
Appendix B Activity Stressor Matrices

**Supplemental Environmental Impact Statement/
Overseas Environmental Impact Statement
Northwest Training and Testing**

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APPENDIX B Activity Stressor Matrices

This appendix contains three matrices. The first two matrices in this appendix list the training and testing activities that occur in the Northwest Training and Testing Study Area and their associated stressors. The third matrix lists the resources analyzed in this Supplemental Environmental Impact Statement/Overseas Environmental Impact Statement and the stressors they are potentially affected by.

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Table B-1: Stressors by Training Activity

Northwest Training Activity	Biological Resources													Physical Resources ¹					Human Resources ²													
	Acoustic Stressors				Explosive Stressors		Energy Stressors			Physical Disturbance and Strike Stressors			Entanglement Stressors			Ingestion Stressors		Air Quality Stressors	Sediments and Water Quality Stressors			Cultural Resources Stressors		Socioeconomic Resources Stressors		Public Health & Safety Stressors						
	Sonar & Other Transducers	Vessel Noise	Aircraft Noise	Weapons Noise	In-Air Explosions	In-Water Explosions	In-Air Electromagnetic Devices	In-Water Electromagnetic Devices	High-Energy Lasers	Vessels & In-water Devices	Aircraft & Aerial Targets	Military Expended Material	Seafloor Devices	Wires & Cables	Decelerators/Parachutes	Biodegradable Polymer ³	Military Expended Materials – Munitions	Military Expended Materials – Other than Munitions	Criteria Air Pollutants	Explosives	Metals	Chemicals	Other Materials ⁴	Explosives ⁵	Physical Disturbance & Strike ⁶	Accessibility ⁷	Airborne Acoustics ⁸	Physical Disturbance & Strike ⁶	In-Water Energy ⁹	In-Air Energy ¹⁰	Physical Interactions ¹¹	
AIR WARFARE																																
Air Combat Maneuver			✓			✓				✓	✓						✓	✓		✓			✓			✓	✓					
Gunnery Exercise (Surface-to-Air)		✓	✓	✓	✓	✓			✓	✓	✓					✓		✓	✓	✓			✓	✓	✓	✓	✓	✓			✓	
Missile Exercise (Air-to-Air)		✓	✓	✓	✓	✓			✓	✓	✓			✓		✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓			✓	
Missile Exercise (Surface-to-Air)		✓	✓	✓	✓	✓			✓	✓	✓			✓		✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓			✓	
ANTI-SUBMARINE WARFARE																																
Torpedo Exercise – Submarine	✓	✓							✓		✓		✓							✓				✓			✓	✓			✓	
Tracking Exercise – Helicopter	✓	✓	✓			✓			✓	✓	✓		✓	✓		✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓			✓	
Tracking Exercise – Maritime Patrol Aircraft	✓	✓	✓			✓			✓	✓	✓		✓	✓		✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓			✓	
Tracking Exercise – Ship	✓	✓				✓			✓		✓		✓					✓						✓	✓	✓	✓	✓			✓	
Tracking Exercise – Submarine	✓	✓							✓		✓									✓				✓			✓	✓			✓	
ELECTRONIC WARFARE																																
Electronic Warfare Training – Aircraft			✓			✓				✓							✓	✓								✓	✓	✓			✓	
Electronic Warfare Training – Ship		✓				✓			✓									✓								✓		✓			✓	
MINE WARFARE																																
Civilian Port Defense – Homeland Security Anti-Terrorism/Force Protection Exercises	✓	✓	✓			✓	✓		✓	✓		✓						✓	✓				✓	✓	✓	✓	✓	✓			✓	
Mine Neutralization – Explosive Ordnance Disposal Training		✓			✓				✓		✓	✓				✓	✓	✓	✓				✓	✓	✓	✓	✓	✓			✓	
SURFACE WARFARE																																
Bombing Exercise Air-to-Surface		✓	✓			✓	✓		✓	✓	✓					✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	
Gunnery Exercise Surface-to-Surface – Ship		✓		✓	✓	✓	✓		✓		✓					✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓			✓

Table B-1: Stressors by Training Activity (continued)

Northwest Training Activity	Biological Resources												Physical Resources ¹					Human Resources ²																		
	Acoustic Stressors				Explosive Stressors		Energy Stressors			Physical Disturbance and Strike Stressors			Entanglement Stressors		Ingestion Stressors		Air Quality Stressors	Sediments and Water Quality Stressors			Cultural Resources Stressors		Socioeconomic Resources Stressors		Public Health & Safety Stressors											
	Sonar & Other Transducers	Vessel Noise	Aircraft Noise	Weapons Noise	In-Air Explosions	In-Water Explosions	In-Air Electromagnetic Devices	In-Water Electromagnetic Devices	High-Energy Lasers	Vessels & In-water Devices	Aircraft & Aerial Targets	Military Expended Material	Seafloor Devices	Wires & Cables	Decelerators/Parachutes	Biodegradable Polymer ³	Military Expended Materials – Munitions	Military Expended Materials – Other than Munitions	Criteria Air Pollutants	Explosives	Metals	Chemicals	Other Materials ⁴	Explosives ⁵	Physical Disturbance & Strike ⁶	Accessibility ⁷	Airborne Acoustics ⁸	Physical Disturbance & Strike ⁶	In-Water Energy ⁹	In-Air Energy ¹⁰	Physical Interactions ¹¹					
SURFACE WARFARE (Continued)																																				
Missile Exercise Air-to-Surface		✓	✓	✓		✓	✓			✓	✓	✓					✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
OTHER TRAINING																																				
Intelligence, Surveillance, Reconnaissance		✓	✓				✓			✓	✓	✓		✓	✓		✓	✓																		
Maritime Security Operations		✓	✓	✓			✓			✓	✓	✓				✓		✓		✓						✓	✓	✓								✓
Personnel Insertion/ Extraction – Non-Submersible		✓	✓							✓	✓							✓																		
Precision Anchoring		✓					✓			✓		✓						✓						✓	✓											✓
Search and Rescue		✓	✓				✓			✓	✓							✓									✓	✓								✓
Small Boat Attack Exercise		✓		✓						✓		✓				✓		✓		✓				✓	✓	✓	✓									✓
Submarine Sonar Maintenance	✓	✓								✓																	✓									
Surface Ship Sonar Maintenance	✓	✓				✓	✓			✓																	✓									
Unmanned Underwater Vehicle Training	✓	✓								✓		✓																								

¹ Habitat stressors are included under Biological Resources

² Area of interest is U.S. Territorial Waters (seaward of the mean high water line to 12 nautical miles and any inshore waters)

³ Testing activities only

⁴ Other Materials include marine markers and flares, chaff, towed and stationary targets, and miscellaneous components of other expended objects

⁵ Vibration and shock waves from underwater explosions

⁶ Physical disturbance and strike stressors resulting from in-water devices, military expended materials, seafloor devices, and vibration from sonic booms in U.S. territorial waters (seaward of the mean high water line to 12 nautical miles)

⁷ Availability of access on the ocean and in the air

⁸ Loud noises from weapons firing, in-air explosions, and sonic booms

⁹ Active sonar, underwater explosions, vessel movements, mine warfare training devices, and unmanned underwater systems

¹⁰ Sources or electromagnetic energy and lasers

¹¹ Interaction of Navy aircraft, vessels, and equipment with general public

Note: A check indicates events that take place for Alternative 1 and Alternative 2.

Table B-2: Stressors by Testing Activity

Northwest Testing Activity	Biological Resources													Physical Resources ¹					Human Resources ²																						
	Acoustic Stressors				Explosive Stressors		Energy Stressors			Physical Disturbance and Strike Stressors			Entanglement Stressors		Ingestion Stressors		Air Quality Stressors	Sediments and Water Quality Stressors			Cultural Resources Stressors	Socioeconomic Resources Stressors		Public Health & Safety Stressors																	
	Sonar & Other Transducers	Vessel Noise	Aircraft Noise	Weapons Noise	In-Air Explosions	In-Water Explosions	In-Air Electromagnetic Devices	In-Water Electromagnetic Devices	High-Energy Lasers	Vessels & In-water Devices	Aircraft & Aerial Targets	Military Expended Material	Seafloor Devices	Wires & Cables	Decelerators/Parachutes	Biodegradable Polymer ³	Military Expended Materials – Munitions	Military Expended Materials – Other than Munitions	Criteria Air Pollutants	Explosives	Metals	Chemicals	Other Materials ⁴	Explosives ⁵	Physical Disturbance & Strike ⁶	Accessibility ⁷	Airborne Acoustics ⁸	Physical Disturbance & Strike ⁶	In-Water Energy ⁹	In-Air Energy ¹⁰	Physical Interactions ¹¹										
NAVAL SEA SYSTEMS COMMAND																																									
ANTI-SUBMARINE WARFARE																																									
Anti-Submarine Warfare Testing	✓	✓	✓						✓	✓	✓		✓	✓			✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
At-Sea Sonar Testing	✓	✓				✓			✓		✓			✓			✓	✓		✓	✓	✓					✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Countermeasure Testing	✓	✓				✓			✓		✓				✓		✓	✓		✓	✓	✓		✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Pierside-Sonar Testing	✓																																			✓					
Submarine Sonar Testing/Maintenance	✓	✓							✓																											✓	✓		✓		
Torpedo (Explosive) Testing	✓	✓	✓		✓	✓			✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Torpedo (Non-Explosive) Testing	✓	✓	✓			✓			✓	✓	✓		✓	✓			✓	✓		✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
MINE WARFARE																																									
Mine Countermeasure and Neutralization Testing	✓	✓	✓		✓	✓			✓	✓	✓	✓	✓			✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mine Detection and Classification Testing	✓	✓							✓	✓		✓						✓		✓							✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SURFACE WARFARE																																									
Kinetic Energy Weapon Testing		✓	✓	✓	✓		✓		✓	✓	✓			✓		✓	✓	✓		✓					✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
UNMANNED SYSTEMS																																									
Unmanned Aerial System Testing		✓							✓	✓								✓								✓	✓	✓	✓										✓	✓	
Unmanned Surface Vehicle System Testing		✓							✓									✓								✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Unmanned Underwater Vehicle Testing	✓	✓				✓			✓	✓	✓	✓	✓	✓			✓	✓			✓	✓			✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
VESSEL EVALUATION																																									
Propulsion Testing		✓							✓									✓																		✓		✓		✓	
Undersea Warfare Testing	✓	✓	✓						✓	✓	✓		✓	✓			✓	✓		✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table B-2: Stressors by Testing Activity (continued)

Northwest Testing Activity	Biological Resources												Physical Resources ¹					Human Resources ²																			
	Acoustic Stressors				Explosive Stressors		Energy Stressors			Physical Disturbance and Strike Stressors			Entanglement Stressors		Ingestion Stressors		Air Quality Stressors	Sediments and Water Quality Stressors			Cultural Resources Stressors	Socioeconomic Resources Stressors		Public Health & Safety Stressors													
	Sonar & Other Transducers	Vessel Noise	Aircraft Noise	Weapons Noise	In-Air Explosions	In-Water Explosions	In-Air Electromagnetic Devices	In-Water Electromagnetic Devices	High-Energy Lasers	Vessels & In-water Devices	Aircraft & Aerial Targets	Military Expended Material	Seafloor Devices	Wires & Cables	Decelerators/Parachutes	Biodegradable Polymer ³	Military Expended Materials – Munitions	Military Expended Materials – Other than Munitions	Criteria Air Pollutants	Explosives	Metals	Chemicals	Other Materials ⁴	Explosives ⁵	Physical Disturbance & Strike ⁶	Accessibility ⁷	Airborne Acoustics ⁸	Physical Disturbance & Strike ⁶	In-Water Energy ⁹	In-Air Energy ¹⁰	Physical Interactions ¹¹						
VESSEL EVALUATION (CONTINUED)																																					
Vessel Signature Evaluation		✓				✓			✓									✓						✓	✓		✓		✓	✓		✓	✓				
OTHER TESTING																																					
Acoustic and Oceanographic Research	✓	✓				✓			✓			✓						✓				✓		✓	✓		✓	✓	✓	✓	✓	✓	✓				
Acoustic Component Testing	✓	✓							✓	✓								✓						✓	✓		✓	✓		✓	✓		✓	✓			
Cold Water Support	✓	✓							✓			✓						✓						✓	✓				✓		✓	✓		✓	✓		
Hydrodynamic and Maneuverability Testing		✓							✓																✓		✓								✓	✓	
Non-Acoustic Component Testing		✓				✓			✓	✓		✓	✓					✓						✓	✓	✓	✓		✓		✓	✓		✓	✓		
Post-Refit Sea Trial	✓																								✓		✓	✓		✓		✓		✓	✓		
Radar and Other System Testing		✓	✓			✓		✓	✓	✓	✓			✓				✓		✓		✓			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Semi-Stationary Equipment Testing	✓	✓							✓				✓					✓		✓		✓			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Simulant Testing		✓	✓			✓			✓	✓								✓			✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
NAVAL AIR SYSTEMS COMMAND																																					
ANTI-SUBMARINE WARFARE																																					
Tracking Test – Maritime Patrol Aircraft	✓		✓			✓				✓	✓		✓	✓			✓	✓		✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tracking Test – Maritime Patrol Aircraft (SUS)			✓		✓	✓				✓	✓		✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table B-2: Stressors by Testing Activity (continued)

Northwest Testing Activity	Biological Resources												Physical Resources ¹					Human Resources ²															
	Acoustic Stressors				Explosive Stressors		Energy Stressors			Physical Disturbance and Strike Stressors			Entanglement Stressors		Ingestion Stressors		Air Quality Stressors	Sediments and Water Quality Stressors			Cultural Resources Stressors	Socioeconomic Resources Stressors		Public Health & Safety Stressors									
	Sonar & Other Transducers	Vessel Noise	Aircraft Noise	Weapons Noise	In-Air Explosions	In-Water Explosions	In-Air Electromagnetic Devices	In-Water Electromagnetic Devices	High-Energy Lasers	Vessels & In-water Devices	Aircraft & Aerial Targets	Military Expended Material	Seafloor Devices	Wires & Cables	Decelerators/Parachutes	Biodegradable Polymer ³	Military Expended Materials – Munitions	Military Expended Materials – Other than Munitions	Criteria Air Pollutants	Explosives	Metals	Chemicals	Other Materials ⁴	Explosives ⁵	Physical Disturbance & Strike ⁶	Accessibility ⁷	Airborne Acoustics ⁸	Physical Disturbance & Strike ⁶	In-Water Energy ⁹	In-Air Energy ¹⁰	Physical Interactions ¹¹		
OTHER TESTING																																	
Intelligence, Surveillance, Reconnaissance (ISR)/Electronic Warfare (EW) Triton Testing			✓			✓				✓																							

¹ Habitat stressors are included under Biological Resources

² Area of interest is U.S. Territorial Waters (seaward of the mean high water line to 12 nautical miles and any inshore waters)

³ Testing activities only

⁴ Other Materials include marine markers and flares, chaff, towed and stationary targets, and miscellaneous components of other expended objects

⁵ Vibration and shock waves from underwater explosions

⁶ Physical disturbance and strike stressors resulting from in-water devices, military expended materials, seafloor devices, and vibration from sonic booms in U.S. territorial waters (seaward of the mean high water line to 12 nautical miles)

⁷ Availability of access on the ocean and in the air

⁸ Loud noises from weapons firing, in-air explosions, and sonic booms

⁹ Active sonar, underwater explosions, vessel movements, mine warfare training devices, and unmanned underwater systems

¹⁰ Sources of electromagnetic energy and lasers

¹¹ Interaction of Navy aircraft, vessels, and equipment with general public

Note: A check indicates events that take place for Alternative 1 and Alternative 2.

