternative).

The affected environment and environmental consequences are described and analyzed according to 16 categories of resources. The resource categories and their sections in this Draft environmental impact statement (EIS)/overseas environmental impact statement (OEIS), from here on referred to as EIS/OEIS are:

- Geology and Soils (Section 3.1)
- Air Quality (3.2)
- Hazardous Materials and Wastes (3.3)
- Water Resources (3.4)
- Acoustic Environment (3.5)
- Marine Plants and Invertebrates (3.6)
- Fish (3.7)
- Sea Turtles (3.8)
- Marine Mammals (3.9)
- Birds (3.10)
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- Cultural Resources (3.12)
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- Socioeconomics (3.14)
- Environmental Justice & Protection of Children (3.15)
- Public Safety (3.16)

During the environmental impact analysis process, the resources analyzed are identified and the expected geographic scope of potential impacts for each resource, known as the resource's Study Area, is defined. The discussion and analysis, organized by resource category, covers:

- The offshore area, which includes all air, sea, and undersea ranges west of the coastline.
- The inshore area, which includes all air, land, sea, and undersea ranges inland of the coastline.

In determining environmental consequences, this chapter incorporates current resource protection measures such as standard operating procedures (SOPs), best management practices (BMPs), and conservation measures that are integral to the activities covered by the Proposed Action and its Alternatives. Mitigation measures are discussed at the end of each resource section and summarized in Chapter 5.

### 3.0 GENERAL APPROACH TO ANALYSIS

The methods used in this EIS/OEIS to assess resource impacts associated with the Proposed Alternatives include the procedural steps outlined below:

- Describe existing resource conditions.
- Review existing Federal and State regulations and standards relevant to resource-specific management and/or protection.
- Identify critical resource conditions or areas that require specific analytical attention, such as designated endangered species critical habitat.
- Analyze the warfare areas and activities to determine what stressors may affect the particular resource.
- Review and analyze data sources for information on stressor impacts to the resource, including modeling efforts and scientific research.
- Determine specific impacts to the resource associated with the stressors that result from Navy activities.
- Adjust initial impact determinations to account for use of SOPs, BMPs, and other mitigations measures.
- Determine overall impacts to the resource associated with the Proposed Action and its alternatives, given the applicable regulatory framework.
- Summarize impact findings with respect to resource effects and compliance with regulations and Navy policies for each alternative.

Additional steps may be added to some resource evaluations to address unique resource characteristics or specific regulatory and public-issue concerns.

#### 3.0.1 Stressors

The EIS/OEIS interdisciplinary team and Navy subject matter experts used a screening process to analyze the warfare areas and training activities to identify specific activities in the Alternatives that could act as stressors to resources. Other information that was evaluated to identify and evaluate stressors included public and agency scoping comments, previous environmental analyses, agency consultations, resource-specific information, and applicable laws, regulations, and executive orders. This process was used to focus the information presented and analyzed in the affected environment and environmental consequences sections of this EIS/OEIS. Table 3-1 summarizes warfare areas, the number of yearly test and training activities of each type that would be associated with each Alternative, and the stressors that potentially would occur within each warfare area because of those activities. The stressors and some of the mechanisms that would result in stress include:

- Vessel movements (disturbance and collisions);
- Low altitude aircraft overflights (disturbance and strikes);
- Land-based training (disturbance and habitat alteration);
- Sonar (disturbance);
- Weapons firing/non-explosive practice ordnance (disturbance, strikes, and habitat alteration);
- High-explosive ordnance (disturbance, strikes, and habitat alteration); and
- Expended materials (habitat alteration, entanglement, ingestion, and hazardous materials).

Table 3-2 shows the relationships between stressors and the physical and biological resources that are evaluated in this EIS/OEIS. These tables provide the organizational framework for the description of environmental impacts presented in the following sections.

**Table 3-1: Summary of Potential Stressors**

Warfare Area and Activity	Training Area(s)	Number of Activities			Stressors									
		No Action Alternative	Alternative 1	Alternative 2	Vessel Movements	Aircraft Over flights	Land-based Training	SONAR	Weapons Firing/Non-Explosive Practice Ordnance	High-Explosive Ordnance	Expedited Materials			
<b>Anti-Air Warfare (AAW)</b>														
Air Combat Maneuver (ACM)	Okanogan, Olympic, & Roosevelt Military Operating Areas (MOAs); Air Traffic Controlled Assigned Airspace (ATCAAs); Darrington Operating Area (OPAREA)	1,353	2,000	2,000		✓								✓
Air-to-Air Missile Exercise (A-A MISSILEX)	Warning Area 237 (W-237)	0	12	24		✓							✓	✓
Surface-to-Air Gunnery Exercise (S-A GUNEX)	W-237, Pacific Northwest (PACNW) OPAREA	72	80	160		✓							✓	✓
Surface-to-Air Missile Exercise (S-A MISSILEX)	W-237, PACNW OPAREA	0	0	4		✓							✓	✓
<b>Anti-Surface Warfare (ASUW)</b>														
Surface-to-Surface Gunnery Exercise (S-S GUNEX)	W-237, PACNW OPAREA	90	100	180		✓							✓	✓
Air-to-Surface Bombing Exercise (A-S BOMBEX)	W-237, PACNW OPAREA	24	30	30		✓							✓	✓
Sinking Exercise (SINKEX)	W-237, PACNW OPAREA	1	2	2		✓							✓	✓

Table 3-1: Summary of Potential Stressors (cont'd)

Warfare Area and Activity	Training Area(s)	Number of Activities			Stressors									
		No Action Alternative	Alternative 1	Alternative 2	Vessel Movements	Aircraft Over flights	Land-based Training	SONAR	Weapons Firing/Non-Explosive Practice Ordnance	High-Explosive Ordnance	Expanded Materials			
<b>Anti-Submarine Warfare (ASW)</b>														
Anti-Submarine Warfare Tracking Exercise – Maritime Patrol Aircraft (TRACKEX-MPA)	W-237, PACNW OPAREA	200	205	210	✓	✓		✓						✓
Anti-Submarine Warfare Tracking Exercise - Extended Echo Ranging (EER)	W-237, PACNW OPAREA	10	11	12		✓		✓					✓	✓
Anti-Submarine Warfare Tracking Exercise - Surface Ship (TRACKEX-Surface)	PACNW OPAREA	60	65	65	✓			✓						✓
Anti-Submarine Warfare Tracking Exercise – Submarine (TRACKEX-Sub)	W-237, PACNW OPAREA	96	100	100	✓	✓								✓
<b>Electronic Combat (EC)</b>														
Electronic Combat (EC) Exercises	W-237, PACNW and Darrington OPAREAs	2,330	2,500	5,000	✓	✓								✓
<b>Mine Warfare (MIW)</b>														
Mine Countermeasures (MCM)	Crescent Harbor, Indian Island	60	4	4	✓	✓							✓	✓
Land Demolitions	Bangor Demolition Training Range (DTR) & Seaplane DTR	102	110	110			✓						✓	✓
Mine Avoidance	W-237, PACNW	0	0	7	✓			✓						

Table 3-1: Summary of Potential Stressors (cont'd)

Warfare Area and Activity	Training Area(s)	Number of Activities			Stressors									
		No Action Alternative	Alternative 1	Alternative 2	Vessel Movements	Aircraft Over flights	Land-based Training	SONAR	Weapons Firing/Non-Explosive Practice Ordnance	High-Explosive Ordnance	Expended Materials			
<b>Naval Special Warfare (NSW)</b>														
Insertion/Extraction	Seaplane Base, Outlying Landing Field (OLF) Coupeville & Crescent Harbor	108	120	120		✓	✓							✓
NSW Training	Indian Island	35	35	35			✓							
<b>Strike Warfare</b>														
HARM Missile Exercise (HARMEX)	Okanogan, Olympic, & Roosevelt MOAs, ATCAAs	2,724	3,000	3,000		✓								
<b>Support Activities</b>														
Intelligence, Surveillance, and Reconnaissance (ISR)	W-237, PACNW OPAREA, Seaplane Base Survival Area	94	100	100		✓	✓					✓		✓
Unmanned Aerial System (UAS) RDT&E and Training	Admiralty Bay (R-6701), W-237 & PACNW OPAREA	12	112	112		✓								

**Table 3-2: Physical and Biological Resources that Could be Affected by Stressors Associated with the Alternatives**

Potential Stressor	Geology and Soils	Water Resources	Marine Plants and Invertebrates	Marine Mammals	Sea Turtles	Fish and EFH	Birds	Terrestrial Resources
<b>Vessel Movements</b>								
Vessel Disturbance			✓	✓	✓	✓	✓	
Vessel Collisions			✓	✓	✓	✓	✓	
<b>Aircraft Over flights</b>								
Aircraft Disturbance				✓	✓	✓	✓	✓
Aircraft Strikes							✓	✓
<b>Land-based Training</b>								
Vehicle Movements								✓
Foot Traffic								✓
<b>SONAR</b>								
Mid- and High-Frequency Sonar				✓	✓	✓		
<b>Weapons Firing/Non-Explosive Practice Ordnance</b>								
Weapons Firing Disturbance				✓	✓	✓	✓	
Non-Explosive Ordnance Strikes			✓	✓	✓	✓	✓	
Non-Explosive Ordnance Disturbance			✓	✓	✓	✓	✓	
<b>High Explosive Ordnance</b>								
Land Detonations							✓	✓
Underwater Detonations	✓	✓	✓	✓	✓	✓	✓	
Explosive Ordnance			✓	✓	✓	✓	✓	
<b>Expended Materials</b>								
Ordnance Related Materials		✓	✓	✓	✓	✓		
MK-58 Marine Markers				✓	✓	✓	✓	
Target Related Materials			✓	✓	✓	✓	✓	
Expendable Mobile ASW Training Targets			✓	✓	✓	✓		
Sonobuoys		✓	✓	✓	✓	✓	✓	
Chaff	✓	✓						✓
Flares	✓	✓						✓

### 3.0.2 Data Sources

A systematic review of relevant literature, regulatory requirements, mitigation provisions, and data was conducted to complete the technical and compliance analysis for each resource category. Both published and unpublished documents were used, including journals, books, periodicals, bulletins, Department of Defense operations reports, theses, dissertations, endangered species recovery plans, species management plans, and other technical reports published by government agencies, private businesses, or consulting firms. The scientific literature was also consulted during the search for geographic location data (geographic coordinates) on the occurrence of marine resources within the Study Area.