
Appendix F: Training and Testing Activities Matrices

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APPENDIX F TRAINING AND TESTING ACTIVITIES MATRICES

F.1 STRESSOR BY TRAINING ACTIVITY

Table F-1: Stressors by Training Activity

Mariana Islands Training Activity	Biological Resources													Physical Resources						Human Resources											
	Acoustic Stressors						Energy Stressors		Physical Stressors			Entanglement Stressors		Ingestion Stressors	Air Quality Stressors		Sediment and Water Quality Stressors				Acoustics ¹	Physical Disturbance ¹	Accessibility ²	Airborne Acoustics ²	Physical Disturbance and Strikes ²	Underwater Energy ³	In-Air Energy ³	Physical Interactions ³			
	Sonar and other active acoustic sources	Explosives	Swimmer Defense airguns	Weapons firing, launch, and impact noise	Aircraft noise	Vessel noise	Electromagnetic	Lasers	Aircraft and Aerial Targets	Vessels and in-water devices	Military Expended Materials	Seafloor Devices	Fiber-optic cables and guidance wires	Parachutes	Military Expended Materials (munitions and other than munitions)	Criteria Pollutants	Hazardous Air Pollutants	Explosives and explosive byproducts	Metals	Chemicals other than explosives									Other Materials		
ANTI-AIR WARFARE (AAW)																															
Air Combat Maneuver (ACM)						✓					✓						✓	✓	✓		✓		✓	✓			✓	✓			
Air Defense Exercise (ADEX)						✓				✓	✓							✓	✓								✓	✓			
Air Intercept Control (AIC) Medium-Caliber**						✓												✓	✓	✓							✓	✓			
Gunnery Exercise (Air-to-Air) Medium-Caliber				✓	✓	✓				✓							✓	✓	✓		✓				✓	✓	✓	✓			✓
Missile Exercise (Air-to-Air)				✓		✓				✓			✓				✓	✓	✓	✓	✓	✓			✓	✓	✓	✓			✓
Gunnery Exercise (Surface-to-Air) Large-Caliber**				✓	✓	✓				✓	✓						✓	✓	✓	✓	✓	✓			✓	✓	✓	✓			✓
Gunnery Exercise (Surface-to-Air) Medium-Caliber**				✓	✓	✓				✓	✓						✓	✓	✓	✓	✓	✓			✓	✓	✓	✓			✓
Missile Exercise (Surface-to-Air)				✓		✓				✓	✓						✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓			✓
STRIKE WARFARE (STW)																															
Bombing Exercise (Air-to-Ground)						✓				✓	✓							✓	✓		✓			✓	✓		✓				
Gunnery Exercise (Air-to-Ground)						✓				✓	✓							✓	✓		✓			✓	✓		✓				
Missile Exercise MISSILEX						✓				✓	✓							✓	✓		✓			✓	✓		✓				
Combat Search and Rescue						✓				✓	✓																✓	✓			
AMPHIBIOUS WARFARE (AMW)																															
Naval Surface Fire Support Exercise – Land-Based Target					✓						✓							✓	✓							✓	✓				✓
Amphibious Rehearsal, No Landing – Marine Air Ground Task Force**						✓				✓	✓							✓	✓						✓	✓		✓			✓
Amphibious Assault						✓				✓	✓							✓	✓						✓	✓		✓			✓
Amphibious Raid											✓							✓	✓						✓	✓		✓			✓
Urban Warfare Training					✓	✓													✓		✓	✓	✓				✓	✓			

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

Mariana Islands Training Activity	Biological Resources														Physical Resources						Human Resources									
	Acoustic Stressors						Energy Stressors		Physical Stressors				Entanglement Stressors		Ingestion Stressors	Air Quality Stressors		Sediment and Water Quality Stressors				Acoustics ¹	Physical Disturbance ¹	Accessibility ²	Airborne Acoustics ²	Physical Disturbance and Strikes ²	Underwater Energy ³	In-Air Energy ³	Physical Interactions ³	
	Sonar and other active acoustic sources	Explosives	Swimmer Defense airguns	Weapons firing, launch, and impact noise	Aircraft noise	Vessel noise	Electromagnetic	Lasers	Aircraft and Aerial Targets	Vessels and in-water devices	Military Expended Materials	Seafloor Devices	Fiber-optic cables and guidance wires	Parachutes	Military Expended Materials (munitions and other than munitions)	Criteria Pollutants	Hazardous Air Pollutants	Explosives and explosive byproducts	Metals	Chemicals other than explosives	Other Materials									
ANTI-SUBMARINE WARFARE (ASW)																														
Tracking Exercise – Helicopter	✓					✓				✓	✓	✓			✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓
Torpedo Exercise – Helicopter	✓					✓				✓	✓	✓			✓	✓		✓	✓	✓				✓	✓	✓	✓	✓	✓	✓
Tracking Exercise – Maritime Patrol Advanced Extended Echo Ranging Sonobuoys	✓					✓				✓	✓	✓			✓	✓		✓	✓	✓				✓	✓	✓	✓	✓	✓	✓
Tracking Exercise – Maritime Patrol Aircraft	✓					✓				✓	✓	✓			✓	✓		✓	✓	✓				✓	✓	✓	✓	✓	✓	✓
Torpedo Exercise – Maritime Patrol Aircraft	✓					✓				✓	✓	✓			✓	✓		✓	✓	✓				✓	✓	✓	✓	✓	✓	✓
Tracking Exercise – Surface	✓					✓					✓	✓				✓	✓							✓	✓		✓	✓	✓	✓
Torpedo Exercise – Surface	✓					✓					✓	✓				✓	✓							✓	✓		✓	✓	✓	✓
Tracking Exercise – Submarine	✓					✓				✓	✓	✓		✓				✓						✓			✓	✓	✓	✓
Torpedo Exercise – Submarine	✓					✓				✓	✓	✓		✓				✓						✓			✓	✓	✓	✓
MAJOR TRAINING EVENTS																														
Joint Expeditionary Exercise	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Joint Multi-Strike Group Exercise	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fleet Strike Group Exercise*	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Integrated Anti-Submarine Warfare Exercise*	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ship Squadron Anti-Submarine Warfare Exercise*	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Marine Air Ground Task Force Exercise (Amphibious) – Battalion	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special Purpose Marine Air Ground Task Force Exercise	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Urban Warfare Exercise					✓	✓										✓	✓	✓	✓					✓	✓					

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

Mariana Islands Training Activity	Biological Resources															Physical Resources						Human Resources													
	Acoustic Stressors						Energy Stressors		Physical Stressors			Entanglement Stressors		Ingestion Stressors	Air Quality Stressors		Sediment and Water Quality Stressors				Acoustics ¹	Physical Disturbance ¹	Accessibility ²	Airborne Acoustics ²	Physical Disturbance and Strikes ²	Underwater Energy ³	In-Air Energy ³	Physical Interactions ³							
	Sonar and other active acoustic sources	Explosives	Swimmer Defense airguns	Weapons firing, launch, and impact noise	Aircraft noise	Vessel noise	Electromagnetic	Lasers	Aircraft and Aerial Targets	Vessels and in-water devices	Military Expended Materials	Seafloor Devices	Fiber-optic cables and guidance wires	Parachutes	Military Expended Materials (munitions and other than munitions)	Criteria Pollutants	Hazardous Air Pollutants	Explosives and explosive byproducts	Metals	Chemicals other than explosives									Other Materials						
ELECTRONIC WARFARE (EW)																																			
Electronic Warfare Operations (EW Ops)						✓				✓	✓																			✓					✓
Counter Targeting Flare Exercise – Aircraft						✓				✓							✓													✓				✓	
Counter Targeting Chaff Exercise – Ship						✓											✓														✓			✓	
Counter Targeting Chaff Exercise – Aircraft						✓				✓							✓																	✓	
MINE WARFARE (MIW)																																			
Civilian Port Defense**	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mine Laying					✓	✓				✓		✓					✓	✓		✓										✓				✓	
Mine Neutralization – Explosive Ordnance Disposal (EOD)						✓				✓	✓	✓	✓				✓		✓											✓				✓	
Limpet Mine Neutralization System/Shock Wave Generator**																	✓			✓										✓				✓	
Submarine Mine Exercise**																																	✓	✓	
Airborne Mine Countermeasure – Mine Detection	✓				✓				✓			✓					✓	✓													✓			✓	
Mine Countermeasure Exercise (MCM) – Towed Sonar**	✓					✓				✓		✓					✓	✓													✓			✓	
Mine Countermeasure Exercise – Surface (SMCMEX) Sonar**	✓					✓				✓		✓					✓	✓														✓			✓
Mine Neutralization – Remotely Operated Vehicle Sonar**						✓				✓	✓	✓	✓	✓			✓		✓	✓										✓				✓	
Mine Countermeasure (MCM) – Towed Mine Detection**	✓					✓				✓	✓		✓				✓	✓												✓				✓	

F.2 STRESSOR BY TESTING ACTIVITY

Table F-2: Stressors by Testing Activity

Mariana Islands Testing Activity	Biological Resources														Physical Resources						Human Resources								
	Acoustic Stressors						Energy Stressors		Physical Stressors			Entanglement Stressors		Ingestion Stressors	Air Quality Stressors		Sediment and Water Quality Stressors				Acoustics ¹	Physical Disturbance ¹	Accessibility ²	Airborne Acoustics ²	Physical Disturbance and Strikes ²	Underwater Energy ³	In-Air Energy ³	Physical Interactions ³	
	Sonar and other active acoustic sources	Explosives	Swimmer Defense airguns	Weapons firing, launch, and impact noise	Aircraft noise	Vessel noise	Electromagnetic	Lasers	Aircraft and Aerial Targets	Vessels and in-water devices	Military Expended Materials	Seafloor Devices	Fiber-optic cables and guidance wires	Parachutes	Military Expended Materials (munitions and other than munitions)	Criteria Pollutants	Hazardous Air Pollutants	Explosives and explosive byproducts	Metals	Chemicals other than explosives									Other Materials
NAVAL AIR SYSTEMS COMMAND																													
ANTI-SURFACE WARFARE (ASUW)																													
Air-to-Surface Missile Test**			✓			✓				✓		✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ANTI-SUBMARINE WARFARE (ASW)																													
Anti-Submarine Warfare Tracking Test – Maritime Patrol Aircraft (Sonobuoys)**	✓		✓			✓			✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Anti-Submarine Warfare Torpedo Test**	✓					✓			✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Broad Area Maritime Surveillance (BAMS) Testing - MQ-4C Triton**	✓					✓			✓	✓	✓			✓	✓			✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
ELECTRONIC WARFARE (EW)																													
Flare Test**									✓						✓	✓		✓		✓		✓	✓	✓	✓				✓
NAVAL SEA SYSTEMS COMMAND																													
LIFE CYCLE ACTIVITIES																													
Ship Signature Testing**	✓					✓				✓						✓	✓									✓	✓		✓
ANTI-SURFACE WARFARE/ANTI-SUBMARINE WARFARE TESTING																													
Kinetic Energy Weapon Testing**				✓		✓				✓	✓					✓	✓	✓	✓	✓			✓	✓	✓	✓			✓
Torpedo Testing**	✓	✓				✓			✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Countermeasure Testing **	✓					✓				✓	✓			✓	✓							✓			✓	✓			✓
At-sea Sonar Testing**	✓					✓				✓						✓	✓								✓	✓			✓
SHIPBOARD PROTECTION SYSTEMS AND SWIMMER DEFENSE TESTING																													
Pierside Integrated Swimmer Defense**	✓	✓	✓							✓		✓													✓		✓	✓	✓
NEW SHIP CONSTRUCTION																													
ASW Mission Package Testing**	✓					✓	✓			✓	✓	✓			✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MCM Mission Package Testing**	✓	✓				✓	✓			✓	✓		✓			✓	✓	✓					✓	✓	✓	✓	✓	✓	✓
ASUW Mission Package Testing**		✓	✓	✓		✓				✓		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OFFICE OF NAVAL RESEARCH																													
North Pacific Acoustic Lab Philippine Sea 2018–19 Experiment (Deep Water)		✓								✓		✓																	

¹ Cultural resources stressor, ² Socioeconomics stressor, ³ Public health and safety stressor, ** Alternative 1 and Alternative 2 only, Note: A check indicates events that take place for all alternatives.

F.3 STRESSORS BY RESOURCE

Table F-3: Stressors by Resource

Stressors vs. Resources		Biological Resources																		Physical Resources						Human Resources											
		Acoustic Stressors								Energy Stressors		Physical Stressors						Entanglement Stressors		Ingestion Stressors	Invasive Species	Air Quality Stressors		Sediment and Water Quality Stressors													
		Sonar and other active acoustic sources	Explosives	Swimmer Defense airguns	Weapons firing, launch, and impact noise	Aircraft noise	Vessel noise					Electromagnetic	Lasers	Aircraft and Aerial Targets	Vessels and in-water devices	Military Expended Materials	Seafloor Devices	Ground Disturbance	Wildfires	Fiber-optic cables and guidance wires	Parachutes	Military Expended Materials (munitions and other than munitions)	Habitat, Prey availability, Invasive Species Introductions at FDM	Criteria Pollutants	Hazardous Air Pollutants							Explosives and explosive byproducts	Metals	Chemicals other than explosives	Other Materials	Acoustics	Physical Disturbance
Physical	Sediments and Water Quality																								✓	✓	✓	✓									
	Air Quality																							✓	✓												
Biological	Marine Habitats		✓										✓	✓	✓																						
	Marine Mammals	✓	✓	✓	✓	✓	✓			✓			✓	✓	✓				✓	✓	✓					✓	✓	✓	✓								
	Sea Turtles	✓	✓	✓	✓	✓	✓			✓			✓	✓	✓				✓	✓	✓					✓	✓	✓	✓								
	Seabirds and Shorebirds	✓	✓	✓	✓	✓	✓			✓		✓	✓	✓		✓	✓				✓																
	Marine Vegetation		✓										✓	✓	✓											✓	✓	✓	✓								
	Marine Invertebrates	✓	✓	✓	✓	✓	✓						✓	✓	✓					✓	✓	✓				✓	✓	✓	✓								
	Fish	✓	✓	✓	✓	✓	✓			✓			✓	✓	✓					✓	✓	✓				✓	✓	✓	✓								
	Terrestrial				✓		✓					✓		✓			✓	✓					✓														
Human	Cultural Resources			✓									✓	✓	✓														✓	✓							
	Socioeconomic Resources						✓						✓	✓	✓	✓															✓	✓	✓				
	Public Health and Safety	✓	✓	✓	✓		✓				✓	✓	✓	✓																						✓	✓