Appendix A: Training and Testing Activities Descriptions

TABLE OF CONTENTS

LIST OF TABLES

There are no tables in this section.

LIST OF FIGURES

APPENDIX A TRAINING AND TESTING ACTIVITIES DESCRIPTIONS

The United States (U.S.) Department of the Navy (Navy), and the Air Force, Army, Marine Corps, Coast Guard and allies have conducted readiness activities throughout the Mariana Islands and the Pacific Ocean for decades. The tempo and types of training and testing activities have fluctuated within the Mariana Islands Training and Testing (MITT) Study Area (Study Area) due to changing requirements, the introduction of new technologies, the dynamic nature of international events, advances in warfighting doctrine and procedures, and force structure changes. Such developments have influenced the frequency, duration, intensity, and location of required training and testing.

A.1 TRAINING ACTIVITIES

The training activities are organized generally into eight primary mission areas and a miscellaneous category (other training) that includes those activities that do not fall within one of the eight primary mission areas, but are an essential part of training. Many of the activities described here may have a land component, or occur both at sea and on or over land.

In addition, because a number of activities are conducted within major range events, descriptions of those major range events are also included in this appendix. It is important to note that these major range events are comprised entirely of individual activities described in the primary mission areas.

A.1.1 ANTI-AIR WARFARE TRAINING

Anti-air warfare is the primary mission area that addresses combat operations by air and surface forces against hostile aircraft. Navy ships contain an array of modern anti-aircraft weapon systems, including naval guns linked to radar-directed fire-control systems, surface-to-air missile systems, and radar-controlled cannons for close-in point defense. Strike/fighter aircraft carry anti-aircraft weapons, including air-to-air missiles and aircraft cannons. Anti-air warfare training encompasses events and exercises to train ship and aircraft crews in employment of these weapons systems against simulated threat aircraft or targets. Anti-air warfare training includes surface-to-air gunnery, surface-to-air and air-to-air missile exercises, and aircraft force-on-force combat maneuvers.

A.1.1.1 Air Combat Maneuver

Activity Name	Activity Description	
Anti-Air Warfare		
Air Combat Maneuver (ACM)	Aircrews engage in flight maneuvers designed to gain a tactical advantage during combat.	
Long Description	Basic flight maneuvers where aircrew engage in offensive and defensive maneuvering against each other. During an air combat maneuver engagement, no ordnance is fired, countermeasures such as chaff and flares may be used. These maneuvers typically involve two aircraft; however, based upon the training requirement, air combat maneuver exercises may involve over a dozen aircraft. Participants typically are two or more aircraft. No weapons are fired.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (e.g., F/A-18, F-35) **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land: Special Use Airspace/Air Traffic Control Assigned Airspace (ATCAA)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	No munitions fired. Flare and chaff may be used. All flare and chaff accounted for in flare exercise and chaff exercise events.	

A.1.1.2 Air Defense Exercise (ADEX)

Activity Name	Activity Description	
Anti-Air Warfare		
Air Defense Exercises (ADEX)	Aircrew and ship crews conduct defensive measures against threat aircraft or missiles.	
Long Description	Aircrew and ship personnel perform measures designed to defend against attacking threat aircraft or missiles or reduce the effectiveness of such attack. This exercise involves full detection though engagement sequence. Aircraft operate at varying altitudes and speeds. This exercise may include Air Intercept Control exercises that involve aircraft controllers on vessels, in fixed-wing aircraft or at land based locations, use search radars to track and direct friendly aircraft to intercept the threat aircraft, and Detect to Engage exercises in which personnel on vessels use their search radars in the process of detecting, classifying, and tracking enemy aircraft or missiles up to the point of engagement.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (e.g., F/A-18, F-35, E-2), surface vessels (all) **Systems:** None **Ordnance/Munitions:** None **Targets:** Other aircraft, unmanned drones **Duration:** 1–4 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land: Special Use Airspace/ATCAAs
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	No weapons fired.	

A.1.1.3 Air Intercept Control (AIC)

Activity Name	Activity Description	
Anti-Air Warfare		
Air Intercept Control (AIC)	Aircrew and air controllers conduct aircraft intercepts of other aircraft.	
Long Description	Fighter jet aircrews maneuver to defend against threat aircraft. An event involves two or more fighter aircraft.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (e.g., F/A-18C, F-35) **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land: Special Use Airspace/ATCAAs
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	No weapons fired.	

A.1.1.4 Gunnery Exercise (Air-to-Air) – Medium-Caliber

Activity Name	Activity Description	
Anti-Air Warfare		
Gunnery Exercise (Air-to-Air) Medium-Caliber **(GUNEX [A-A] – Medium-Caliber)**	Aircrews defend against threat aircraft with cannons (machine gun).	
Long Description	Fighter jet aircrews defend against threat aircraft with cannons (machine gun). An event involves two or more fighter aircrafts and a target banner towed by a contracted aircraft (e.g., Lear jet). The banner target is recovered after the event when possible.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (e.g., F/A-18C, F-35) **Systems:** None **Ordnance/Munitions:** Medium-caliber projectile (non-explosive) **Targets:** Towed banner **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material (non-explosive projectile) strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Medium-caliber projectiles, casings	
Detailed Military Expended Material Information	Projectiles Casings	
Assumptions used for Analysis	Only non-explosive munitions used. Target is recovered when possible.	

A.1.1.5 Missile Exercise (Air-to-Air)

Activity Name	Activity Description	
Anti-Air Warfare		
Missile Exercise (Air-to-Air) (MISSILEX [A-A])	Aircrews defend against threat aircraft with missiles.	
Long Description	An event involves two or more jet aircraft and a target. Missiles have either a high-explosive warhead or are non-explosive practice munitions. The target is either an unmanned aerial target drone (e.g.: BQM-34, BQM-74), a Tactical Air-Launched Decoy, or a parachute suspended illumination flare. Target drones deploy parachutes and are recovered by boat or helicopter when possible; Tactical Air-Launched Decoys and illumination flares are expended and not recovered. These events typically occur at high altitudes. Anti-air missiles may also be employed when training against threat missiles.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (e.g., F/A-18C, F-35) **Systems:** None **Ordnance/Munitions:** Anti-air missiles (e.g., AIM-7, AIM-9, AIM-120, AIM-132 [non-explosive and high-explosive]) **Targets:** BQM-34, BQM-74 (Figure A-1), illumination flare (e.g., LUU-2) (Figure A-2), Tactical Air-Launched Decoy (Figure A-3) **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (target and missile fragment), aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Military expended materials (missile fragments, parachute, flare casing, target fragments)	
Detailed Military Expended Material Information	Missile and target fragments. Parachutes. Flare casings.	
Assumptions used for Analysis	All missiles are explosive (Alternatives 1 and 2), and all missiles explode at high altitude. All propellant and explosives are consumed. Assume 1.5 flares per Missile Exercise event.	

Figure A-1: BQM-74 (Aerial Target)

Figure A-2: LUU-2B/B Illuminating Flare (Aerial Target)

Figure A-3: Tactical Air-Launched Decoy (Aerial Target)

A.1.1.6 Gunnery Exercise (Surface-to-Air) – Large-Caliber

Activity Name	Activity Description	
Anti-Air Warfare		
Gunnery Exercise (Surface-to-Air) – Large-Caliber (GUNEX [S-A]) – Large-Caliber)	Surface ship crews defend against threat aircraft or missiles with guns.	
Long Description	Surface vessel personnel defend against threat aircraft or missile targets with guns to disable or destroy the threat. An event involves one vessel and a simulated threat aircraft or anti-vessel missile that is detected by the vessel's radar. Large-caliber guns fire projectiles, either non-explosive or high-explosive (configured to explode in air); to disable or destroy the threat before it reaches the vessel. The target is towed by a commercial air services jet.	
Information Typical to the Event	**Platform:** Surface combatant vessel (e.g., CG, DDG, FFG, Littoral Combat Ship), fixed-wing aircraft **Systems:** None **Ordnance/Munitions:** Large-caliber (e.g., 5-inch gun, 76 mm, 57 mm [non-explosive] **Targets:** Towed banners behind aircraft **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, vessel noise, weapons firing noise, in-air explosives **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectiles), vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Projectile fragments, target fragments	
Detailed Military Expended Material Information	Projectiles Target fragments	
Assumptions used for Analysis	All projectiles are assumed to be non-explosive.	

A.1.1.7 Gunnery Exercise (Surface-to-Air) – Medium-Caliber

Activity Name	Activity Description	
Anti-Air Warfare		
Gunnery Exercise (Surface-to-Air) – Medium-Caliber (GUNEX [S-A] – Medium-Caliber)	Surface ship crews defend against threat aircraft or missiles with guns.	
Long Description	Surface vessel personnel defend against threat aircraft or missile targets with guns to disable or destroy the threat. An event involves one vessel and a simulated threat aircraft or anti-vessel missile that is detected by the vessel's radar. Medium-caliber guns fire projectiles, typically non-explosive, to disable or destroy the threat before it reaches the vessel. The target is towed by a commercial air services jet.	
Information Typical to the Event	**Platform:** Surface vessel, fixed-wing aircraft **Systems:** None **Ordnance/Munitions:** Medium-caliber munitions (non-explosive) **Targets:** Towed banners behind aircraft **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area, Special Use Airspace/ATCAAs > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectiles), vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Projectiles, casings	
Detailed Military Expended Material Information	Projectiles Casings	
Assumptions used for Analysis	All projectiles non-explosive. Close In Weapon System employed in all events. Routine Close In Weapon System maintenance related firing can occur throughout study area, as long as a clear range is established.	

A.1.1.8 Missile Exercise (Surface-to-Air)

Activity Name	Activity Description	
Anti-Air Warfare		
Missile Exercise (Surface-to-Air) (MISSILEX [S-A])	Surface ship defends against threat missiles and aircraft with missiles.	
Long Description	Surface vessel crews defend against threat missiles and aircraft with vessel launched missiles. The event involves a simulated threat aircraft or anti-ship missile that is detected by the vessel's radar. Vessel launched anti-air missiles are fired (high-explosive) to disable or destroy the threat. The target typically is a remote controlled drone. Anti-Air missiles may also be used to train against land attack missiles.	
Information Typical to the Event	**Platform:** Surface vessels **Systems:** None **Ordnance/Munitions:** Anti-air missiles (e.g., Sea Sparrow, Standard Missile SM-2, Rolling Airframe Missile [high-explosive]) **Targets:** Unmanned drones (e.g., BQM-34, BQM-74) **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area, Special Use Airspace > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, weapons firing noise, in-air explosives **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (missile fragments), vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Missile fragments	
Detailed Military Expended Material Information	Missile fragments	
Assumptions used for Analysis	Assume all anti-air missiles are high-explosive. Missile explodes well above surface. All explosive and propellant consumed. Target typically not destroyed, unmanned drones are recovered when possible.	

A.1.2 STRIKE WARFARE TRAINING

Strike warfare includes training of fixed-wing fighter/attack aircraft or rotary-wing aircraft in delivery of precision guided munitions, non-guided munitions, rockets, and other ordnance against land targets in all weather and light conditions. Training events typically involve a simulated strike mission with a flight of four or more aircraft. The strike mission may simulate attacks on "deep targets" (i.e., those geographically distant from friendly ground forces), or may simulate close air support of targets within close range of friendly ground forces. Laser designators from aircraft or ground personnel may be employed for delivery of precision guided munitions. Some strike missions involve no-drop events in which prosecution of targets is simulated, but video footage is often obtained by onboard sensors.

A.1.2.1 Bombing Exercise (Air-to-Ground)

Activity Name	Activity Description	
Strike Warfare		
Bombing Exercise (Air-to-Ground) (BOMBEX [A-G])	Fixed-wing aircraft drop bombs against a land target.	
Long Description	Bombing exercise involves training of bomber or strike fighter aircraft delivery of ordnance against land targets in day or night conditions. The bombing exercise may involve close air support training in direct support of and in close proximity to forces on the ground, such as Navy or Marine forces engaged in training exercises on land, and may include the use of targeting laser.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft **Systems:** Targeting laser systems **Ordnance/Munitions:** Typical: MK-76, BDU-45, and BDU-45 (non-explosive), and MK-80 series bombs (explosive) **Targets:** Land targets **Duration:** 1–2 hours	**Location:** Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, explosive noise **Energy:** Targeting laser **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Bombs are released in accordance with range standard operating procedures. Land targets only.	

A.1.2.2 Gunnery Exercise (Air-to-Ground)

Activity Name	Activity Description	
Strike Warfare		
Gunnery Exercise (Air-to-Ground) (GUNEX [A-G])	Helicopter crews fire guns at stationary land targets; fixed-winged aircraft also strafe land targets.	
Long Description	Fixed-wing aircraft and helicopter crews use guns to attack ground targets, day or night, with the goal of destroying or disabling enemy vehicles, structures, or personnel. Aircraft will fire a burst of rounds, then break off and reposition for another strafing run until each aircraft expends its exercise ordnance allowance. This exercise may include the use of targeting laser.	
Information Typical to the Event	**Platform:** Fixed-wing and rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** Small-, medium-, and large-caliber projectiles (e.g.,20/25/30 mm, 50-caliber and 7.63 mm, 105 mm) **Targets:** Land Targets **Duration:** 1 hour	**Location:** Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** Targeting laser **Physical Disturbance and Strike:** Air strike (birds only) **Entanglement:** None **Ingestion:** Projectile fragments and casings	
Detailed Military Expended Material Information	Projectile casings	
Assumptions used for Analysis	Land-based targets only.	

A.1.2.3 Missile Exercise

Activity Name	Activity Description	
Strike Warfare		
Missile Exercise (MISSILEX)	Missiles or rockets are launched against a land target.	
Long Description	Fixed-wing aircraft, helicopter, ship or submarine crews use missiles to attack ground targets, day or night, with the goal of destroying or disabling enemy vehicles, structures, or personnel.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, helicopters, ships, submarines **Systems:** Targeting laser systems **Ordnance/Munitions:** Missiles or rockets (explosive) **Targets:** Land targets **Duration:** 1–2 hours	**Location:** Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft and missile/rocket noise **Energy:** Targeting laser **Physical Disturbance and Strike:** Vessel strike**,** airstrike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	Missile booster sections	
Assumptions used for Analysis	Land-based targets only	

A.1.2.4 Combat Search and Rescue

Activity Name	Activity Description	
Strike Warfare		
Combat Search and Rescue (CSAR)	CSAR units use helicopters, night vision and identification systems, and insertion and extraction techniques under hostile conditions to locate, rescue, and extract personnel.	
Long Description	An event involves two or more rescue aircraft.	
Information Typical to the Event	**Platform:** Helicopters **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–2 hours	**Location:** Mariana Islands Range Complex; Rota Airport
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	No weapons fired.	

A.1.3 AMPHIBIOUS WARFARE TRAINING

Amphibious warfare is a type of naval warfare involving the utilization of naval firepower and logistics, and Marine Corps landing forces to project military power ashore. Amphibious warfare encompasses a broad spectrum of operations involving maneuver from the sea to objectives ashore, ranging from reconnaissance or raid missions involving a small unit, to large-scale amphibious operations involving over one thousand Marines and Sailors, and multiple ships and aircraft embarked in a Strike Group.

Amphibious warfare training includes tasks at increasing levels of complexity, from individual, crew, and small unit events to large task force exercises. Individual and crew training include the operation of amphibious vehicles and naval gunfire support training. Small-unit training operations include events leading to the certification of a Marine Expeditionary Unit as "deployment ready" or "special operations capable," depending on if Marine Special Forces are attached to the unit. Such training includes shore assaults, boat raids, airfield or port seizures, and reconnaissance. Larger-scale amphibious exercises involve ship-to-shore maneuver, shore bombardment and other naval fire support, and air strike and close air support training.

A.1.3.1 Naval Surface Fire Support Exercise – Land-Based Target

Activity Name	Activity Description	
Amphibious Warfare		
Naval Surface Fire Support Exercise – Land-Based Target (FIREX [Land])	Surface ship crews use large-caliber guns to fire on land-based targets in support of forces ashore.	
Long Description	One or more vessels position themselves offshore the target area and a land or air based spotter relays type and exact location of the target. After observing the fall of the shot, the spotter relays any adjustments needed to reach the target. Once the rounds are on target, the spotter requests a sufficient number to effectively destroy the target. This exercise occurs on land ranges where high-explosive and non-explosive practice ordnance is authorized and may be supported by target shapes on the ground.	
Information Typical to the Event	**Platform:** Surface combatant vessels (e.g., CG, DDG) **Systems:** None **Ordnance/Munitions:** large-caliber (explosive and non-explosive) **Targets:** Land targets **Duration:** 4–6 hours	**Location:** Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** Projectile fragments and casings	
Detailed Military Expended Material Information	Casings	
Assumptions used for Analysis	Land-based targets	

A.1.3.2 Amphibious Rehearsal, No Landing – Marine Air Ground Task Force

Activity Name	Activity Description	
Amphibious Warfare		
Amphibious Rehearsal, No Landing – Marine Air Ground Task Force	Amphibious shipping, landing craft, and aviation elements of the Marine Air Ground Task Force rehearse amphibious landing operations without conducting an actual landing on shore.	
Long Description	Amphibious vessels maneuver to position, flood well decks, and launch and recover landing craft including hovercraft, combat rubber raiding craft, armored amphibious craft, landing craft ship, and task force aircraft in assault landing rehearsals. Assault craft form landing waves and approach shore without landing.	
Information Typical to the Event	**Platform:** Amphibious shipping, amphibious assault craft, and fixed wing, rotary, and tilt rotor aircraft **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–2 days	**Location:** Study Area and Nearshore
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Assault craft turn away before entering surf zone or landing zone. Typical event: 1–3 amphibious vessels (e.g., LHA or LHD, LPD, LSD); 2-8 landing craft (Landing Craft, Air Cushioned; Landing Craft, Utility); 4–14 amphibious assault vehicles; up to 22 aircraft (e.g., MH-53, H-46/MV-22, AH-1, UH-1, AV-8); a Marine Expeditionary Unit (2,200 Marines)	

A.1.3.3 Amphibious Assault

Activity Name	Activity Description	
Amphibious Warfare		
Amphibious Assault	Forces move ashore from ships at sea for the immediate execution of inland objectives.	
Long Description	Landing forces embarked in vessels, craft, or tilt-rotor and helicopters launch an attack from the sea onto a hostile shore. Amphibious assault is conducted for the purposes of prosecuting further combat operations, obtaining a site for an advanced naval or airbase, or denying the enemy use of an area. Unit Level Training exercises involve one or more amphibious vessels, and their associated watercraft and aircraft, to move personnel and equipment from vessel to shore without the command and control and supporting elements involved in a full scale event. The goal is to practice loading, unloading, and movement and to develop the timing required for a full-scale exercise.	
Information Typical to the Event	**Platform:** Amphibious and landing vessels (e.g., LHA, LHD, LPD, LSD), amphibious vehicles, fixed wing, rotary and tilt-rotor aircraft **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions **Targets:** None **Duration:** Up to 2 weeks	**Location:** Mariana Islands Range Complex; Tinian; Guam
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only), vehicle strike (pedestrian), physical disturbance (coral, sea-turtle nests) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Typical event: 1–3 amphibious vessels (e.g., LHA or LHD, LPD, LSD); 2–8 landing craft (Landing Craft, Air Cushioned; Landing Craft, Utility); 4–14 amphibious assault vehicles; up to 22 aircraft (e.g., MH-53, H-46/MV-22, AH-1, UH-1, AV-8); a Marine Expeditionary Unit (2,200 Marines)	

A.1.3.4 Amphibious Raid

Activity Name	Activity Description	
Amphibious Warfare		
Amphibious Raid	Small unit forces move swiftly from ships at sea for a specific short term mission. These are quick operations with raids sized to the mission requirement and no larger.	
Long Description	Small unit forces swiftly move from amphibious vessels at sea into hostile territory for a specific mission, including a planned withdrawal. Raids are conducted to inflict loss or damage, secure information, create a diversion, confuse the enemy, or capture or evacuate individuals or material. Amphibious raid forces are sized to maximize stealth and speed of the operation. An event may employ assault amphibian vehicle units, small boat units, combat rubber raiding craft, and small unit live-fire and non-live-fire operations. Surveillance or reconnaissance unmanned surface and aerial vehicles may be used during this event.	
Information Typical to the Event	**Platform:** Amphibious assault vessels (e.g., LHA, LHD), amphibious transport dock and dock landing ships (e.g., LPD, LSD), amphibious vehicles (landing crafts, air cushioned, and amphibious assault vehicles), small boats (e.g., rigid-hull inflatable boats, combat rubber raiding craft) **Systems:** Unmanned surface and aerial vehicles **Ordnance/Munitions:** Blanks, Simunitions. **Targets:** None **Duration:** 4–8 hours	**Location:** Mariana Islands Range Complex; Tinian; Guam; Rota (no beach landings are contemplated for Rota)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, vehicle strike (pedestrian), physical disturbance (coral, sea-turtle nests) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Small-caliber weapons with training blanks and Simunitions. Firing of weapons at sea during these events accounted for in gunnery exercises, surface to surface activities.	

A.1.3.5 Urban Warfare Training

Activity Name	Activity Description	
Amphibious Warfare		
Urban Warfare Training	Forces sized from squad (13 Marines) to battalions (approximately 950) conduct training activities in mock urban environments.	
Long Description	Military units provide integrated and effective ground and air support for maneuver and battle in an urban environment	
Information Typical to the Event	**Platform:** Trucks, unmanned aerial vehicles, rotor and tilt-rotor aircraft, fixed-wing strike fighter or attack aircraft **Systems:** **Ordnance/Munitions:** Blanks, Simunitions **Targets:** None **Duration:** 8 days	**Location:** Mariana Islands Range Complex; Tinian; Guam
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike. **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Land-based activity.	

A.1.3.6 Noncombatant Evacuation Operation

Activity Name	Activity Description	
Amphibious Warfare		
Noncombatant Evacuation Operation	Military units evacuate noncombatants from hostile or unsafe areas or provide humanitarian assistance in times of disaster	
Long Description	Military units provide integrated and effective vessel, ground, and close air support, in support of task force operations to evacuate noncombatants.	
Information Typical to the Event	**Platform:** Surface vessels, amphibious vessels, rotary-wing and tilt rotor aircraft, fixed-wing strike fighter or attack aircraft, unmanned aerial vehicles **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions **Targets:** None **Duration:** 5 days	**Location:** Mariana Islands Range Complex; Guam; Tinian; Rota
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** Aircraft strike, vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Sea-, land-, and air-based activity.	

A.1.3.7 Humanitarian Assistance Operations/Disaster Relief Operations

Activity Name	Activity Description	
Amphibious Warfare		
Humanitarian Assistance Operation/Disaster Relief Operations	Military units evacuate noncombatants from hostile or unsafe areas or provide humanitarian assistance in times of disaster.	
Long Description	Military units evacuate noncombatants from hostile or unsafe areas to safe havens or to provide humanitarian assistance in times of disaster. Non-Combatant Evacuation Operation is conducted by military units (generally Marine Corps) usually operating in conjunction with Navy ships and aircraft. Noncombatants are evacuated when their lives are endangered by war, civil unrest, or natural disaster. Marine Corps Marine expeditionary unit train for evacuations in hostile environments that require the use of force, though usually there is no opposition to evacuation from the host country. Helicopters and landing crafts could be expected to participate in this operation during day or night. No ordnance is used.	
Information Typical to the Event	**Platform:** Rotary, tilt-rotor and fixed-wing aircraft, amphibious vessels **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Varies	**Location:** Mariana Islands Range Complex; Guam; Tinian; Rota
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike, vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Sea-, land-, and air-based activity.	

A.1.3.8 Unmanned Aerial Vehicle – Intelligence, Surveillance, and Reconnaissance

Activity Name	Activity Description	
Amphibious Warfare		
Unmanned Aerial Vehicles Ops (UAV OPS)	Military units employ unmanned aerial vehicles to launch, operate, and gather intelligence for specified amphibious missions.	
Long Description	Unmanned aerial vehicles may be launched from ships or ground and are used to gather tactical or theater level intelligence.	
Information Typical to the Event	**Platform:** Rotary and fixed-wing aircraft, vessels **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Varies	**Location:** Mariana Islands Range Complex; Special Use Airspace
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike, vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Sea-, land-, and air-based activity.	

A.1.4 ANTI-SURFACE WARFARE TRAINING

Anti-surface warfare is a type of naval warfare in which aircraft, surface ships, and submarines employ weapons and sensors in operations directed against enemy surface ships or boats. Air-to-surface exercises are conducted by long-range attacks using air-launched cruise missiles or other precision guided munitions, or using aircraft cannon. Anti-surface warfare also is conducted by warships employing torpedoes, naval guns, and surface-to-surface missiles. Submarines attack surface ships using torpedoes or submarine-launched, anti-ship cruise missiles. Training in anti-surface warfare includes surface-to-surface gunnery and missile exercises, air-to-surface gunnery and missile exercises, and submarine missile or torpedo launch events. Gunnery and missile training generally involves expenditure of ordnance against a towed target. A sinking exercise is a specialized training event that provides an opportunity for ship, submarine, and aircraft crews to use multiple weapons systems to deliver high-explosive ordnance on a deactivated vessel, which is deliberately sunk.

Anti-surface warfare also encompasses maritime security, such as the interception of a suspect surface ship by a Navy ship for the purpose of boarding-party inspection or the seizure of the suspect ship. Training in these tasks is conducted in visit, board, search and seizure exercises.

A.1.4.1 Gunnery Exercise (Air-to-Surface) – Small-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise (Air-to-Surface) – Small-Caliber	**Short Description:** Helicopter aircrews, including embarked personnel, use small-caliber guns to engage surface targets.	
Long Description	Helicopters, carrying several air crewmen, fly a racetrack pattern around an at-sea target. Each gunner will engage the target with small-caliber weapons. Targets range from a smoke float, an empty steel drum, to high speed remote controlled boats and jet-skis.	
Information Typical to the Event	**Platform:** Helicopter **Systems:** None **Ordnance/Munitions:** Small-caliber (non-explosive) **Targets:** Recoverable or expendable floating target (stationary or towed), remote high speed target **Duration:** 1 hour	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** In-water device strike, military expended material strike (projectiles, target fragments), aircraft strike (birds only) **Entanglement:** None **Ingestion:** Projectiles, target fragments, casings	
Detailed Military Expended Material Information	Projectiles, target fragments, casings	
Assumptions used for Analysis	One target used per event. Expendable smoke float (50 percent), stationary target (45 percent), or remote controlled target (5 percent).	

A.1.4.2 Gunnery Exercise (Air-to-Surface) – Medium-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise (Air-to-Surface) – Medium-Caliber	Fixed-wing and helicopter aircrews, including embarked personnel, use medium-caliber guns to engage surface targets.	
Long Description	Fighter and helicopter aircrew, including embarked personnel, engage surface targets with medium-caliber guns. Targets simulate enemy ships, boats, swimmers, and floating/near-surface mines. Fighter aircraft descend on a target firing high-explosive or non-explosive practice munitions medium-caliber projectiles. Helicopters, carrying several air crewmen, fly a racetrack pattern around an at-sea target. Crew will engage the target with medium-caliber weapons. Targets range from a smoke float, an empty steel drum, to high speed remote controlled boats and jet-skis.	
Information Typical to the Event	**Platform:** Fixed-wing (e.g., F/A-18, F-35); Helicopter (e.g., MH-60) **Systems:** None **Ordnance/Munitions:** Medium-caliber (non-explosive and explosive) **Targets:** Recoverable or expendable floating target (stationary or towed), Remote high speed target **Duration:** 1 hour	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land; Transit Corridor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosions (E1), aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectile, target fragments), in-water device strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Projectile, casings and target fragments	
Detailed Military Expended Material Information	Projectiles, casings, projectile and target fragments One target used per event. Expendable smoke float (50 percent), stationary target (45 percent), or remote controlled target (5 percent).	
Assumptions used for Analysis	Most medium-caliber air-to-surface gunnery exercises will be with non-explosive training projectiles. High-explosive rounds will supplement when non-explosive training projectiles are not available.	

A.1.4.3 Missile Exercise (Air-to-Surface) – Rocket

Activity Name	Activity Description	
Anti-Surface Warfare		
Missile Exercise (Air-to-Surface) Rocket (MISSILEX [A-S]) – Rocket)	Fixed-wing and helicopter aircrew fire precision-guided/unguided rockets against surface targets.	
Long Description	Fighter, maritime patrol aircraft, and helicopter aircrews fire precision-guided/unguided rockets against surface targets. Aircraft involved may be unmanned. Fixed-wing aircraft (fighters or maritime patrol aircraft) approach an at-sea surface target from high altitude and launch precision guided/unguided rockets. Helicopters designate an at-sea surface target with a laser or optics for precision guided rockets.	
Information Typical to the Event	**Platform:** Fixed-wing (e.g., F/A18, F-35, P-8, P-3, unmanned aerial vehicle) Helicopters (MH-60, Fire Scout) **Systems:** None **Ordnance/Munitions:** Rockets (explosive) **Targets:** Recoverable floating target (stationary or towed) **Duration:** 1 hour	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosions (E5), aircraft noise **Energy:** Target Laser **Physical Disturbance and Strike:** In-water device strike, military expended material strike (rocket, rocket and target fragments) **Entanglement:** None **Ingestion:** Target fragments, rocket fragments	
Detailed Military Expended Material Information	Rockets, rocket fragments Target fragments	
Assumptions used for Analysis	Assume all rockets are explosive and detonate in water.	

A.1.4.4 Missile Exercise (Air-to-Surface)

Activity Name	Activity Description	
Anti-Surface Warfare		
Missile Exercise (Air-to-Surface) (MISSILEX [A-S])	Fixed-wing and helicopter aircrews fire precision-guided missiles against surface targets.	
Long Description	Fighter, maritime patrol aircraft, and helicopter aircrews fire both precision-guided missiles and unguided rockets against surface targets. Aircraft involved may be unmanned. Fixed-wing aircraft (fighters or maritime patrol aircraft) approach an at-sea surface target from high altitude, and launch high-explosive precision guided missiles. Helicopters designate an at-sea surface target with a laser or optics for a precision guided high-explosive missile. Helicopter launched missiles typically pass through the target's "sail," and detonate at, or just below, the water's surface.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft and helicopters **Systems:** None **Ordnance/Munitions:** Missiles (high-explosive or non-explosive) **Targets:** Recoverable floating target (stationary or towed), Remotely operated target **Duration:** 2 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosions (E6, E8, E10), aircraft noise, tow vessel noise **Energy:** None **Physical Disturbance and Strike:** In-water device strike, military expended material strike (missile fragment), aircraft strike (birds only) **Entanglement:** None **Ingestion:** Missile fragments, target fragments	
Detailed Military Expended Material Information	Missile fragments Target fragments	
Assumptions used for Analysis	Assume one explosive missile and one target per event. While missile could explode above water's surface after contacting target, analysis assumes all warheads explode at or just below surface.	

A.1.4.5 Laser Targeting (At Sea)

Activity Name	Activity Description	
Anti-Surface Warfare		
Laser Targeting (At Sea)	Fixed-winged, helicopter, and ship crews illuminate enemy targets with lasers.	
Long Description	Fixed-winged and helicopter aircrew and shipboard personnel illuminate enemy targets with lasers for engagement by aircraft with laser guided bombs or missiles. This exercise may be conducted alone or in conjunction with other events utilizing precision guided munitions, such as anti-surface missiles and guided rockets. Events where weapons are fired are addressed in the appropriate activity (e.g., air-to-surface missile exercise). Lower powered lasers may also be used as non-lethal deterrents during maritime security operations (force protection).	
Information Typical to the Event	**Platform:** Vessels, fixed-wing aircraft, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** None unless conducted with other event (e.g., missile exercise) **Targets:** Land targets, Remote-controlled surface targets **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** In-air low energy lasers **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Laser targeting for missile/rocket guidance will occur in areas where these events also occur.	

A.1.4.6 Bombing Exercise (Air-to-Surface)

Activity Name	Activity Description	
Anti-Surface Warfare		
Bombing Exercise (Air-to-Surface) (BOMBEX [A-S])	Fixed-wing aircrews deliver bombs against surface targets.	
Long Description	Fixed-wing aircrews deliver bombs against surface targets. Fixed-wing aircraft conduct a bombing exercise against stationary floating targets (e.g., MK-58 smoke buoy). An aircraft clears the area, deploys a smoke buoy or other floating target, and then delivers high-explosive or non-explosive practice munitions bomb(s) on the target. A range boat may be used to deploy targets for an aircraft to attack. Exercises for strike fighters typically involve a flight of two aircraft delivering unguided or guided munitions that may be either high-explosive or non-explosive practice munitions. The following munitions may be employed by aircraft in the course of the bombing exercise: Typical unguided munitions: Non-explosive Sub Scale Bombs (MK-76 and BDU-45); explosive and non-explosive general purpose bombs (MK-80 series). Precision-guided munitions: Laser-guided bombs (explosive, non-explosive); Laser-guided Training Rounds (non-explosive); Joint Direct Attack Munition (explosive, non-explosive).	
Information Typical to the Event	**Platform:** Fixed-wing **Systems:** None **Ordnance/Munitions:** Bombs (e.g., MK-76, BDU-45, MK-80 series [high-explosive, non-explosive]) **Targets:** Expendable floating target (e.g., smoke float) **Duration:** 1 hour	**Location:** Mariana Islands Training and Testing Study Area > 50 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosions (e.g., E12), aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive bomb), aircraft strike (birds only) **Entanglement:** None **Ingestion:** Bomb fragments, target fragments, smoke floats	
Detailed Military Expended Material Information	Bomb fragments Target fragments Smoke floats	
Assumptions used for Analysis	Explosive bombs are assumed to explode just beneath the surface.	

A.1.4.7 Torpedo Exercise (Submarine-to-Surface)

Activity Name	Activity Description	
Anti-Surface Warfare		
Torpedo Exercise (Submarine-to-Surface)	Submarine attacks a surface target using exercise or live-fire torpedoes.	
Long Description	Submarines track and engage a surface target with non-explosive exercise torpedoes.	
Information Typical to the Event	**Platform:** Submarine, helicopter or vessel torpedo retrieval craft **Systems:** None **Ordnance/Munitions:** Non-explosive exercise torpedo **Targets:** Surface vessel **Duration:** 2–4 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, hull mounted sonar (MF3), heavyweight torpedo (TORP2), aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike **Entanglement:** Guidance wire **Ingestion:** None	
Detailed Military Expended Material Information	Guidance wire	
Assumptions used for Analysis	The exercise torpedo is recovered by a support craft or helicopter.	

A.1.4.8 Missile Exercise (Surface-to-Surface)

Activity Name	Activity Description	
Anti-Surface Warfare		
Missile Exercise (Surface-to-Surface) (MISSILEX [S-S])	Surface vessel crews defend against surface vessel threats with missiles.	
Long Description	Surface vessels launch missiles at surface maritime targets with the goal of destroying or disabling enemy vessels or boats. After detecting and confirming a surface threat, the vessel will fire precision guided anti-surface missile. Events with destroyers and cruisers will involve long range (over the horizon) harpoon (or similar) anti surface missiles. While past harpoon events occurred during sinking exercises, requirement exists for non-sinking exercise events to certify ship crews. If a sinking exercise target is unavailable, towed sled would likely be used. Events with Littoral Combat Ships may involve shorter range anti-surface missiles. Events with Littoral Combat Ships would be to certify vessel's crew to defend against "close in" (less than 10 miles) surface threats. These exercises are live fire, that is, a missile is fired down range. Anti-surface missiles could be equipped with either high-explosive or non-explosive warheads.	
Information Typical to the Event	**Platform:** Surface vessels (e.g., CG, DDG, LCS) **Systems:** None **Ordnance/Munitions:** Anti-surface missiles, Harpoons (explosive and non-explosive) **Targets:** High speed surface targets, towed sleds **Duration:** 2–4 hours	**Location:** Mariana Islands Training and Testing Study Area > 50 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosions (e.g., E6, E10), vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike, military expended material strike (missile and target fragments) **Entanglement:** None **Ingestion:** Missile fragments, target fragments	
Detailed Military Expended Material Information	Missiles, missile fragments Target fragments	
Assumptions used for Analysis	Assume one missile and one target per event. While missile could explode above water's surface after contacting target, analysis assumes all warheads explode at or just below surface.	

A.1.4.9 Gunnery Exercise (Surface-to-Surface) Ship – Large-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise Surface-to-Surface (Ship) – Large-Caliber (GUNEX [S-S] Ship – Large-Caliber)	Ship crews engage surface targets with ship's large-caliber guns.	
Long Description	This exercise involves vessels' gun crews engaging surface targets at sea with their large-caliber (typically 57 mm, 76 mm, and 5-inch) guns. Targets may include the QST-35 (Figure A-5) seaborne powered target, high speed maneuverable surface target, or a specially configured remote controlled water craft. Some targets are expended during the exercise and are not recovered. The exercise proceeds with the target boat approaching from about 10 nm distance. The target is tracked by radar and when within a predetermined range, it is engaged first with "warning shots." As threats get closer all weapons may be used to disable the threat. This exercise may involve a single firing vessel, or be undertaken in the context of a coordinated larger exercise involving multiple ships, including a major training event. Large-caliber guns will also be fired during weapon certification events and in conjunction with weapon maintenance. During all events, either high-explosive or non-explosive rounds may be used. High explosive rounds can either be fused for detonation on impact (with water surface or target), or for proximity to the target (in air detonation).	
Information Typical to the Event	**Platform:** Surface combatant vessels **Systems:** None **Ordnance/Munitions:** Large-caliber (e.g., 57 mm, 76 mm, and 5-inch [high-explosive and non-explosive]) **Targets:** Remote controlled high speed targets **Duration:** Up to 3 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land; Transit corridor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosions (e.g., E3, E5), vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, target strike, military expended material strike (projectile, target fragments) **Entanglement:** None **Ingestion:** Target fragments, projectile fragments	
Detailed Military Expended Material Information	Large-caliber projectiles and casings Target fragments Projectile fragments	
Assumptions used for Analysis	For analytical purposes assume all high-explosive rounds are fused to detonate upon impact with water surface or target. After impacting the water, the high-explosive rounds are expected to detonate within three feet of the surface. Non-explosive rounds and fragments from the high-explosive rounds will sink to the bottom of the ocean. Assume each non-explosive projectile will be up to 5-inch diameter.	

A.1.4.10 Gunnery Exercise (Surface-to-Surface) Ship – Small-Caliber and Medium-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise Surface-to-Surface (Ship) – Small-Caliber and Medium-Caliber **(GUNEX [S-S] Ship – Small-Caliber and Medium-Caliber)**	Ship crews engage surface targets with ship's small- and medium-caliber guns.	
Long Description	This exercise involves vessel crews engaging surface targets at sea with small-caliber and medium-caliber weapons. Vessels use small- and medium-caliber weapons to practice defensive marksmanship, typically against a stationary floating target and high speed mobile targets. Some targets are expended during the exercise and are not recovered.	
Information Typical to the Event	**Platform:** Surface vessels **Systems:** None **Ordnance/Munitions:** Small-caliber (non-explosive); Medium-caliber (high-explosive or non-explosive). **Targets:** Recoverable and expendable floating target (stationary or towed), remote control high-speed targets **Duration:** 2–3 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land; Transit Corridor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E1), vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, target strike, military expended material strike (projectiles) **Entanglement:** None **Ingestion:** Small-caliber/Medium-caliber projectiles and casings, target fragments, projectile fragments	
Detailed Military Expended Material Information	Small- and medium-caliber projectiles and casings, target fragments, projectile fragments Approximately 200 small- and medium-caliber rounds per event One target used per event. Approximately 50 percent of targets are “Killer Tomatoes” (usually recovered). Approximately 35 percent are high-speed maneuvering targets, which are recovered. Approximately 15 percent of targets are other stationary targets such as a steel drum.	
Assumptions used for Analysis	None	

A.1.4.11 Sinking Exercise (SINKEX)

Activity Name	Activity Description	
Anti-Surface Warfare		
Sinking Exercise (SINKEX)	Aircraft, ship, and submarine crews deliver ordnance on a seaborne target, usually a deactivated ship, which is deliberately sunk using multiple weapon systems.	
Long Description	Ship personnel and aircrew deliver high-explosive ordnance on a seaborne target, (large deactivated vessel), which is deliberately sunk using multiple weapon systems. A sinking exercise is typically conducted by aircraft, surface vessels, and submarines in order to take advantage of the ability to fire high-explosive ordnance on a full size ship target. The target is typically a decommissioned ship made environmentally safe for sinking according to U.S. Environmental Protection Agency standards. The location is greater than 50 nautical miles from shore and in water depths greater than 6,000 feet. Vessel, aircraft, and submarine crews attack with coordinated tactics and deliver live high-explosive ordnance to sink the target. Non-explosive practice munitions may be used during the initial stages to extend target life. Typically, the exercise lasts for 4–8 hours and possibly over 1–2 days, however it is unpredictable, and ultimately ends when the ship sinks.	
Information Typical to the Event	**Platform:** Vessels, Aircraft, Submarines **Systems:** None **Ordnance/Munitions:** Potentially all available (explosive and non-explosive), torpedo **Targets:** Decommissioned ship made environmentally safe for sinking (according to U.S. Environmental Protection Agency standards) **Duration:** 4–8 hours, possibly over 1–2 days (unpredictable and ultimately ends when the ship sinks)	**Location:** Mariana Islands Training and Testing Study Area > 50 nm from land in water depths > 6,000 feet
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosions (e.g., E5, E8, E9, E11), vessel noise, aircraft noise, weapons firing noise **Energy:** In-air low energy lasers **Physical Disturbance and Strike:** Military expended material strike (non-explosive projectiles, projectile fragments), vessel strike, aircraft strike (birds only) **Entanglement:** Guidance wires **Ingestion:** Munitions fragments, casings	
Detailed Military Expended Material Information	Munitions fragments, non-explosive ordnance, guidance wires, casings Ship hulk (decommissioned ship made environmentally safe for sinking according to U.S. Environmental Protection Agency standards)	

Sinking Exercise (SINKEX) (continued)

Activity Name	Activity Description
Anti-Surface Warfare	
Assumptions used for Analysis *(Representative ordnance. Actual ordnance used will vary [typically less than shown])*	Greater than 50 nautical miles from shore and in water depths greater than 6,000 feet Typical participants and assets: • One full-size target ship hulk • One to five ships • One to 10 fixed-wing aircraft • One or two combatant helicopters • One Command and Control aircraft • One submarine • One to three range clearance aircraft • Nine to 42 explosive missiles • Two to 28 bombs • Fifty to 800 large caliber rounds • One to two heavyweight submarine-launched torpedo • One to four explosive demolitions • Assume 2 guidance wires expended per event

A.1.4.12 Gunnery Exercise (Surface-to-Surface) Boat – Small-Caliber and Medium-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise Surface-to-Surface (Boat) – Small-Caliber and Medium-Caliber **(GUNEX [S-S] Boat)**	Small boat crews engage surface targets with small- and medium-caliber weapons.	
Long Description	Boat crews engage surface targets with small- and medium-caliber weapons. Boat crews may use high or low speeds to approach and engage targets simulating other boats, floating mines, or near shore land targets with small- and medium-caliber (up to and including 40mm) weapons. A commonly used target is an empty steel drum. A number of different types of boats are used depending on the unit using the boat and their mission. Boats are mostly used to protect ships in harbors and high value units, such as: aircraft carriers, nuclear submarines, liquid natural gas tankers, etc., while entering and leaving ports, as well as to conduct riverine operations, and various naval special warfare operations. The boats used by these units include: small unit river craft, combat rubber raiding craft, rigid-hull inflatable boats, patrol craft, and many other versions of these types of boats. These boats use inboard or outboard, diesel or gasoline engines with either propeller or water jet propulsion.	
Information Typical to the Event	**Platform:** Boats **Systems:** None **Ordnance/Munitions:** Small- and medium-caliber (up to and including 40mm [explosive and non-explosive]) **Targets:** Recoverable or expendable floating target (Figure A-4) (stationary or towed) **Duration:** 1 hour	**Location:** Mariana Islands Training and Testing Study Area >12 nm [explosive rounds] Study Area > 3 nm from land [non-explosive rounds] Transit Corridor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosions (E2), vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectile, target fragments), vessel and in-water device strike **Entanglement:** None **Ingestion:** Projectiles and target fragments, projectiles, casings	
Detailed Military Expended Material Information	Projectiles and target fragments, projectiles, casings One target used per event, typically a stationary target such as a 50-gallon (189-liter) steel drum.	
Assumptions used for Analysis	Assume all Alternatives 1 and 2 events include the use of some explosive rounds. Most events will involve boat crews training with MK 203 40mm grenade launcher.	

A.1.4.13 Maritime Security Operations (MSO)

Activity Name	Activity Description	
Anti-Surface Warfare		
Maritime Security Operations (MSO)	Helicopter and surface ship crews conduct a suite of Maritime Security Operations (e.g., Vessel, Search, Board, and Seizure; Maritime Interdiction Operations; Force Protection; and Anti-Piracy Operation).	
Long Description	Helicopter and surface ship crews conduct a suite of Maritime Security Operations (e.g., visit search, board, and seizure; maritime interdiction operations; force protection; and anti-piracy operation). These activities involve training of boarding parties delivered by helicopters and surface ships to surface vessels for the purpose of simulating vessel search and seizure operations. Various training scenarios are employed and may include small arms with non-explosive blanks and surveillance or reconnaissance unmanned surface and aerial vehicles, and anti-swimmer grenades. The entire exercise may last 2–3 hours. Vessel Visit, Board, Search, and Seizure: Military and U.S. Coast Guard personnel from vessels and aircraft board suspect vessels, potentially under hostile conditions. Maritime Interdiction Operations: Vessels and aircraft train in pursuing, intercepting, and ultimately detaining suspect vessels. Oil Platform Defense: Naval personnel train to defend oil platforms or other similar at sea structures. Warning Shot/Disabling Fire: Naval and U.S. Coast Guard personnel train in the use of weapons to force fleeing or threatening small boats (typically operating at high speeds) to come to a stop. Ship Force Protection: Vessel crews train in tracking multiple approaching, circling small craft, assessing threat potential, and communicating amongst crewmates and other vessels to ensure vessels are protected against attack. Anti-Piracy Training: Naval and U.S. Coast Guard personnel train in deterring and interrupting piracy activity. Training includes large vessels (pirate “mother ships”), and multiple small, maneuverable, and fast craft.	
Information Typical to the Event	**Platform:** Surface vessel (any), rotary-wing aircraft, small boats, high speed vessels, unmanned vehicles (surface and aerial) **Systems:** None **Ordnance/Munitions:** Small-caliber (non-explosive) and anti-swimmer grenades **Targets:** Range support vessel, high performance boats, remote controlled high speed targets towing surface targets **Duration:** Up to 3 hours	**Location:** Mariana Islands Training and Testing Study Area; Mariana Islands Range Complex
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise, weapons firing noise, underwater explosion (E3) **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike, military expended material strike (projectile, target), **Entanglement:** None **Ingestion:** Small-caliber projectiles, casings, target fragments	
Detailed Military Expended Material Information	Small-caliber projectiles Target fragments Casings, grenade fragments	
Assumptions used for Analysis	Majority of events will occur proximate to NAVBASE Guam, including during times of transit in and out of port, as well as during major training events.	

Figure A-4: "Killer Tomato" Stationary Floating Target

Figure A-5: QST-35 Seaborne Powered Target

Figure A-6: High Speed Maneuvering Surface Target

A.1.5 ANTI-SUBMARINE WARFARE TRAINING

Anti-submarine warfare involves helicopter and maritime patrol aircraft, ships, and submarines. These units operate alone or in combination, in operations to locate, track, and neutralize submarines. Controlling the undersea battlespace is a unique naval capability and a vital aspect of sea control. Undersea battlespace dominance requires proficiency in anti-submarine warfare. Every deploying strike group and individual surface combatant must possess this capability.

Various types of active and passive sonar are used by the Navy to determine water depth, locate mines, and identify, track, and target submarines. Passive sonar "listens" for sound waves by using underwater microphones, called hydrophones, which receive, amplify, and process underwater sounds. No sound is introduced into the water when using passive sonar. Passive sonar can indicate the presence, character, and movement of submarines. However, passive sonar provides only a bearing (direction) to a sound-emitting source; it does not provide an accurate range (distance) to the source. Active sonar is needed to locate objects because active sonar provides both bearing and range to the detected contact (such as an enemy submarine). Active sonar is necessary to detect and track submarines that do not emit detectable levels of noise, either because of noise reduction design features or because of the presence of overwhelming background noise levels.

The Navy's anti-submarine warfare training plan, including the use of active sonar in at-sea training scenarios, includes multiple levels of training. Individual-level anti-submarine warfare training addresses basic skills such as detection and classification of contacts, distinguishing discrete acoustic signatures including those of ships, submarines, and marine life, and identifying the characteristics, functions, and effects of controlled jamming and evasion devices.

More advanced, integrated anti-submarine warfare training exercises involving active sonar is conducted in coordinated, at-sea operations during multi-dimensional training events involving submarines, ships, aircraft, and helicopters. This training integrates the full anti-submarine warfare continuum from detecting and tracking a submarine to attacking a target using either exercise torpedoes or simulated weapons. Training events include detection and tracking exercises against "enemy" submarine contacts; torpedo employment exercises against the target; and exercising command and control tasks in a multi-dimensional battlespace.

A.1.5.1 Tracking Exercise – Helicopter

Activity Name	Activity Description	
Anti-Submarine Warfare		
Tracking Exercise – Helicopter	Helicopter crews search, track, and detect submarines.	
Long Description	This exercise involves helicopters using sonobuoys and dipping sonar to search for, detect, classify, localize, and track a simulated threat submarine with the goal of determining a firing solution that could be used to launch a torpedo and destroy the submarine. Sonobuoys are typically employed by a helicopter operating at altitudes below 3,000 feet (914 meters). Both passive and active sonobuoys are employed. The dipping sonar is employed from an altitude of about 50 feet (15 meters) after the search area has been narrowed based on the sonobuoy search. Both passive and active sonar are employed. The anti-submarine warfare target used for this exercise will likely be an Expendable Mobile Anti-submarine Warfare Training Target, a MK-30 recoverable exercise target or a live submarine if available. This exercise may involve a single aircraft, or be undertaken in the context of a coordinated larger exercise involving multiple aircraft and vessels, including a major range event. The tracking exercise becomes a torpedo exercise when the helicopter launches an exercise torpedo. The exercise torpedo is recovered by a special recovery helicopter or small craft. The preferred range for this exercise is an instrumented range, but it may be conducted in other operating areas depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** Helicopters, surface vessels **Systems:** Mid-frequency helicopter dipping sonar, sonobuoys **Ordnance/Munitions:** Reusable exercise torpedoes (non-explosive) **Targets:** MK-39 Expendable Mobile Anti-Submarine Warfare Training Target or MK-30 recoverable target, or live submarine **Duration:** 2–4 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land; Transit Corridor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Helicopter dipping sonar (MF4), sonobuoy (MF5), aircraft noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, aircraft strike (birds only), vessel and in-water device strike, seafloor devices (Portable Underwater Tracking Range) **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Material Information	One Expendable Mobile Anti-Submarine Warfare Training Target If target is air-dropped, one parachute per target Up to 20 sonobuoys per event (one parachute for each sonobuoy) Torpedo accessories (ballast weights, parachutes) Anchor ballast for tracking range transponders	
Assumptions used for Analysis	Only Reusable Exercise Torpedoes used for this event. Tracking exercise can occur in all locations, torpedo exercise will not occur in Transit Corridor. Submarines may provide service as the target.	

A.1.5.2 Torpedo Exercise – Helicopter

Activity Name	Activity Description	
Anti-Submarine Warfare		
Torpedo Exercise – Helicopter	Helicopter crews search, track, and detect submarines. Exercise torpedoes may be used during this event.	
Long Description	This exercise involves helicopters using sonobuoys and dipping sonar to search for, detect, classify, localize, and track a simulated threat submarine with the goal of determining a firing solution that could be used to launch a torpedo and destroy the submarine. The exercise may be conducted on a portable underwater tracking range. Sonobuoys are typically employed by a helicopter operating at altitudes below 3,000 feet (914 meters). Both passive and active sonobuoys are employed. The dipping sonar is employed from an altitude of about 50 feet (15 meters) after the search area has been narrowed based on the sonobuoy search. Both passive and active sonar are employed. The anti-submarine warfare target used for this exercise will likely be an Expendable Mobile Anti-submarine Warfare Training Target, a MK-30 recoverable exercise target or a live submarine if available. This exercise may involve a single aircraft, or be undertaken in the context of a coordinated larger exercise involving multiple aircraft and vessels, including a major range event. The tracking exercise becomes a torpedo exercise when the helicopter launches an exercise torpedo. The exercise torpedo is recovered by a special recovery helicopter or small craft. The preferred range for this exercise is an instrumented range, but it may be conducted in other operating areas depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** Helicopters, surface vessels **Systems:** Mid-frequency helicopter dipping sonar, sonobuoys; tracking range transponders **Ordnance/Munitions:** Exercise torpedoes (non-explosive) **Targets:** MK-39 Expendable Mobile Anti-Submarine Warfare Training Target or MK-30 recoverable target, or live submarine **Duration:** 2–4 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Helicopter dipping sonar (MF4), sonobuoy (MF5), mid-frequency acoustic countermeasure (ASW4), lightweight torpedo [TORP1]), aircraft noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, aircraft strike (birds only), vessel and in-water device strike, seafloor devices (Portable Underwater Tracking Range) **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Material Information	One Expendable Mobile Anti-Submarine Warfare Training Target If target is air-dropped, one parachute per target Up to 20 sonobuoys per event (one parachute for each sonobuoy) Torpedo accessories (ballast weights, parachutes) Anchor ballast weight for tracking range transponders	
Assumptions used for Analysis	Submarines may provide service as the target.	

A.1.5.3 Tracking Exercise – Maritime Patrol Aircraft Extended Echo Ranging Sonobuoys

Activity Name	Activity Description	
Anti-Submarine Warfare		
Tracking Exercise – Maritime Patrol Aircraft Extended Echo Ranging Sonobuoys	Maritime patrol aircraft crews search, detect and track submarines using explosive source sonobuoys or multistatic active coherent system.	
Long Description	This exercise involves fixed-wing maritime patrol aircraft employing Improved Extended Echo Ranging and Multistatic Active Coherent sonobuoy systems to search for, detect, classify, localize, and track a simulated threat submarine with the goal of determining a firing solution that could be used to launch a torpedo and destroy the submarine. The Improved Extended Echo Ranging events use the SSQ-110A sonobuoy as an impulsive source, while the Multistatic Active Coherent events utilize the SSQ-125 sonobuoy as a tonal source. Each exercise would include the use of approximately 10 SSQ-110A or SSQ-125 sonobuoys. The anti-submarine warfare target used for this exercise may be a MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, a MK-30 target, or a live submarine. This exercise may involve a single aircraft, or be undertaken in the context of a coordinated larger exercise involving multiple aircraft and ships, including a major range event.	
Information Typical to the Event	**Platform:** Maritime Patrol Aircraft **Systems:** Improved Extended Echo Ranging and Multistatic Active Coherent sonobuoy systems **Ordnance/Munitions:** None **Targets:** MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, a MK-30 recoverable target, or a live submarine **Duration:** 2–8 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonobuoy (ASW2), underwater explosives (E4), aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only), military expended material strike, seafloor devices (Portable Underwater Tracking Range) **Entanglement:** Parachutes **Ingestion:** Parachutes, Sonobuoy fragments	
Detailed Military Expended Material Information	One Expendable Mobile Anti-Submarine Warfare Training Target (MK-39); MK-30 are recovered. Expended sonobuoys with parachutes Anchor ballast for tracking range transponders	
Assumptions used for Analysis	If target is air-dropped, one parachute per target.	

A.1.5.4 Tracking Exercise – Maritime Patrol Aircraft

Activity Name	Activity Description	
Anti-Submarine Warfare		
Tracking Exercise – Maritime Patrol Aircraft	Maritime patrol aircraft crews search, detect, and track submarines. Recoverable air launched torpedoes may be employed against submarine targets.	
Long Description	This exercise involves fixed-wing maritime patrol aircraft employing sonobuoys to search for, detect, classify, localize, and track a simulated threat submarine with the goal of determining a firing solution that could be used to launch a torpedo and destroy the submarine. Sonobuoys are typically employed by a maritime patrol aircraft operating at altitudes below 3,000 feet (914 meters), however, sonobuoys may be released at higher altitudes. Sonobuoys are deployed in specific patterns based on the expected threat submarine and specific water conditions. Depending on these two factors, these patterns will cover many different size areas. Both passive and active sonobuoys are employed. For certain sonobuoys, tactical parameters of use may be classified. The anti-submarine warfare target used for this exercise may be a MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, a MK-30 target, or a live submarine. This exercise may involve a single aircraft, or be undertaken in the context of a coordinated larger exercise involving multiple aircraft and vessels, including a major range event. The tracking exercise becomes a torpedo exercise when the aircraft launches an exercise torpedo. The exercise torpedo is recovered by helicopter or small craft. The preferred range for this exercise is an instrumented underwater range, but it may be conducted in other operating areas depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (Maritime Patrol Aircraft [manned or unmanned]), surface combatant or small vessels **Systems:** Sonobuoys **Ordnance/Munitions:** Exercise torpedoes (non-explosive) **Targets:** MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, a MK-30 recoverable target, or a live submarine **Duration:** 2–8 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonobuoys (MF5),vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only), vessel and in-water device strike, military expended material strike, seafloor devices (Portable Underwater Tracking Range) **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Material Information	One Expendable Mobile Anti-Submarine Warfare Training Target (MK-39) Torpedo accessories (ballast weights, parachutes) from reusable exercise torpedoes Expended sonobuoys with parachutes Anchor ballast for tracking range transponders	
Assumptions used for Analysis	Submarine may provide service as the target. If target is air-dropped, one parachute per target.	

A.1.5.5 Torpedo Exercise – Maritime Patrol Aircraft

Activity Name	Activity Description	
Anti-Submarine Warfare		
Torpedo Exercise – Maritime Patrol Aircraft	Maritime patrol aircraft crews search, detect, and track submarines. Recoverable air launched torpedoes may be employed against submarine targets.	
Long Description	This exercise involves fixed-wing maritime patrol aircraft employing sonobuoys to search for, detect, classify, localize, and track a simulated threat submarine with the goal of determining a firing solution that could be used to launch a torpedo and destroy the submarine. The exercise may be conducted on a portable underwater tracking range. Sonobuoys are typically employed by a maritime patrol aircraft operating at altitudes below 3,000 feet (914 meters), however, sonobuoys may be released at higher altitudes. Sonobuoys are deployed in specific patterns based on the expected threat submarine and specific water conditions. Depending on these two factors, these patterns will cover many different size areas. Both passive and active sonobuoys are employed. For certain sonobuoys, tactical parameters of use may be classified. The anti-submarine warfare target used for this exercise may be a MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, a MK-30 target, or a live submarine. This exercise may involve a single aircraft, or be undertaken in the context of a coordinated larger exercise involving multiple aircraft and vessels, including a major range event. The tracking exercise becomes a torpedo exercise when the aircraft launches an exercise torpedo. The exercise torpedo is recovered by helicopter or small craft. The preferred range for this exercise is an instrumented underwater range, but it may be conducted in other operating areas depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (Maritime Patrol Aircraft [manned or unmanned]), surface combatant or small vessels **Systems:** Sonobuoys; tracking range transponders **Ordnance/Munitions:** Exercise torpedoes (non-explosive) **Targets:** MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, a MK-30 recoverable target, or a live submarine **Duration:** 2–8 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonobuoys (MF5), lightweight torpedo (TORP1]), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only), vessel and in-water device strike, military expended material strike, seafloor devices (Portable Underwater Tracking Range) **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Material Information	MK-30 are recovered. Torpedo accessories (ballast weights, parachutes) from exercise torpedoes Expended sonobuoys with parachutes Anchor ballast for tracking range transponders	
Assumptions used for Analysis	Submarine may provide service as the target. If target is air-dropped, one parachute per target.	

A.1.5.6 Tracking Exercise – Surface

Activity Name	Activity Description	
Anti-Submarine Warfare		
Tracking Exercise – Surface	Surface ship crews search, track, and detect submarines.	
Long Description	Surface ships search, detect, and track threat submarines to determine a firing position to launch a torpedo and attack the submarine. A surface vessel operates at slow speeds while employing hull mounted and/or towed array sonar. Passive or active sonar is employed depending on the type of threat submarine, the tactical situation, and environmental conditions. The target for this exercise is a MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, MK-30 Recoverable Training Target, or live submarine. This exercise may involve a single ship, or be undertaken in the context of a coordinated larger exercise involving multiple aircraft, ships, and submarines, including a major range event. The tracking exercise becomes a torpedo exercise when the ship launches an exercise torpedo. The exercise torpedo is recovered by helicopter or small craft. The preferred range for this exercise is an instrumented underwater range, but it may be conducted in other operating areas depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** Surface vessels **Systems:** Mid-frequency sonar, Nixie (countermeasure system) **Ordnance/Munitions:** Reusable exercise torpedoes (non-explosive torpedo exercise only) **Targets:** Submarine MK-30 or MK-39 Expendable Mobile Anti-Submarine Warfare Training Target **Duration:** 2–4 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency acoustic countermeasure (ASW3), high-frequency sonar (HF6), hull mounted sonar (MF1, MF2, MF11), high duty cycle variable depth sonar (MF12), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike; military expended material strike, seafloor devices (Portable Underwater Tracking Range) **Entanglement:** None **Ingestion:** Torpedo accessories, Target fragments	
Detailed Military Expended Material Information	MK-39 Expendable Mobile Anti-Submarine Warfare Training Target Torpedo accessories (ballast weights) from reusable exercise torpedoes Anchor ballast for tracking range transponders	
Assumptions used for Analysis	Submarines may provide service as the target except for torpedo exercise events. Torpedoes are recovered.	

A.1.5.7 Torpedo Exercise – Surface

Activity Name	Activity Description	
Anti-Submarine Warfare		
Torpedo Exercise – Surface	Surface ship crews search, track, and detect submarines. Exercise torpedoes may be used during this event.	
Long Description	Surface ships search, detect, and track threat submarines to determine a firing position to launch a torpedo and attack the submarine. The exercise may be conducted on a portable underwater tracking range. A surface vessel operates at slow speeds while employing hull mounted and/or towed array sonar. Passive or active sonar is employed depending on the type of threat submarine, the tactical situation, and environmental conditions. The target for this exercise is a MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, MK-30 Recoverable Training Target, or live submarine. This exercise may involve a single ship, or be undertaken in the context of a coordinated larger exercise involving multiple aircraft, ships, and submarines, including a major range event. The tracking exercise becomes a torpedo exercise when the ship launches an exercise torpedo. The exercise torpedo is recovered by helicopter or small craft. The preferred range for this exercise is an instrumented underwater range, but it may be conducted in other operating areas depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** Surface vessels **Systems:** Mid-frequency sonar, Nixie (countermeasure system); tracking range transponders **Ordnance/Munitions:** Exercise torpedoes (non-explosive torpedo exercise only) **Targets:** Submarine MK-30 or MK-39 Expendable Mobile Anti-Submarine Warfare Training Target **Duration:** 2–4 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency acoustic countermeasure (ASW3), high-frequency sonar (HF6), hull mounted sonar (MF1, MF2, MF11), high duty cycle variable depth sonar (MF12), lightweight torpedo (TORP1), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike; military expended material strike, seafloor devices (Portable Underwater Tracking Range) **Entanglement:** None **Ingestion:** Torpedo accessories, Target fragments	
Detailed Military Expended Material Information	MK-39 Expendable Mobile Anti-Submarine Warfare Training Target Torpedo accessories (ballast weights) from exercise torpedoes Anchor ballast for tracking range transponders	
Assumptions used for Analysis	Submarines may provide service as the target except for torpedo exercise events. Torpedoes are recovered.	

A.1.5.8 Tracking Exercise – Submarine

Activity Name	Activity Description	
Anti-Submarine Warfare		
Tracking Exercise – Submarine	Submarine crews search, track, and detect submarines and surface ships.	
Long Description	The anti-submarine warfare tracking/torpedo exercise-submarine involves a submarine employing hull mounted and/or towed array sonar against an anti-submarine warfare target such as a MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, a MK-30, or another submarine. During this event, passive sonar is used almost exclusively; active sonar use is restricted because it would reveal the tracking submarine's presence to the target submarine. The preferred type of range for this exercise is an instrumented underwater training range with the capability to track the locations of submarines and targets, to enhance the after-action learning component of the training. This exercise may involve a single submarine, or be undertaken in the context of a coordinated larger exercise involving multiple aircraft, ships, and submarines, including a major range event.	
Information Typical to the Event	**Platform:** Submarines, support craft **Systems:** Mid-frequency (primarily passive) and high-frequency sonar **Ordnance/Munitions:** None **Targets:** Submarine MK-30, MK-39 Expendable Mobile Anti-Submarine Warfare Training Target **Duration:** 8 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land, Transit Corridor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency acoustic countermeasure (ASW4), hull-mounted sonar (MF3), high-frequency sonar (HF1, HF6), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike, air strike (birds only), seafloor devices (Portable Underwater Tracking Range) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	Anchor ballast for tracking range transponders	
Assumptions used for Analysis	Tracking exercise can occur in all locations > 3 nm from land in Mariana Islands.	

A.1.5.9 Torpedo Exercise – Submarine

Activity Name	Activity Description	
Anti-Submarine Warfare		
Torpedo Exercise – Submarine	Submarine crews search, track, and detect submarines and surface ships. Exercise torpedoes may be used during this event.	
Long Description	The anti-submarine warfare tracking/torpedo exercise-submarine involves a submarine employing hull mounted and/or towed array sonar against an anti-submarine warfare target such as a MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, a MK-30, or another submarine. During this event, passive sonar is used almost exclusively; active sonar use is restricted because it would reveal the tracking submarine's presence to the target submarine. The preferred type of range for this exercise is an instrumented underwater training range with the capability to track the locations of submarines and targets, to enhance the after-action learning component of the training. This exercise may involve a single submarine, or be undertaken in the context of a coordinated larger exercise involving multiple aircraft, ships, and submarines, including a major range event. The tracking exercise becomes a torpedo exercise when the submarine launches an exercise torpedo. The exercise torpedo is recovered by helicopter or small craft. The preferred range for this exercise is an instrumented underwater range, but it may be conducted in other areas depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** One or more submarines, support craft **Systems:** Mid-frequency (primarily passive) and high-frequency sonar; tracking range transponders **Ordnance/Munitions:** Exercise torpedoes (non-explosive torpedo exercise only) **Targets:** Submarine MK-30, MK-39 Expendable Mobile Anti-Submarine Warfare Training Target **Duration:** 8 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency acoustic countermeasure (ASW4), hull-mounted sonar (MF3), high-frequency sonar (HF1, HF6), heavyweight torpedo (TORP2), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike, military expended material strike (torpedo accessories), seafloor devices (Portable Underwater Tracking Range) **Entanglement:** Guidance wires **Ingestion:** Torpedo accessories	
Detailed Military Expended Material Information	Anchor ballast for tracking range transponders	
Assumptions used for Analysis	Torpedoes are recovered. Guidance wire has a low breaking strength and breaks easily. Weights and flex tubing sink rapidly.	

A.1.6 MAJOR TRAINING EVENTS

A major training event is comprised of several unit-level range operations conducted by several units operating together while commanded and controlled by a single commander. These exercises typically employ an exercise scenario developed to train and evaluate the Strike Group/Force in required naval tactical tasks. In a major training event, most of the operations and activities being directed and coordinated by the Strike Group commander are identical in nature to the operations conducted in the course in individual, crew, and smaller-unit training events. In a major range event, however, these disparate training tasks are conducted in concert, rather than in isolation.

A.1.6.1 Joint Expeditionary Exercise

Activity Name	Activity Description	
Major Training Events		
Joint Expeditionary Exercise	Typically a 10-day exercise that brings different branches of the U.S. military together in a joint environment that includes planning and execution efforts as well as military training activities at sea, in the air, and ashore.	
Long Description	Advanced joint level battle group and expeditionary amphibious warfare exercise designed to create a cohesive Carrier and Expeditionary Strike Group. Typically 15 surface ships, amphibious assault craft, helicopters, maritime patrol aircraft, strike fighter aircraft, two submarines, and various unmanned vehicles. More than 8,000 personnel may participate and could include the combined assets of a Carrier Strike Group and Expeditionary Strike Group, Marine Expeditionary Units, Army Infantry Units, and Air Force aircraft.	
Information Typical to the Event	**Platform:** Surface vessels, Fixed-wing aircraft, Helicopters, Unmanned vehicles, Submarines **Systems:** Anti-submarine warfare systems, anti-surface warfare and anti-air warfare gun and missile systems. **Ordnance/Munitions:** Numerous gun rounds, bombs, and missiles, all captured in specific events **Targets:** All surface, air, and anti-submarine warfare targets (e.g., MK-39 Expendable Mobile Anti-submarine Warfare Training Targets) **Duration:** 10 days	**Location:** Mariana Islands Training and Testing Study Area; Mariana Islands Range Complex
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF2, MF3, MF4, MF5, MF12, ASW2, ASW3), underwater explosions (e.g.,E4), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, vessel and in-water device strike, aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes, countermeasures, sonobuoy fragments	
Detailed Military Expended Material Information	One MK-39 Expendable Mobile Anti-submarine Warfare Training Targets Air deployed sonobuoy will have a parachute. Expended countermeasures	
Assumptions used for Analysis	All military expended materials, ordnance, explosives, and sonar use is included in individual events.	

A.1.6.2 Joint Multi-Strike Group Exercise

Activity Name	Activity Description	
Major Training Events		
Joint Multi-Strike Group Exercise	Typically a 10-day Joint exercise, in which up to three carrier strike groups would conduct training exercises simultaneously.	
Long Description	The Joint Multi-Strike Group Exercise demonstrates the Navy's ability to operate a large naval force of up to three Carrier Strike Groups in coordination with other Services. In addition to this joint warfare demonstration, it also fulfills the Navy's requirement to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. The exercise would involve Joint assets engaging in a "free play" battle scenario, with U.S. forces pitted against a replicated opposition force. The exercise provides realistic in-theater training.	
Information Typical to the Event	**Platform:** Multiple surface combatant vessels, Fixed-wing aircraft, Rotary-wing aircraft, unmanned vehicles, and submarines **Systems:** Anti-Submarine Warfare systems, Anti-Surface Warfare and Anti-Air Warfare gun and missile systems **Ordnance/Munitions:** Numerous gun rounds, bombs, and missiles, all captured in specific events **Targets:** MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, MK-30 Recoverable Training Target, submarine **Duration:** 10 days	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land; Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF2, MF3, MF4, MF5, MF11, MF12, ASW2, ASW3, ASW4), high-frequency sonar (e.g.,HF1); underwater explosions (e.g., E4), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, vessel and in-water device strike, aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes, sonobuoy fragments	
Detailed Military Expended Material Information	Anti-Submarine Warfare target: One MK-39 per event. If target is air-dropped, one parachute per target. Target remnants, chaff, flares Sonobuoys: (one parachute for each sonobuoy) Large-, medium- and small-caliber projectiles, bombs, missiles, rockets Expendable acoustic countermeasures	
Assumptions used for Analysis	All military expended materials, ordnance, explosives, and sonar use is included in individual events.	

A.1.6.3 Fleet Strike Group Exercise

Activity Name	Activity Description	
Major Training Events		
Fleet Strike Group Exercise	Typically a 7-day exercise focused on sustainment training for the forward deployed Carrier Strike Group that integrates joint training activities with the U.S. Air Force and U.S. Marine Corps. The exercise focuses on integrated joint training among U.S. military forces in the maritime environment with an ASW threat.	
Long Description	The Fleet Strike Group Exercise is a one week event focused on sustainment training for the forward deployed Carrier Strike Group and may integrate joint operations with the U.S. Air Force and U.S. Marine Corps in the Western Pacific. The exercise focuses on integrated joint training among U.S. military forces in the maritime environment with an ASW threat; enabling real-world proficiency in detecting, locating, tracking and engaging units at sea, in the air, and on land, in response to a range of mission areas.	
Information Typical to the Event	**Platform:** Surface ships, aircraft, submarines **Systems:** Anti-Submarine Warfare systems, Anti-Surface Warfare and Anti-Air Warfare gun and missile systems **Ordnance/Munitions:** Numerous gun rounds, bombs, and missiles, all captured in specific events **Targets:** MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, MK-30 Recoverable Training Target, submarine **Duration:** 7 days	**Location:** Mariana Islands Training and Testing Study Area >12 nm from land; Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF2, MF3, MF4, MF5, MF11, MF12, ASW2, ASW3, ASW4), high-frequency sonar (e.g., HF1); underwater explosions (e.g.,E4), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, vessel and in-water device strike, aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes, sonobuoy fragments	
Detailed Military Expended Material Information	Anti-Submarine Warfare target: One MK-39 or MK-30 target (MK-30 is recovered and reused, MK-39 is not) per event. If target is air-dropped, one parachute per target. Parachutes, sonobuoy fragments Sonobuoys: (one parachute for each sonobuoy) Large-, medium-, and small-caliber projectiles, bombs, missiles, rockets Expendable acoustic countermeasures	
Assumptions used for Analysis	All military expended material, ordnance, explosives, and sonar use is included in individual events.	

A.1.6.4 Integrated Anti-Submarine Warfare Exercise

Activity Name	Activity Description	
Major Training Events		
Integrated Anti-Submarine Warfare Exercise	Typically a 5-day exercise with multiple ships, aircraft and submarines integrating the use of their sensors, including sonobuoys, to search, detect, and track threat submarines.	
Long Description	This is an Anti-Submarine Warfare (ASW) exercise conducted by the forward deployed Navy Strike Groups to sustain and assess their ASW proficiency while located in the Seventh Fleet area of operations. The exercise is designed to assess the Strike Groups' ability to conduct ASW in the most realistic environment, against the level of threat expected, in order to effect changes to both training and capabilities (e.g., equipment, tactics, and changes to size and composition) of U.S. Navy Strike Groups. The Strike Group receives significant sustainment training value in ASW and other warfare areas, as training is inherent in all at-sea exercises.	
Information Typical to the Event	**Platform:** Surface vessels, fixed and rotary-wing aircraft, submarines, unmanned vehicles **Systems:** Hull mounted, towed array, dipping sonar, mid-frequency sonar, sonobuoys **Ordnance/Munitions:** Sonobuoys **Targets:** Expendable mobile anti-submarine warfare training targets **Duration:** 5 days	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land; Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF2, MF3, MF4, MF5, MF11, MF12, ASW3, ASW4), high-frequency sonar (e.g., HF1); vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, vessel and in-water device strike, aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes, sonobuoy fragments	
Detailed Military Expended Material Information	Parachutes, sonobuoy fragments, expended countermeasures	
Assumptions used for Analysis	Air deployed sonobuoy will have a parachute.	

A.1.6.5 Ship Squadron Anti-Submarine Warfare Exercise

Activity Name	Activity Description	
Major Training Events		
Integrated Anti-Submarine Warfare Exercise	Typically a 5-day exercise where the overall objective is to sustain and assess surface ship Anti-Submarine Warfare (ASW) readiness and effectiveness. The exercise typically involves multiple ships, submarines, and aircraft in several coordinated events, maximizing opportunities to collect high-quality data.	
Long Description	The Ship Squadron ASW Exercise overall objective is to sustain and assess surface ship ASW readiness and effectiveness. The exercise typically involves multiple ships, submarines, and aircraft in several coordinated events over a period of a week or less. Maximizing opportunities to collect high-quality data to support quantitative analysis and assessment of operations is an additional goal of this training.	
Information Typical to the Event	**Platform:** Surface vessels, fixed and rotary-wing aircraft, submarines, unmanned vehicles **Systems:** Hull mounted, towed array, dipping sonar, mid-frequency sonar, Sonobuoys **Ordnance/Munitions:** Sonobuoys **Targets:** Expendable mobile anti-submarine warfare training targets **Duration:** 5 days	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land; Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF2, MF3, MF4, MF5, MF11, MF12, ASW3, ASW4), high-frequency sonar (e.g., HF1); vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, vessel and in-water device strike, aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes, sonobuoy fragments	
Detailed Military Expended Material Information	Parachutes, sonobuoy fragments, expended countermeasures	
Assumptions used for Analysis	Air deployed sonobuoy will have a parachute.	

A.1.6.6 Marine Air Ground Task Force Exercise (Amphibious) – Battalion

Activity Name	Activity Description	
Major Training Events		
Marine Air Ground Task Force Exercise (Amphibious) – Battalion	Typically a 10-day exercise that conducts over the horizon, ship to objective maneuver for the elements of the Expeditionary Strike Group and the Amphibious Marine Air Ground Task Force. The exercise utilizes all elements of the Marine Air Ground Task Force (Amphibious), conducting training activities ashore with logistic support of the Expeditionary Strike Group and conducting amphibious landings.	
Long Description	This exercise conducts over the horizon, ship to objective maneuver of the elements of the Expeditionary Strike Group and the Amphibious Marine Air Ground Task Force. The exercise utilizes all elements of the task force to secure the battlespace (air, land, and sea), maneuver to and seize the objective, and conduct self-sustaining operations ashore with continual logistic support. Tinian is the primary training area for this exercise; however elements of the exercise may be rehearsed nearshore and on Guam. The landing force is supported by all of the battalions assigned to a Marine Expeditionary Unit.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft, fixed-wing, aircraft, amphibious ships and craft, combatant vessels, submarine **Systems:** Mid-frequency and high-frequency sonar, dipping sonar, high-frequency acoustic modems and tracking pingers, sonobuoys **Ordnance/Munitions:** blanks, Simunitions **Targets:** MK-30, MK-39 Expendable Mobile Anti-submarine Warfare Training Targets, submarine **Duration:** 10 days	**Location:** Mariana Islands Training and Testing Study Area to nearshore; Mariana Islands Range Complex; Tinian; Guam; Rota; Saipan; Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF2, MF3, MF4, MF12, ASW3), high-frequency sonar (e.g., HF1); vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Material	One MK-39 or MK-30 target (MK-30 is recovered and reused, MK-39 is not) If target is air-dropped, one parachute per target. Sonobuoys: (one parachute for each sonobuoy)	
Assumptions Used for Analysis	All MEM, ordnance, explosives, and sonar use is included in individual events.	

A.1.6.7 Special Purpose Marine Air Ground Task Force Exercise

Activity Name	Activity Description	
Major Training Events		
Special Purpose Marine Air Ground Task Force Exercise	Typically a 10-day exercise similar to Marine Air Ground Task Force (Amphibious) – Battalion, but task organized to conduct a specific mission (e.g., Humanitarian Assistance, Disaster Relief, Noncombatant Evacuation Operations).	
Long Description	Special Purpose Marine Air Ground Task Force, operating in conjunction with Navy ships and aircraft, typically conduct humanitarian and disaster relief, or evacuation of noncombatants from foreign countries to safe havens or back to the United States when their lives are endangered by war, civil unrest, or natural disaster. Normally, there is no opposition from the host country; however Marine Corps Special Purpose Marine Air Ground Task Force or Marine Expeditionary Unit (Special Operations Capable) normally trains for evacuation under a circumstance that requires the use of force in a hostile environment. Much like a raid, the event involves the rapid introduction of forces, the evacuation of noncombatants, and a planned withdrawal. The activity is conducted during day or night. Guam is the primary training are for this exercise.	
Information Typical to the Event	**Platform:** Multiple rotary-wing aircraft, fixed-wing aircraft, amphibious vessels and craft **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions **Targets:** None **Duration:** 10 days	**Location:** Mariana Islands Training and Testing Study Area to nearshore; Mariana Islands Range Complex; Tinian; Guam; Rota; Saipan
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Submarine strike, vessel strike, aircraft strike **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Material	Parachutes associated with insertion of forces, equipment.	
Assumptions Used for Analysis	All MEM is included in individual events.	

A.1.6.8 Urban Warfare Exercise

Activity Name	Activity Description	
Major Training Events		
Urban Warfare Exercise	A Marine Expeditionary Unit integration level exercise that is typically conducted over a period of weeks. Enhances the skills needed for military training activities in an urban environment.	
Long Description	A Marine Expeditionary Unit integration level exercise that is typically conducted over a period of weeks. Personnel enhance the skills needed for military operations in an urban environment. Events typically take place on Guam and utilize Finegayan, Andersen South, Barrigada Housing, and Northwest Field. Urban Warfare Exercise has been conducted in Saipan as part of the Joint Expeditionary Exercise. Urban Warfare Exercise on Tinian and Rota is also possible	
Information Typical to the Event	**Platform:** Multiple rotary-wing aircraft, fixed-wing aircraft, unmanned aerial vehicles **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions **Targets:** None **Duration:** 7–21 days	**Location:** Mariana Islands Range Complex; Tinian; Guam; Rota; Saipan
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	Land event	

A.1.7 ELECTRONIC WARFARE TRAINING

Electronic warfare is the mission area of naval warfare that aims to control use of the electromagnetic spectrum and to deny its use by an adversary. Typical electronic warfare activities include threat avoidance training, signals analysis for intelligence purposes, and use of airborne and surface electronic jamming devices to defeat tracking systems.

A.1.7.1 Electronic Warfare Operations

Activity Name	Activity Description	
Electronic Warfare		
Electronic Warfare Operations (EW OPS)	Aircraft, surface ship, and submarine crews attempt to control portions of the electromagnetic spectrum used by enemy systems to degrade or deny the enemy's ability to take defensive actions.	
Long Description	Aircraft, surface ship, and submarine personnel attempt to control critical portions of the electromagnetic spectrum used by enemy systems to degrade or deny their ability to defend its forces from attack or recognize an emerging threat early enough to take defensive actions. Electronic Warfare Operations can be active or passive, offensive or defensive. Fixed-wing aircraft employ active jamming and deception against enemy search radars to mask the friendly inbound strike aircraft mission. Surface vessels and submarines detect and evaluate enemy electronic signals from enemy aircraft or missile radars, evaluate courses of action concerning the use of passive or active countermeasures, then use vessel maneuvers and either chaff, flares, active electronic countermeasures, or a combination of them to defeat the threat.	
Information Typical to the Event	**Platform:** Fixed and rotary-wing aircraft, Surface combatant vessels **Systems:** None **Ordnance/Munitions:** None **Targets:** Land based fixed/mobile threat emitters **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	All chaff and flares involved in this event are covered under chaff exercise and flare exercises, respectively.	

A.1.7.2 Counter Targeting Flare Exercise – Aircraft

Activity Name	Activity Description	
Electronic Warfare		
Counter Targeting – Flare Exercise (FLAREX) – Aircraft	Fixed-winged aircraft and helicopters crews defend against an attack by deploying flares to disrupt threat infrared (IR) missile guidance systems.	
Long Description	Train fixed-winged aircraft and helicopter crews to deploy flares to disrupt threat infrared missile guidance systems to defend against an attack. Aircraft detect electronic targeting signals from threat radars or missiles or a threat missile plume when it is launched; dispense flares; and immediately maneuver to defeat the threat. This exercise trains aircraft personnel in the use of defensive flares designed to confuse infrared sensors or infrared homing missiles, thereby causing the sensor or missile to lock onto the flares instead of the real aircraft. Typically an aircraft will expend five flares in an exercise while operating above 3,000 feet. Flare exercises are often conducted with chaff exercises, rather than as a stand-alone exercise. Pyrotechnics are used on the range to simulate missile firings.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** Flares and pyrotechnics **Targets:** None **Duration:** 1–2 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft Noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** Expended components of flares (pistons)	
Detailed Military Expended Material Information	Flares and residuals from pyrotechnics	
Assumptions used for Analysis	Approximately five flares per aircraft	

A.1.7.3 Counter Targeting Chaff Exercise – Ship

Activity Name	Activity Description	
Electronic Warfare		
Counter Targeting Chaff Exercise (CHAFFEX) – Ship	Surface ships defend against an attack by deploying chaff, a radar reflective material, which disrupt threat targeting and missile guidance radars.	
Long Description	Surface vessel crews deploy chaff to disrupt threat targeting and missile guidance radars to defend against an attack. Surface vessel crews detect electronic targeting signals from threat radars or missiles, dispense chaff, and immediately maneuver to defeat the threat. The chaff cloud deceives the inbound missile, and the vessel clears away from the threat. Chaff is a radar reflector material made of thin, narrow, metallic strips cut in various lengths to elicit frequency responses, which deceive enemy radars. Chaff is employed create a target from the chaff that will lure enemy radar and weapons system away from the actual friendly platform. Ships may also train with advanced countermeasure systems, such as the MK 53 Decoy Launching System (Nulka).	
Information Typical to the Event	**Platform:** Surface vessels **Systems:** None **Ordnance/Munitions:** None **Targets:** MK 53 expendable decoys **Duration:** 1.5 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** Expended components of chaff (end caps, pistons, chaff)	
Detailed Military Expended Material Information	Chaff canisters Expended components of chaff (end caps, pistons, chaff) MK 53 expendable decoys	
Assumptions used for Analysis	None	

A.1.7.4 Counter Targeting Chaff Exercise – Aircraft

Activity Name	Activity Description	
Electronic Warfare		
Counter Targeting Chaff Exercise (CHAFFEX) – Aircraft	Fixed-winged aircraft and helicopter crews defend against an attack by deploying chaff, a radar reflective material, which disrupt threat targeting and missile guidance radars.	
Long Description	Fixed-winged aircraft and helicopter crews deploy chaff to disrupt threat targeting and missile guidance radars and to defend against an attack. Fixed-winged aircraft and helicopter crews detect electronic targeting signals from threat radars or missiles, dispense chaff, and immediately maneuver to defeat the threat. The chaff cloud deceives the inbound missile and the aircraft clears away from the threat. Chaff is a radar reflector material made of thin, narrow, metallic strips cut in various lengths used to lure an enemy radar and weapons system away from the actual friendly platform.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1.5 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** Expended components of chaff (end caps, pistons, chaff)	
Detailed Military Expended Material Information	Chaff cartridges Plastic end caps Pistons	
Assumptions used for Analysis	Chaff is usually expended while conducting other training activities, such as air combat maneuvering.	

A.1.8 MINE WARFARE TRAINING

Mine warfare training is the naval warfare area involving the detection, avoidance, and neutralization of mines to protect Navy ships and submarines, and offensive mine laying in naval operations. A naval mine is a self-contained explosive device placed in water to destroy ships or submarines. Naval mines are deposited and left in place until triggered by the approach of, or a contact with an enemy ship, or are destroyed or removed. Naval mines can be laid by purpose-built minelayers, other ships, submarines, or airplanes. Mine warfare training includes mine countermeasures exercises and mine laying exercises.

A.1.8.1 Mine Laying

Activity Name	Activity Description	
Mine Warfare		
Mine Laying	Fixed-winged aircraft and vessel crews drop/launch non explosive mine shapes.	
Long Description	Fixed-winged aircraft or surface or submarine crews lay offensive or defensive mines for a tactical advantage for friendly forces. Crews lay a precise minefield pattern for specific tactical situations. An aircrew typically makes multiple passes in the same flight pattern, and drops one or more training shapes (four shapes total). Training shapes are non-explosive.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, surface vessels, submarines **Systems:** None **Ordnance/Munitions:** Non-explosive mine shapes, "Quick-strike" mines **Targets:** None **Duration:** 1 hour	**Location:** MIRC Warning Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive mine shapes), vessel strike, and aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	Non-explosive mine shapes	
Assumptions used for Analysis	Similar to non-explosive bombing exercise. Assume mine shapes are not recovered for the analysis.	

A.1.8.2 Mine Neutralization – Explosive Ordnance Disposal (EOD)

Activity Name	Activity Description	
Mine Warfare		
Mine Neutralization – Explosive Ordnance Disposal (EOD)	Personnel disable threat mines. Explosive charges may be used.	
Long Description	Navy divers, typically explosive ordnance disposal personnel, disable threat mines with explosive charges to create a safe channel for friendly vessels to transit. Personnel detect, identify, evaluate, and neutralize mines in the water with an explosive device and may involve detonation of one or more explosive charges typically up to 20 pounds (lb.) of TNT equivalent. These operations are normally conducted during daylight hours for safety reasons.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft, small boats **Systems:** None **Ordnance/Munitions:** Underwater detonation charges **Targets:** Minefields **Duration:** Up to 4 hours	**Location:** Agat Bay underwater detonation site, 20 lb. net explosive weight (NEW) maximum charge. Piti and Outer Apra Harbor underwater detonation sites, 10 lb. NEW maximum.
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Under water explosions (e.g., E5, E6), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only), seafloor devices **Entanglement:** None **Ingestion:** Target fragments	
Detailed Military Expended Material Information	Target fragments	
Assumptions used for Analysis	Charge placed anywhere in water column, including bottom. Mine shapes will be recovered.	

A.1.8.3 Limpet Mine Neutralization System/Shock Wave Generator

Activity Name	Activity Description	
Mine Warfare (MIW)		
Limpet Mine Neutralization System/Shock Wave Generator	Navy divers place a small charge on a simulated underwater mine.	
Long Description	For shock wave generator training, a metal sheet containing a non-explosive limpet mine is lowered into the water, sometimes from the side of a small vessel, such as an LCM-8 craft. Divers place a single shock wave generator on the mine that is located mid-water column, within water depths of 10–20 feet (3–6 meters). A bag is placed over the mine to catch falling debris.	
Information Typical to the Event	**Platform:** None **Systems:** None **Ordnance/Munitions:** Less than 1 oz. explosive charge **Targets:** Metal sheet with limpet mine **Duration:** 2 hours	**Location:** Mariana littorals; Inner and Outer Apra Harbor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Less than E1 explosive charge **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** Mine detonation residue	
Detailed Military Expended Material	Minimal mine detonation residue (most materials are recovered after each event)	
Assumptions Used for Analysis	None	

A.1.8.4 Submarine Mine Exercise

Activity Name	Activity Description	
Mine Warfare (MIW)		
Submarine Mine Exercise	Submarine crews practice detecting mines in a designated area.	
Long Description	Submarine crews use active sonar to detect and avoid mines or other underwater hazardous objects, while navigating restricted areas or channels, such as while entering or leaving port. This event trains submarine crews to detect and avoid mines. Training utilizes simulated minefields constructed of moored or bottom mines, or instrumented mines that can record effectiveness of mine detection efforts. In a typical training exercise, submarine crews will use the AN/BQQ-10 high-frequency active sonar to locate and avoid the mine shapes. Each mine avoidance exercise involves one submarine operating the AN/BQQ-10 high-frequency sonar for 6 hours to navigate through the training minefield. During mine warfare exercises submarines will expend several submarine-launched expendable bathythermographs to determine water conditions affecting sonar performance.	
Information Typical to the Event	**Platform:** Submarine **Systems:** High-frequency sonar (navigation/mine detection sonar) **Ordnance/Munitions:** None **Targets:** Mine shapes **Duration:** 6 hours	**Location:** Mariana Islands Training and Testing Study Area; nearshore
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (e.g., HF1) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.8.5 Airborne Mine Countermeasure – Mine Detection

Activity Name	Activity Description	
Mine Warfare		
Airborne Mine Countermeasure – Mine Detection	Vessel crews and helicopter aircrews detect mines using towed or laser mine detection systems (e.g., AN/AQS-20, Airborne Laser Mine Detection System).	
Long Description	Helicopter crews use towed and airborne devices to detect, locate, and classify potential mines. Towed devices employ active acoustic sources, such as high frequency and side scanning sonar. These devices are similar in function to systems used to map the seafloor or locate submerged structures or items. Airborne devices utilize laser systems to locate mines located below the surface. Devices used include the AN/AQS-20/A, towed minehunting sonar used to detect and classify bottom and floating/moored mines in deep and shallow water, and the Airborne Laser Mine Detection System, developed to detect and classify floating and near-surface, moored mines.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft, Unmanned surface vehicles, Unmanned underwater vehicles **Systems:** Airborne Laser Mine Detection System (AN/AQS-20A, AN/AQS-24A) **Ordnance/Munitions:** None **Targets:** Existing minefields, temporary placed mines, or no targets (training to deploy/operate gear) **Duration:** Typically 1.5 hours, up to 4 hours	**Location:** Mariana Islands Training and Testing Study Area; nearshore
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mine detection sonar (HF4), vessel noise, aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Vessel and in-water device strike, aircraft strike (birds only), seafloor device strike (bottom placed mine shapes) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Sonar mine detection systems towed from helicopters, vessels, unmanned surface vehicles. Use of airborne laser systems to detect mine shapes. Laser systems similar to commercial Light Detection And Ranging (LIDAR) systems. Mine shapes will be recovered when possible.	

A.1.8.6 Mine Countermeasure Exercise – Towed Sonar

Activity Name	Activity Description	
Mine Warfare		
Mine Countermeasure Exercise – Towed Sonar	Surface ship crews detect and avoid mines while navigating restricted areas or channels using towed active sonar.	
Long Description	Surface vessel crews detect and avoid mines or other underwater hazardous objects while navigating restricted areas or channels using active sonar. Littoral Combat Ship utilizes unmanned surface vehicles and remotely operated vehicles to tow mine detection (hunting) equipment. Systems will operate from shallow zone greater than 40 feet to deep water. Events could be embedded in major training events.	
Information Typical to the Event	**Platform:** Surface vessels (e.g., LCS), unmanned surface vehicles, unmanned aerial vehicles **Systems:** AN/AQS-20, remote mine hunting system, AN/AQS-24 **Ordnance/Munitions:** None **Targets:** Minefields, temporary placed mine (training to deploy or operate gear) **Duration:** 1.5–4 hours	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar and other acoustic sources (HF4), vessel noise, aircraft noise **Energy:** Sub-surface laser imaging **Physical Disturbance and Strike:** Vessel and in-water device strike, seafloor devices, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None Temporary placed mines will be recovered.	
Assumptions used for Analysis	No explosives used. Constraints: Assume system will be operated in areas free of obstructions, and will be towed well above the seafloor. Towed system will be operated in a manner to avoid entanglement and damage. Events will take place in water depths 40 feet and greater. Existing placed mine shapes to be used. Potential for temporary placement of mine shapes.	

A.1.8.7 Mine Countermeasure Exercise – Surface Sonar

Activity Name	Activity Description	
Mine Warfare		
Mine Countermeasure Exercise – Surface (SMCMEX) Sonar	Mine countermeasure ship crews detect, locate, identify, and avoid mines while navigating restricted areas or channels using active sonar.	
Long Description	This event trains mine countermeasure ship crews to detect mines for future neutralization or to alert other ships. Training utilizes simulated minefields constructed of moored or bottom mines, or instrumented mines that can record effectiveness of mine detection efforts. Ships will accurately fix their position while navigating through the restricted mine threat area at slow speeds of about 5 to 10 knots or less, while using active sonar to search the area ahead of the ship for moored mines or other hazards of navigation.	
Information Typical to the Event	**Platform:** Surface combatant vessel **Systems:** Sonar (e.g., AN/SQQ-32) **Ordnance/Munitions:** None **Targets:** None **Duration:** The exercise may last as long as 15 hours.	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mine detection sonar (HF4), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.8.8 Mine Neutralization – Remotely Operated Vehicle Sonar

Activity Name	Activity Description	
Mine Warfare		
Mine Neutralization – Remotely Operated Vehicle Sonar	Vessel or helicopter aircrews disable mines using remotely operated underwater vehicles.	
Long Description	Vessel and helicopter crews utilize remotely operated vehicles to neutralize potential mines. Remotely operated vehicles will use sonar and optical systems to locate and target mine shapes. Explosive mine neutralizers may be used during live fire events.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft, surface combatant vessels **Systems:** Acoustic mine targeting system **Ordnance/Munitions:** High-explosive neutralizers **Targets:** Existing minefields, temporary placed mines **Duration:** Typically 1.5 hours, up to 4 hours	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mine hunting sonar (HF4), underwater explosions (E4), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike, seafloor device strike (bottom placed mine shapes), aircraft strike (birds only) **Entanglement:** Fiber optic cable **Ingestion:** Neutralizer fragments	
Detailed Military Expended Material Information	Neutralizer fragments Fiber optic cables	
Assumptions used for Analysis	Acoustic sources associated with remotely operated vehicle mine neutralization systems do not require quantitative analysis.	

A.1.8.9 Mine Countermeasure – Towed Mine Neutralization

Activity Name	Activity Description	
Mine Warfare		
Mine Countermeasure – Towed Mine Neutralization	Ship crews and helicopter aircrews tow systems (e.g., Organic and Surface Influence Sweep, MK 104/105) through the water that are designed to disable and/or trigger mines.	
Long Description	Naval helicopters and unmanned vessels use towed devices to clear minefields by triggering mines that sense and explode when they detect ships/submarines by engine/propeller sounds or magnetic (steel construction) signature. Towed devices can also employ cable cutters to detach floating moored mines. Training will either be conducted against non-explosive training mine shapes, or, without any mine shapes. A high degree of pilot skill is required in deploying devices, safely towing them at relatively low speeds and altitudes, and then recovering devices. Devices used include the following: Organic Airborne and Surface Influence Sweep (OASIS). The Organic Airborne and Surface Influence Sweep is a towed device that imitates the magnetic and acoustic signatures of naval ships and submarines. MK 105 sled: the MK 105 sled, similar to the Organic Airborne and Surface Influence Sweep, creates a magnetic field used to trigger mines. The MK 105 sled can also be used in conjunction with the MK 103 cable cutter system and the MK 104 acoustic countermeasure. AN/SPU-1/W "Magnetic Orange Pipe": As the name implies, the AN/SPU-1/W is a magnetic pipe that is used to trigger magnetically influenced mines.	
Information Typical to the Event	**Platform:** Surface vessel (e.g., MCM, LCS), unmanned surface vehicle, unmanned underwater vehicles, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** Cable cutters (MK-103) **Targets:** Existing minefields, temporary placed mines, or no targets (training to deploy/operate gear) **Duration:** Typically 1.5 hours, up to 4 hours	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** Electromagnetic influence sweep **Physical Disturbance and Strike:** Vessel and in-water device strike, seafloor device strike (bottom placed mine shapes) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	Mooring blocks	
Assumptions used for Analysis	Towed from helicopters, ships, unmanned surface vehicles and unmanned underwater vehicles. Mechanical sweeping (cable cutting), acoustic, and magnetic influence sweeping Cable cutters utilize an insignificant charge (similar to shotgun shell). Acoustic sweeps generate ship type noise via mechanical system. Towing systems though minefields (or without mines, to train to deploy, tow, and recover). May involve instrumented mines (VIMS).	

A.1.9 NAVAL SPECIAL WARFARE TRAINING

Naval special warfare and other special forces train to conduct military operations in five Special Operations mission areas: unconventional warfare, direct action, special reconnaissance, foreign internal defense, and counterterrorism. Naval special warfare training involves specialized tactics, techniques, and procedures, employed in training events that include: insertion/extraction operations using parachutes rubber boats, or helicopters; boat-to-shore and boat-to-boat gunnery; underwater demolition training; reconnaissance; and small arms training.

A.1.9.1 Personnel Insertion/Extraction

Activity Name	Activity Description	
Naval Special Warfare		
Personnel Insertion/Extraction	Military personnel train for covert insertion and extraction into target areas using helicopters, fixed-wing (insertion only), small boats, and submersibles.	
Long Description	Personnel train to approach or depart an objective area using various transportation methods and tactics. These operations train forces to insert and extract personnel and equipment day or night. Tactics and techniques employed include insertion from aircraft by parachute, by rope, or from low, slow-flying helicopters from which personnel jump into the water. Parachute training is required to be conducted on surveyed drop zones to enhance safety. Insertion and extraction methods also employ small inflatable boats.	
Information Typical to the Event	**Platform:** Fixed and rotary-wing aircraft, small craft, submersibles **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–8 hours	**Location:** Mariana Islands Range Complex; Guam; Tinian; Rota
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Physical disturbance (sea turtle nests) **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.9.2 Parachute Insertion

Activity Name	Activity Description	
Naval Special Warfare		
Parachute Insertion	Military personnel train for covert insertion into target areas using parachutes.	
Long Description	These operations will vary in length depending on the transportation method and systems being used. Target areas are parachute drop zones that may be at sea or on land.	
Information Typical to the Event	**Platform:** Sea, air, land delivery vehicle **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–8 hours	**Location:** Mariana Islands Range Complex parachute drop zones; Guam; Tinian; Rota
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, small craft noise **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.9.3 Embassy Reinforcement

Activity Name	Activity Description	
Naval Special Warfare		
Embassy Reinforcement	Special Warfare units train to provide reinforcement of an Embassy under hostile conditions.	
Long Description	Personnel integrate vessel, aircraft and ground assets to reinforce an embassy under assault	
Information Typical to the Event	**Platform:** Small boats, assault craft, helicopters, fixed-wing aircraft, unmanned aerial vehicles **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions **Targets:** None	**Location:** Mariana Islands Range Complex; Guam; Tinian; Rota
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.9.4 Direct Action (Combat Close Quarters)

Activity Name	Activity Description	
Naval Special Warfare		
Direct Action (Combat Close Quarters)	Military personnel training for use of force, breaching doors and obstacles, and in close quarters combat.	
Long Description	Special Forces personnel use covert or overt small unit tactics against an enemy force to seize, damage, or destroy a target and/or capture or recover personnel or material. A squad or platoon size force are inserted into and later extracted from a hostile area by helicopter. Combat Rubber Raiding Craft, or other technique, and then use small-scale offensive actions to attack hostile forces or targets. These offensive actions can include: raids, ambushes, standoff attacks by firing from ground, air, or maritime platforms, designating or illuminating targets for precision-guided munitions, providing support for cover and deception operations, and sabotage.	
Information Typical to the Event	**Platform:** Small boats, rotor-wing craft **Systems:** None **Ordnance/Munitions:** Small arms, blanks, Simunitions **Targets:** None	**Location:** Mariana Islands Range Complex Combat Close Quarters Sites
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only), physical disturbance (sea turtle nests) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.9.5 Direct Action (Breaching)

Activity Name	Activity Description	
Naval Special Warfare		
Direct Action (Breaching)	Military personnel training for use of force, breaching doors and obstacles, and in close quarters combat.	
Long Description	This event is limited to the breaching of doors and obstacles at sites prepared for breaching by small explosive charge. It is an event conducted alone or can be planned with other events.	
Information Typical to the Event	**Platform:** None **Systems:** None **Ordnance/Munitions:** Small explosive charges for breaching doors **Targets:** None	**Location:** Mariana Islands Range Complex Explosive Breaching Sites (e.g., the Breacher House on Naval Base Guam Munitions Site)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Breach explosive noise **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.9.6 Direct Action (Tactical Air Control Party)

Activity Name	Activity Description	
Naval Special Warfare		
Direct Action (Tactical Air Control Party)	Military personnel train for controlling of combat support aircraft; providing airspace de-confliction and terminal control for Close Air Support.	
Long Description	Tactical Air Control personnel, once at FDM, participate in tactical air control training in conjunction with an Air-to-Ground bombing or missile exercise, They may also employ small arms, grenades, mortars, and crew served weapons in direct action against targets on the island.	
Information Typical to the Event	**Platform:** Small boats, rotor-wing and fixed-wing aircraft **Systems:** None **Ordnance/Munitions:** Small-caliber rounds, explosive grenades and mortars **Targets:** None	**Location:** Farallon de Medinilla
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.9.7 Underwater Demolition Qualification/Certification

Activity Name	Activity Description	
Naval Special Warfare		
Underwater Demolition Qualification/Certification	Divers conduct training and certification in placing underwater demolition charges.	
Long Description	Underwater explosive charges, typically up to 20 lb. NEW, are placed on the bottom and detonated to complete training qualification or certification.	
Information Typical to the Event	**Platform:** Small boats, helicopters **Systems:** None **Ordnance/Munitions:** Explosive charges (up to 20 lb.) **Targets:** None	**Location:** Agat Bay underwater detonation site, 20 lb. NEW maximum charge. Piti and Outer Apra Harbor underwater detonation sites, 10 lb. NEW maximum.
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Under water explosions (e.g., E5, E6), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None. Detonation residue is depleted in event.	
Assumptions Used for Analysis	None	

A.1.9.8 Intelligence, Surveillance, Reconnaissance (ISR)

Activity Name	Activity Description	
Naval Special Warfare		
Intelligence, Surveillance, Reconnaissance (ISR)	Special Warfare units train to collect and report battlefield intelligence.	
Long Description	Personnel conduct event to evaluate the battlefield, enemy forces, and gather intelligence. For training of assault forces, "red cell" units may be positioned ahead of the assault force and permitted a period of time to conduct surveillance and prepare defenses to the assaulting force.	
Information Typical to the Event	**Platform:** Small boats, rotor-wing aircraft, unmanned aerial vehicles **Systems:** None **Ordnance/Munitions:** None **Targets:** None	**Location:** Mariana Islands Range Complex; Guam; Tinian; Rota; Saipan
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only), physical disturbance (sea turtle nests) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.9.9 Urban Warfare Training

Activity Name	Activity Description	
Naval Special Warfare		
Urban Warfare Training	Special Warfare units train in mock urban environments.	
Long Description	Patrols use advanced, offensive, close-quarters battle techniques to move through a hostile urban environment where noncombatants are or may be present and collateral damage must be kept to a minimum. Techniques used include: advanced breaching to enter buildings or clear rooms; clearing stairwells; selective target engagement to ensure noncombatants are not harmed; and dynamic assault techniques to ensure collateral damage is kept to a minimum.	
Information Typical to the Event	**Platform:** Rotor-wing aircraft, unmanned aerial vehicles **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions **Targets:** None	**Location:** Mariana Islands Range Complex; Guam; Tinian; Rota; Saipan
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, weapon firing noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.9.10 Underwater Survey

Activity Name	Activity Description	
Naval Special Warfare		
Underwater Survey	Navy divers train in survey of underwater conditions and features in preparation for insertion, extraction, or intelligence, surveillance, and reconnaissance activities.	
Long Description	A survey of underwater terrain conditions near shore and a report of findings to provide precise analysis for amphibious landings. Personnel perform methodical reconnoitering of beaches and surf conditions during the day and night to find and clear underwater obstacles and determine the feasibility of landing an amphibious force on a particular beach.	
Information Typical to the Event	**Platform:** Small boats **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** None	**Location:** Mariana Islands Range Complex
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.10 OTHER

A.1.11 SURFACE SHIP SONAR MAINTENANCE

Activity Name	Activity Description	
Other		
Surface Ship Sonar Maintenance	In-port and at-sea maintenance of sonar systems.	
Long Description	This scenario consists of surface combatant vessels performing periodic maintenance to the hull-mounted mid-frequency sonar while in port or at sea. This maintenance takes up to four hours. Surface vessels operate active sonar systems for maintenance while in shallow water near their homeport, however, sonar maintenance could occur anywhere as the system's performance may warrant.	
Information Typical to the Event	**Platform:** Surface combatant vessels **Systems:** Mid-frequency hull mounted sonar systems **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 4 hours	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land; Inner Apra Harbor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF2), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.1 Submarine Sonar Maintenance

Activity Name	Activity Description	
Other-Maintenance		
Submarine Sonar Maintenance	In-port and at-sea maintenance of sonar systems.	
Long Description	A submarine performs periodic maintenance on the AN/BQQ-10 and submarine high-frequency sonar systems while in port or at sea. Submarines conduct maintenance to their sonar systems in shallow water near their homeport however, sonar maintenance could occur anywhere as the system's performance may warrant	
Information Typical to the Event	**Platform:** Submarines **Systems:** High-frequency submarine sonar system, AN/BBQ-10 **Ordnance/Munitions:** None **Targets:** None **Duration:** 45 minutes up to 1 hour	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land; Inner Apra Harbor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF3) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.2 Small Boat Attack

Activity Name	Activity Description	
Other		
Small Boat Attack	For this activity, one or two small boats or personal watercraft conduct attack activities on units afloat.	
Long Description	For this activity, one or two small boats or personal watercraft conduct attack activities on units afloat, training ship crews how to respond to small boat attack in harbors, restricted channels, and nearshore areas using non-lethal means or armament appropriate to the threat and location.	
Information Typical to the Event	**Platform:** Small boats or watercraft **Systems:** None **Ordnance/Munitions:** Small-caliber (non-explosive) **Targets:** High-performance small boats and unmanned vehicles **Duration:** None	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, weapon firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	Blanks, Simunitions, or small-caliber projectiles	
Assumptions used for Analysis	None	

A.1.11.3 Submarine Navigation

Activity Name	Activity Description	
Other		
Submarine Navigation	Submarine crews locate underwater objects and ships while transiting out of port.	
Long Description	Submarine crews train to operate sonar for navigation. The ability to navigate using sonar is critical for object detection while transiting in and out of port during periods of reduced visibility. Submarine Navigation training activities conducted while transiting in and out of port are done so while surfaced, with bridge watches and a single lookout.	
Information Typical to the Event	**Platform:** Submarines **Systems:** High-frequency submarine sonar system **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 2 hours	**Location:** Apra Harbor and Mariana littorals
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Submarine sonar noise (e.g., MF3, HF1) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.4 Search and Rescue at Sea

Activity Name	Activity Description	
Other		
Search and Rescue at Sea	Vessels and aircraft conduct search and rescue of personnel and vessels at sea.	
Long Description	U.S. Coast Guard vessels, Navy vessels, and rotor-wing and fixed-wing aircraft coordinate on scene actions to search and conduct rescue and recovery of personnel or vessels at sea.	
Information Typical to the Event	**Platform:** Ships, rotor-wing aircraft, fixed-wing aircraft, unmanned aerial vehicles **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 3 days	**Location:** Mariana Islands Test and Training Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.5 Precision Anchoring

Activity Name	Activity Description	
Other Training		
Precision Anchoring	Releasing of anchors in designated locations.	
Long Description	Vessels navigate to a pre-planned position and deploy the anchor. The vessel uses all means available to determine its position when anchor is dropped, to demonstrate calculating and plotting the anchor's position within 100 yards of center of planned anchorage.	
Information Typical to the Event	**Platform:** All surface vessels **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 1 hour	**Location:** Mariana Islands anchorages
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, seafloor device strike (anchor) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.6 Maneuver (Convoy, Land Navigation)

Activity Name	Activity Description	
Other Training		
Maneuver (Convoy, Land Navigation)	Units conduct field maneuver training or convoy training.	
Long Description	Personnel participate in land navigation and convoy training. They practice convoy maneuvers to learn how to react if their vehicle comes under fire, hits a roadside bomb, or breaks down, and how to protect themselves if they are forced to abandon their vehicle.	
Information Typical to the Event	**Platform:** Convoy vehicles **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 1 hour	**Location:** Mariana Islands Range Complex; Guam; Tinian
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.7 Water Purification

Activity Name	Activity Description	
Other Training		
Water Purification	Units conduct water purification training using water purification equipment in field conditions.	
Long Description	Personnel utilize water purification equipment to purify salt water or fresh water from field sources and properly dispose of filters/filtered effluent. Water purification systems used in training vary in design, size, portability, output, and filtration systems, and not all systems produce an effluent. Individual systems may consist of a straw with in-line filter. Larger units supporting a squad or platoon may consist of a luggage-sized unit with a selectable combination of nanofilters/ultraviolet/reverse osmosis systems. Units supporting several hundred or more typically are reverse osmosis or evaporation systems that require portable generators and a disposal field/tank for effluent.	
Information Typical to the Event	**Platform:** None **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Several days to weeks, as required to support water purification training and other training events.	**Location:** Mariana Islands Range Complex; Guam; Tinian
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vehicle noise, generator noise **Energy:** None **Physical Disturbance and Strike:** Physical disturbance (sea turtles and nests) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	Water purification activities within Tinian are regulated under the CNMI Water Quality Standards. Discharge of brine/wastewater must be discharged upland and not directly back into the ocean. As a result of these regulations, water purification operations involving brine/wastewater discharge are conducted at the Tinian Commercial Port.	

A.1.11.8 Field Training Exercise

Activity Name	Activity Description	
Other Training		
Field Training Exercise	Units train in securing an area, establishing a camp or post, and guarding and patrolling. Event typically lasts a week or a few days.	
Long Description	Units train in securing an area, establishing a camp or post, and guarding and patrolling. Event typically lasts a week or a few days.	
Information Typical to the Event	**Platform:** None **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–3 days	**Location:** Mariana Islands Range Complex; Guam; Tinian; Rota; Saipan
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** Physical disturbance (camp footprint limited to areas not restricted to training) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.9 Force Protection

Activity Name	Activity Description	
Other Training		
Force Protection	Units train in providing force protection against a terror threat.	
Long Description	Force protection operations increase the physical security of military personnel in the region to reduce their vulnerability to attacks. Force protection training includes moving forces and building barriers, detection, and assessment of threats, delay, or denial of access of the adversary to their target, appropriate response to threats and attack, and mitigation of effects of attack. Force protection includes employment of offensive as well as defensive measures.	
Information Typical to the Event	**Platform:** Rotor wing-aircraft **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions **Targets:** None **Duration:** None	**Location:** Mariana Islands Range Complex; Guam; Tinian; Rota
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.10 Anti-Terrorism

Activity Name	Activity Description	
Other Training		
Anti-Terrorism	Units train in providing force protection against a terror threat.	
Long Description	Anti-Terrorism operations concentrate on the deterrence of terrorism through active and passive measures, including the collection and dissemination of timely threat information, conducting information awareness programs, coordinated security plans, and personal training. The goal is to develop protective plans and procedures based upon likely threats and strike a reasonable balance between physical protection, mission requirements, critical assets and facilities, and available resources to include manpower.	
Information Typical to the Event	**Platform:** Rotor-wing aircraft **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions **Targets:** None **Duration:** None	**Location:** Mariana Islands Range Complex; Guam; Tinian; Rota
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.11 Seize Airfield

Activity Name	Activity Description	
Other Training		
Seize Airfield	Train Naval Special Warfare, Navy Expeditionary Combat Command or Marine Corps personnel to seize control of an airfield or port for use by friendly forces.	
Long Description	Units use advanced, offensive, raid and close-quarters battle techniques to move through a hostile environment where noncombatants are or may be present and collateral damage must be kept to a minimum in order to be able to use the airfield facilities after they have been seized. Includes establishing a temporary forward operating base with supporting expeditionary logistic operations (e.g., cargo drop).	
Information Typical to the Event	**Platform:** Rotor-wing and fixed-wing aircraft **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions, pyrotechnics (smoke and flares) **Targets:** None **Duration:** Up to 2 weeks	**Location:** Mariana Islands Range Complex airfields (Orote Point Airfield, Guam; Northwest Airfield, Guam; North Airfield, Tinian)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, Generator noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only), physical disturbance and clearing (camp footprint limited to areas not restricted to training) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.12 Airfield Expeditionary

Activity Name	Activity Description	
Other Training		
Airfield Expeditionary	Units conduct training establishing, securing, maintaining, or operating an expeditionary airfield.	
Long Description	Conduct airfield operations in an expeditionary environment, providing force protection and repairs to facilities, while supporting airfield operations for forward deployed combat forces. Includes establishing a forward operating base with supporting expeditionary logistic operations (e.g., cargo drop).	
Information Typical to the Event	**Platform:** Fixed-wing and rotor-wing aircraft **Systems:** None **Ordnance/Munitions:** Blanks, Simunitions, pyrotechnics (smoke and flares) **Targets:** None **Duration:** Up to 4 weeks	**Location:** Mariana Islands Range Complex airfields (Orote Point Airfield, Guam; Northwest Airfield, Guam; North Airfield, Tinian)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, Generator noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only), physical disturbance and clearing (camp footprint limited to areas not restricted to training) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.13 Unmanned Aerial Vehicle Operation

Activity Name	Activity Description	
Other		
Unmanned Aerial Vehicle Operation	Units conduct training with unmanned aerial vehicles from airfields or in the battlefield.	
Long Description	Conduct unmanned aerial vehicle activity in support of tactical and theater requirements.	
Information Typical to the Event	**Platform:** Unmanned aerial vehicles **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** None	**Location:** Mariana Islands Training and Testing Study Area; Mariana Islands Range Complex airfields (Orote Point Airfield, Guam; Northwest Airfield, Guam; North Airfield, Tinian); Mariana Islands Special Use Airspace
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	None	

A.1.11.14 Land Demolitions (Improvised Explosive Device Discovery/Disposal)

Activity Name	Activity Description	
Other		
Land Demolitions (Improvised Explosive Device Discovery/Disposal)	Explosive Ordnance units conduct training detecting, isolating, or securing Improvised Explosive Devices or unexploded ordnance. No explosive ordnance is detonated in this event.	
Long Description	Explosive Ordnance Disposal detachments transit to the training site in trucks or other light wheeled vehicles, sometimes conducting convoy operations or employing other unit tactics proceeding to the site. A search of a suspect area is conducted to locate inert land mines or to locate a designated target for destruction. Buried land mines and unexploded ordnance require the detachment to employ probing techniques and metal detectors for locating the mine or object and the use of hand tools and digging equipment to excavate them.	
Information Typical to the Event	**Platform:** Ground vehicles **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** None	**Location:** Mariana Islands Range Complex
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.1.11.15 Land Demolitions (Unexploded Ordnance) Discovery/Disposal

Activity Name	Activity Description	
Other		
Land Demolitions (Unexploded Ordnance) Discovery/Disposal	Explosive Ordnance units conduct disposal of unexploded ordnance at approved DoD sites. Training is incidental to the emergency disposal of unexploded ordnance.	
Long Description	Emergency disposal of unexploded ordnance, once exposed and/or properly identified, is conducted in a controlled environment at an approved site.	
Information Typical to the Event	**Platform:** None **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** None	**Location:** 200 events Navy Emergency Disposal Site; 36 events Air Force Explosive Ordnance Disposal Sites (Guam)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Explosive charge (on DoD property at approved sites). **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.2 NAVAL AIR SYSTEMS COMMAND TESTING ACTIVITIES

Naval Air Systems Command events will closely follow fleet primary mission areas, such as the testing of airborne mine warfare and anti-submarine warfare weapons and systems. Naval Air Systems Command events include, but are not limited to, the testing of new aircraft platforms, weapons, and systems that have not been integrated into fleet training events, such as directed energy weapons and the Joint Strike Fighter. In addition to testing new platforms, weapons, and systems, Naval Air Systems Command also conducts lot acceptance testing of airborne weapons and sonobuoys in support of the fleet. These types of events do not fall within one of the fleet primary mission areas; however, in general, most Naval Air Systems Command testing events in terms of their potential environmental effects are similar to Fleet training events.

While many of these systems will eventually be used by the fleet during normal training and will be addressed in this EIS/OEIS for those fleet activities, testing and development activities involving the same or similar systems as will be used by operational fleet units may be used in different locations and manners than when actually used by operational fleet units. Hence, the analysis for testing events and training of Fleet units may differ.

A.2.1 ANTI-SURFACE WARFARE TESTING

A.2.1.1 Air-to-Surface Missile Test

Activity Name	Activity Description	
Anti-Surface Warfare		
Air-to-Surface Missile Test	This event is similar to the training event missile exercise (air-to-surface). Test may involve both fixed-wing and rotary-wing aircraft launching missiles at surface maritime targets to evaluate the weapon system or as part of another systems integration test.	
Long Description	Similar to a missile exercise air-to-surface, an Air-to-Surface Missile Test for fixed-wing aircraft launching missiles at surface maritime targets to evaluate the weapons system or as part of another integration test. Air-to-Surface Missile Tests can include high-explosive, non-explosive, or non-firing (captive air training missile) weapons. Both stationary and mobile targets would be utilized during testing; some operational tests would use missiles with explosive warheads and some missiles tested will have non-explosive warheads with a live motor.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft **Systems:** Missile systems **Ordnance/Munitions:** Harpoon **Targets:** Stationary and mobile surface marine targets **Duration:** 2–4 flight hours/event	**Location:** Mariana Islands Training and Testing Study Area > 50 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, weapons firing noise, underwater explosion (E10) **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (missiles), aircraft strike (birds only) **Entanglement:** None **Ingestion:** Missile fragments, target fragments	
Detailed Military Expended Material Information	Missile and target fragments	
Assumptions used for Analysis	One air-to-surface missile per event; 50 percent will be explosive.	

A.2.2 ANTI-SUBMARINE WARFARE TESTING

A.2.2.1 Anti-Submarine Warfare Tracking Test – Maritime Patrol Aircraft (Sonobuoys)

Activity Name	Activity Description	
Anti-Submarine Warfare		
Anti-Submarine Warfare Tracking Test – Maritime Patrol Aircraft (Sonobouys)	This event is similar to the training event, Anti-Submarine Warfare Tracking Exercise–Maritime Patrol Aircraft. The test evaluates the sensors and systems used by maritime patrol aircraft to detect and track submarines and to ensure that aircraft systems used to deploy the tracking systems perform to specifications and meet operational requirements.	
Long Description	Similar to an Anti-Submarine Warfare Tracking Exercise-Maritime Patrol Aircraft. Anti-Submarine Warfare Tracking Test—Maritime Patrol Aircraft evaluates the sensors and systems used to detect and track submarines and to ensure that platform systems used to deploy the tracking systems perform to specifications and meet operational requirements. P-3 or P-8A fixed-wing aircraft conduct Anti-Submarine Warfare testing using tonal sonobuoys (e.g., AN/SSQ-62 DICASS), explosive sonobuoys (e.g., AN/SSQ-110 Improved Extended Echo Ranging), passive sonobuoys (e.g., AN/SSQ-53), torpedoes (e.g., MK-46), smoke devices (e.g., MK-58), SUS devices (e.g., MK-61 SUS), missiles (e.g., harpoons), and flares. Targets (e.g., MK-39 Expendable Mobile Anti-Submarine Warfare Training Target) may also be employed during an Anti-Submarine Warfare scenario. Some Anti-Submarine Warfare Maritime Patrol Aircraft Tracking Test could be conducted as part of a Coordinated Event with fleet training activities.	
Information Typical to the Event	**Platform:** Fixed-wing Maritime Patrol Aircraft (e.g., P-3, P-8A) **Systems:** Tonal sonobuoys (e.g., AN/SSQ-62 DICASS); passive sonobuoys (e.g., AN/SSQ-53); explosive sonobuoys (e.g., AN/SSQ-110 Improved Extended Echo Ranging), **Ordnance/Munitions:** Non-explosive, all recovered; other non-explosive class stores (1000 lb.) torpedoes, smoke devices, flares, missiles, SUS devices **Targets:** MK-39 or MK-30 **Duration:** 4–6 flight hours/event	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonobuoys (e.g., ASW2, MF5, MF6), underwater explosives (e.g., E3, E4), aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, in-water device strike, aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes, Sonobuoy fragments, torpedo fragments	
Detailed Military Expended Material Information	One MK-39 or MK-30 target (MK-30 is recovered and reused, MK-39 is not) If target air dropped, one parachute per target. 20–60 sonobuoys per event (one parachute per sonobuoy)	
Assumptions used for Analysis	Torpedo, missile, flare use will be captured under Anti-submarine warfare Torpedo Test, Anti-surface Warfare Missile Test, and Flare Test, respectively; Chaff will also be captured under Flare Test. Analysis of these systems will not be conducted as part of this activity.	

A.2.2.2 Anti-Submarine Warfare Torpedo Test

Activity Name	Activity Description	
Anti-Submarine Warfare		
Anti-Submarine Warfare Torpedo Test	This event is similar to the training event, Torpedo Exercise. Test evaluates Anti-submarine warfare systems onboard rotary-wing and fixed-wing aircraft and the ability to search for, detect, classify, localize, and track a submarine or similar target.	
Long Description	Similar to a Torpedo Exercise, an Anti-Submarine Warfare Torpedo Test evaluates Anti-Submarine Warfare systems onboard rotary-wing (e.g., MH-60R helicopter) and fixed-wing Marine Patrol Aircraft (e.g., P-8, P-3) aircraft and the ability to search for, detect, classify, localize, track, and attack a submarine or similar target (e.g., MK-39 Expendable Mobile Anti-Submarine Warfare Training Target, or MK-30). The focus of the Anti-Submarine Warfare Torpedo test is on the torpedo and torpedoes (e.g., MK-46 or MK-54), but other Anti-Submarine Warfare systems are often used during the test, such as AN/AQS-22 dipping sonar (MH-60R) and sonobuoys (e.g., AN/SSQ-62). MK-39 or MK-30 targets simulate an actual submarine threat and are deployed at varying depths and speeds. This activity can be conducted in shallow or deep waters and aircraft can originate from a land base or from a surface ship. The Torpedo Test culminates with the release of an exercise torpedo against the target and is intended to evaluate the targeting, release, and tracking process of deploying torpedoes from aircraft. All exercise torpedoes used in testing are either running (EXTORP) or non-running (REXTORP). Non-explosive torpedoes are recovered. A parachute assembly and guidance wire used for aircraft-launched torpedoes is jettisoned and sinks. Ballast (typically lead weights) may be released from the torpedoes to allow for recovery and sink to the bottom.	
Information Typical to the Event	**Platform:** Fixed and rotary-wing aircraft (e.g., P-3/P-8, MH-60R), support vessels **Systems:** Dipping sonar (e.g., AN/AQS-22); sonobuoys (e.g., AN/SSQ-62) **Ordnance/Munitions:** Torpedoes (e.g., MK-46, MK-54, and MK-56; non-explosive) **Targets:** MK-39 Expendable Mobile Anti-Submarine Warfare Training Target or MK-30 **Duration:** 2–6 flight hours/event	**Location:** Mariana Islands Training and Testing Study Area > 3 nm from land
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (MF5, MF6), lightweight torpedoes (TORP1), aircraft noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, aircraft strike (birds only), vessel strike **Entanglement:** Parachutes, guidance wire **Ingestion:** Parachutes, target fragments	
Detailed Military Expended Material Information	Torpedo accessories (e.g., parachute assembly, guidance wire) Sonobuoys Ballast Target & torpedo fragments	
Assumptions used for Analysis	Assume one torpedo accessory package (parachute, ballast, guidance wire) per torpedo. Assume one target per torpedo. Assume 12 sonobuoys per event. Assume 15 percent of torpedoes are not recovered.	

A.2.2.3 Broad Area Maritime Surveillance Testing – MQ-4C Triton

Activity Name	Activity Description	
Anti-Submarine Warfare		
Broad Area Maritime Surveillance (BAMS) Testing – MQ-4C Triton	The Broad Area Maritime Surveillance system will fill a complementary role to the P-8A aircraft, providing maritime reconnaissance support to the Navy.	
Long Description	The MQ-4C Triton BAMS system will be equipped with electro-optical/infrared sensors, can remain on station for 30 hours, and fly at approximately 60,000 feet (18,288 meters).	
Information Typical to the Event	**Platform:** Maritime Patrol Aircraft, MQ-4C Triton **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 30 hours	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.2.3 ELECTRONIC WARFARE

A.2.3.1 Flare Test

Activity Name	Activity Description	
Electronic Warfare (EW)		
Flare Test	Flare tests evaluate newly developed or enhanced flares, flare dispensing equipment, or modified aircraft systems against flare deployment. Tests may also train pilots and aircrew in the use of newly developed or modified flare deployment systems. Flare tests are often conducted with other test events, and are not typically conducted as standalone tests. Chaff and flares are expended for this test event.	
Long Description	Flare tests are conducted to evaluate new flares, newly developed or modified flare deployment systems, to ensure that other newly enhanced aircraft systems are compatible with flare deployment, and to train pilots and aircrew in the use of newly developed or modified flare deployment systems. Flare tests are often conducted with other test events, and are not typically conducted as stand-alone tests. During a flare test, flares (and in some cases chaff) are deployed, but no weapons are typically fired. Fixed-wing aircraft deploy flares as a defensive tactic to disrupt the infrared missile guidance systems used by heat-seeking missiles, thereby causing the missile to lock onto the flare instead of onto the aircraft and enabling the aircraft to avoid the threat. In a typical scenario, an aircraft may detect the electronic targeting signals emitted from threat radars or missiles, or aircrew may visually identify a threat missile plume when a missile is launched. At a strategically appropriate time, the pilot dispenses flares and immediately maneuvers the aircraft to distract and defeat the threat. During a typical flare test, an aircraft will dispense flares 3,000 feet above mean sea level and flares are completely consumed while in the air. Aircraft flares use a magnesium extruded flare grain. Flare types commonly deployed during NAVAIR testing activities include but are not limited to: MJU-57, MJU-49, and MJU-38 for high speed aircraft and MJU-32 for low speed aircraft.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft **Systems:** Flares: MJU-57, MJU-49, and MJU-38 for high speed aircraft and MJU-32; Joint Allied Threat Assessment System/Common Infrared Countermeasures **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–4 flight hours/event	**Location:** Offshore Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** End caps, chaff	
Detailed Military Expended Materials Information	Flares (end caps and pistons) Chaff	
Assumptions Used for Analysis	Flare use from all other events are captured under this activity. Estimated 30 flares per event. Estimated 60 chaff canisters per event.	

A.3 NAVAL SEA SYSTEMS COMMAND TESTING ACTIVITIES

Naval Sea Systems Command testing activities are aligned with its mission of new ship construction, life cycle support, and weapon systems development. Each major category of Naval Sea Systems Command activities is described below.

A.3.1 LIFECYCLE ACTIVITIES

Testing activities are conducted throughout the lifecycle of a Navy ship to verify performance and mission capabilities.

A.3.1.1 Ship Signature Testing

Activity Name	Activity Description	
Lifecycle Activities		
Ship Signature Testing	Tests ship and submarine radars, electromagnetic, or acoustic signatures.	
Long Description	Radar cross signature testing of surface vessels is accomplished on new vessels and periodically throughout a vessel's lifecycle to measure how detectable the vessel is to radar. For example, Assessment Identification of Mine Susceptibility measurements are specific electromagnetic and passive acoustical tests performed on mine countermeasure vessels and on the Littoral Combat Ship mine countermeasure modules to determine their mine susceptibility. Additionally, measurements of deployed electromagnetic countermeasures are conducted during the new construction, post-delivery, and lifecycle phases of the acquisition process for submarines. Signature testing of all surface vessels and submarines verifies that each vessel's signature is within specifications, and may include the use of helicopter-deployed instrumentation, ship-mounted safety and navigation systems, fathometers, tracking devices, radar systems, and underwater communications equipment. Event duration includes all systems checks, including those that do not have active sonar.	
Information Typical to the Event	**Platform:** All surface vessel and submarine classes **Systems:** Navigation, underwater communication, sonar **Ordnance/Munitions:** None **Targets:** None **Duration:** None	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, underwater communications sonar (M3, MF9, and MF10), and hull-mounted sonar (MF2) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions Used for Analysis	None	

A.3.2 ANTI-SURFACE WARFARE/ANTI-SUBMARINE WARFARE TESTING

A.3.2.1 Kinetic Energy Weapon Testing

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW)		
Kinetic Energy Weapon Testing	A kinetic energy weapon (e.g., rail gun) uses stored energy released in a burst to accelerate a projectile.	
Long Description	A kinetic energy weapon uses stored energy released in a burst to accelerate a non-explosive projectile or in-air explosive projectile to more than seven times the speed of sound to a range of up to 200 miles.	
Information Typical to the Event	**Platform:** Surface combatant **Systems:** Kinetic energy weapon **Ordnance/Munitions:** Large-caliber projectile (non-explosive, or in-air explosive) **Targets:** Recoverable or expendable floating or in-air target **Duration:** Event duration is 1 day.	**Location:** Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Weapons firing noise, in-air explosives noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive projectile or fragments), vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	50 events with no more than 40 large-caliber projectiles per event A one-time event only for this EIS/OEIS with 5,000 large-caliber projectiles Expendable target – 1 target per event	
Assumptions Used for Analysis	Assume one target per event. A one-time event with 5,000 projectiles would occur only once for this EIS/OEIS.	

A.3.2.2 Torpedo Testing

Activity Name	Activity Description	
Anti-Surface Warfare/Anti-Submarine Warfare Testing		
Torpedo Testing	Air, surface, or submarine crews employ (non-explosive and explosive) torpedoes against submarines, surface vessels, or artificial targets.	
Long Description	Non-explosive and explosive torpedoes (carrying a warhead) would be launched at a suspended target by a submarine and fixed- or rotary-winged aircraft or surface combatants. Torpedoes would detonate on an artificial target located at a depth between 200 and 700 feet below the water's surface.	
Information Typical to the Event	**Platform:** Submarine, surface combatant vessel, fixed-wing aircraft, rotary-wing aircraft, support craft/other **Systems:** None **Ordnance/Munitions:** Torpedoes (heavyweight and lightweight) (explosive and non-explosive) **Targets:** Stationary artificial targets (e.g., MK 28) **Duration:** 1–2 days during daylight hours. Only one heavyweight torpedo test could occur in 1 day; two heavyweight torpedo tests could occur on consecutive days. Two lightweight torpedo tests could occur in a single day.	**Location:** Mariana Islands Range Complex
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosion (e.g., E8, E11), torpedo sonar (e.g., TORP1, TORP2), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only) **Entanglement:** Parachutes (sonobuoy and torpedo), guidance wire **Ingestion:** Target and torpedo fragments, parachutes (sonobuoy and torpedo), torpedo launch accessories	
Detailed Military Expended Material Information	Torpedo launch accessories o Lightweight/heavy weight torpedo launch accessories o Nose cap, suspension bands, air stabilizer, sway brace pad, arming wire, Fahnstock clip, wing kit, rocket booster, parachute, lead weights o Expended material is dependent upon torpedo fired and firing platform. Heavyweight torpedo launch accessories. Guidance wire, flex hose.	
Assumptions Used for Analysis	All sonobuoys have a parachute unless otherwise noted. 210 passive sonobuoys per event.	

A.3.2.3 Countermeasure Testing

Activity Name	Activity Description	
Anti-Surface Warfare/Anti-Submarine Warfare Testing		
Countermeasure Testing	Various acoustic systems (e.g., towed arrays and defense systems) are employed to detect, localize, track, and neutralize incoming weapons.	
Long Description	Countermeasure testing involves the testing of systems that would detect, localize, and track incoming weapons. At-sea testing of the Surface Ship Torpedo Defense systems includes towed acoustic systems, torpedo warning systems, and countermeasure anti-torpedo subsystems. Some countermeasure scenarios would employ torpedoes against targets released by secondary platforms (e.g., helicopter or submarine). While surface vessels are in transit, countermeasure systems will be used to identify false alert rates. Additionally, systems may be tested pierside to verify functionality.	
Information Typical to the Event	**Platform:** Aircraft carrier, surface combatant, submarine, fixed-wing aircraft, helicopters **Systems:** Countermeasure systems **Ordnance/Munitions:** Lightweight torpedoes **Targets:** Torpedo test vehicle **Duration:** 4 hours to 10 days (depending on the countermeasure being tested)	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (e.g., HF5), acoustic countermeasure (e.g., ASW3), torpedo sonar (e.g., TORP1), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, In-water device strike, aircraft noise, aircraft strike (birds only), military expended material strike **Entanglement:** Parachute (torpedo) **Ingestion:** Torpedo launch accessories	
Detailed Military Expended Material Information	Torpedo launch accessories (nose covers, parachutes, ram plates)	
Assumptions Used for Analysis	None	

A.3.2.4 At-Sea Sonar Testing

Activity Name	Activity Description	
Surface Warfare/Anti-Submarine Warfare Testing		
At-sea Sonar Testing	At-sea testing to ensure sonar systems are fully functional in an open ocean environment.	
Long Description	At-sea sonar testing is required to calibrate sonar systems while the vessel or submarine is in an open ocean environment. Tests consist of electronic support measurement, photonics, and sonar sensor accuracy testing. In some instances, a submarine's passive detection capability is tested when a second submarine utilizes its active sonar or is equipped with a noise augmentation system in order to replicate acoustic or electromagnetic signatures of other vessel types or classes.	
Information Typical to the Event	**Platform:** Surface combatant vessels, submarines **Systems:** Tactical sonar, acoustic countermeasures **Ordnance/Munitions:** None **Targets:** None **Duration:** 4 hours to 11 days	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency acoustic (e.g., HF1,HF6), mid-frequency acoustic (e.g., MF1, MF3, MF9, MF10, MF11), low-frequency acoustic (LF5, ASW1), acoustic modem (M3), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions Used for Analysis	Active sonar use is intermittent throughout the duration of the event. Acoustic countermeasures – 10 per event.	

A.3.3 SHIPBOARD PROTECTION SYSTEMS AND SWIMMER DEFENSE TESTING

A.3.3.1 Pierside Integrated Swimmer Defense

Activity Name	Activity Description	
Shipboard Protection Systems and Swimmer Defense Testing		
Pierside Integrated Swimmer Defense	Swimmer defense testing ensures that systems can effectively detect, characterize, verify, and engage swimmer/diver threats in harbor environments.	
Long Description	Swimmer defense testing includes testing of systems to determine if they can effectively detect, characterize, verify, and engage swimmer/diver threats in harbor environments. Swimmer and diver threats are detected with high frequency sonar. The threats are then warned to exit the water through the use of underwater voice communications. If the threat does not comply, non-lethal diver deterrent air guns are used against the threat. Surface loudhailers are also used during the test.	
Information Typical to the Event	**Platform:** Support craft/other **Systems:** Sonar, swimmer defense airguns surface loudhailers **Ordnance/Munitions:** None **Targets:** None **Duration:** 28 days with intermittent periods of use for each system during this time.	**Location:** Inner Apra Harbor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF4), mid-frequency sonar (e.g., MF8), swimmer defense sonar (e.g., SD1), airguns (e.g., AG), vessel noise, loudhailers (surface and underwater communications) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	**Other Sensors:** Surface ship protection systems (e.g., communications systems, loudhailers, swimmer deterrents)	

A.3.4 NEW SHIP CONSTRUCTION

Ship construction activities include the integration and testing of new mission packages.

A.3.4.1 Anti-Submarine Warfare Mission Package Testing

Activity Name	Activity Description	
New Ship Construction		
Anti-Submarine Warfare Mission Package Testing	Vessels and their supporting platforms (e.g., helicopters, unmanned aerial vehicles) detect, localize, and prosecute submarines.	
Long Description	Vessels conduct detect-to-engage operations against modern diesel-electric and nuclear submarines using airborne and surface assets (both manned and unmanned). Active and passive acoustic systems are used to detect and track submarine targets.	
Information Typical to the Event	**Platform:** Surface combatant vessels (e.g., Littoral Combat Ship); rotary-wing aircraft, Submarines **Systems:** Surface ship sonar, helicopter-deployed sonar, active sonobuoys **Ordnance/Munitions:** **Targets:** Motorized Autonomous Targets (e.g., Expendable Mobile Anti-Submarine Warfare Training Target) **Duration:** Event duration is approximately 1–2 weeks, with 4–8 hours of active sonar use with intervals of non-activity in between.	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (LF6), mid-frequency sonar (MF12), helicopter-deployed sonar (MF4), active sonobuoys (MF5), anti-submarine sonar (ASW1), countermeasures (ASW3), vessel noise and aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, towed in-water device strike, aircraft strike **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Material Information	Sonobuoys, parachutes	
Assumptions Used for Analysis	One target per event. All sonobuoys have a parachute unless otherwise noted. 2 sonobuoys per event.	

A.3.4.2 Mine Countermeasure Mission Package Testing

Activity Name	Activity Description	
New Ship Construction		
Mine Countermeasure Mission Package Testing	Vessels and associated aircraft conduct mine countermeasure operations.	
Long Description	Littoral Combat Ships conduct mine detection using unmanned submersible and aerial vehicles, magnetic and acoustic sensor systems deployed by vessel or support helicopters, and laser systems. Mines are then neutralized using magnetic, acoustic, and supercavitating systems.	
Information Typical to the Event	**Platform:** Surface combatant Ship, Unmanned Underwater Vehicles, rotary aircraft **Systems:** Towed sonar system **Ordnance/Munitions:** Mine neutralization systems (e.g., Airborne Mine Neutralization System) **Targets:** Floating/moored/bottom non-explosive, mines or passive mine simulation systems **Duration:** 1–2 weeks with intervals of mine countermeasure mission package use during this time.	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Towed sonar systems (HF4), underwater explosions (E4), aircraft noise, vessel noise **Energy:** Electromagnetic devices, in-air low energy lasers **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only), seafloor devices (e.g., mine shapes, mine shape mooring anchor) **Entanglement:** fiber optic cable **Ingestion:** Fragments	
Detailed Military Expended Material Information	Neutralizer fragments	
Assumptions Used for Analysis	Four neutralizer charges/event	

A.3.4.3 Anti-Surface Warfare Mission Package Testing

Activity Name	Activity Description	
New Ship Construction		
Anti-Surface Warfare Mission Package Testing	Vessels and associated aircraft track and engage against surface targets	
Long Description	Littoral Combat Ships conduct surface warfare by detecting, tracking, and prosecuting surface vessel threats. The Surface Warfare Mission Package provides a layered strike/defensive capability by use of its embarked support aircraft, medium range surface-to-surface missiles, and gun weapon systems.	
Information Typical to the Event	**Platform:** Littoral Combat Ship, unmanned aerial vehicles, rotary aircraft **Systems:** Missiles and large-, medium-, and small-caliber guns **Ordnance/Munitions:** Anti-surface vessel missile (e.g., Griffin); gun projectiles (e.g., 57mm, 30mm, and .50 cal.) **Targets:** Free floating or towed surface targets **Duration:** Conducted in intervals over 1–2 weeks	**Location:** Mariana Islands Training and Testing Study Area; Warning Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, weapon firing noise, aircraft noise, in-air explosives, underwater explosions (E1, E6) **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only), military expended material strike **Entanglement:** None **Ingestion:** Projectiles/projectile fragments; missile or rocket fragments	
Detailed Military Expended Material Information	Projectiles/projectile fragments, casings Missile or rocket fragments	
Assumptions Used for Analysis	500 small-caliber projectiles per event/510 explosive and 510 non-explosive medium-caliber rounds per event/980 explosive and 420 non-explosive large-caliber rounds per event/4 explosive missiles or rockets per event and 4 non-explosive missiles or rockets per event.	

A.4 OFFICE OF NAVAL RESEARCH AND NAVAL RESEARCH LABORATORY TESTING ACTIVITIES

As the Department of the Navy's Science and Technology provider, the Office of Naval Research and the Naval Research Laboratory provide technology solutions for Navy and Marine Corps needs. The Office of Naval Research's mission, as defined by law, is to plan, foster, and encourage scientific research in recognition of its paramount importance as related to the maintenance of future naval power, and the preservation of national security. Further, the Office of Naval Research manages the Navy's basic, applied, and advanced research to foster transition from science and technology to higher levels of research, development, test and evaluation.

The Ocean Battlespace Sensing Department explores science and technology in the areas of oceanographic and meteorological observations, modeling and prediction in the battlespace environment; submarine detection and classification (anti-submarine warfare); and mine warfare applications for detecting and neutralizing mines in both the ocean and littoral environment. Office of Naval Research events include: research, development, test and evaluation activities; surface processes acoustic communications experiments; shallow water acoustic communications experiments; sediment acoustics experiments; shallow water acoustic propagation experiments; and long range acoustic propagation experiments.

A.4.1 OFFICE OF NAVY RESEARCH

A.4.1.1 North Pacific Acoustic Lab Philippine Sea 2018–19 Experiment (Deep Water)

Activity Name	Activity Description	
RDT&E Testing		
North Pacific Acoustic Lab Philippine Sea 2018–19 Experiment (Deep Water)	The primary purpose of the Kauai Acoustic Communications Experiment is to collect acoustic and environmental data appropriate for studying the coupling of oceanography, acoustics, and underwater communications.	
Long Description	The experiment area encompasses international waters. The initial experiment was completed in May of 2011; an acoustic tomography array, a distributed vertical line array (DVLA), and moorings were deployed in the deep-water environment of the northwestern Philippine Sea. The acoustic tomography array and DVLA have remained in situ at the experiment site since that time, collecting oceanographic and acoustic data used to study deep-water propagation and to characterize the temperature and velocity structure in this oceanographically complex and highly dynamic region. In addition, data will be collected during two periods of intensive experimental at-sea operations in May and July of 2018. During the fall of 2018 data will be collected passively by remotely sensing seagliders. Research vessels, acoustic test sources, side scan sonar, ocean gliders, the existing moored acoustic tomographic array and distributed vertical line array, and other oceanographic data collection equipment will be used to collect information on the ocean environment. The final phases of the experiment will be completed during March through May 2019. The resulting analyses will aid in developing a more complete understanding of deep water sound propagation and the temperature-velocity profile of the water column in this part of the world.	
Information Typical to the Event	**Platform:** Research vessels **Systems:** Ocean gliders. **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–2 weeks	**Location:** Mariana Islands Training and Testing Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, high frequency sonar, acoustic modems, acoustic test sources **Energy:** None **Physical Disturbance and Strike:** Seafloor devices, vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	Mooring blocks	
Assumptions Used for Analysis	None	

A.5 UNITED STATES COAST GUARD TRAINING ACTIVITIES

This section separately presents U.S. Coast Guard Training Activities in order to clearly identify training activities conducted by Department of Homeland Security in the Mariana Islands.

A.5.1 GUNNERY EXERCISE (SURFACE-TO-SURFACE) SHIP – SMALL-CALIBER AND MEDIUM-CALIBER

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise Surface-to-Surface (Ship) – Small-Caliber and Medium-Caliber **(GUNEX [S-S] Ship – Small-Caliber and Medium-Caliber)**	Ship crews engage surface targets with ship's small- and medium-caliber guns.	
Long Description	This exercise involves vessel crews engaging surface targets at sea with small-caliber and medium-caliber weapons. Vessels use small- and medium-caliber weapons to practice defensive marksmanship, typically against a stationary floating target and high-speed mobile targets. Some targets are expended during the exercise and are not recovered.	
Information Typical to the Event	**Platform:** Surface vessels **Systems:** None **Ordnance/Munitions:** Small-caliber (non-explosive); Medium-caliber (high-explosive or non-explosive). **Targets:** Recoverable and expendable floating target (stationary or towed), remote control high-speed targets **Duration:** 2–3 hours	**Location:** Mariana Islands Training and Testing Study Area > 12 nm from land; Transit Corridor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E1), vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, target strike, military expended material strike (projectiles) **Entanglement:** None **Ingestion:** Small-caliber/Medium-caliber projectiles and casings, target fragments, projectile fragments	
Detailed Military Expended Material Information	Small- and medium-caliber projectiles and casings, target fragments, projectile fragments Approximately 200 small- and medium-caliber rounds per event One target used per event. Approximately 50 percent of targets are “Killer Tomatoes” (usually recovered) Approximately 35 percent are high-speed maneuvering targets, which are recovered. Approximately 15 percent of targets are other stationary targets such as a steel drum.	
Assumptions used for Analysis	None	

A.5.2 GUNNERY EXERCISE (SURFACE-TO-SURFACE) BOAT – SMALL-CALIBER AND MEDIUM-CALIBER

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise Surface-to-Surface (Boat) – Small-Caliber and Medium-Caliber (GUNEX [S-S] Boat)	Small boat crews engage surface targets with small- and medium-caliber weapons.	
Long Description	Boat crews engage surface targets with small- and medium-caliber weapons. Boat crews may use high or low speeds to approach and engage targets simulating other boats, floating mines, or near shore land targets with small- and medium-caliber (up to and including 40mm) weapons. A commonly used target is an empty steel drum. A number of different types of boats are used depending on the unit using the boat and their mission. Boats are most used to protect ships in harbors and high value units, such as: aircraft carriers, nuclear submarines, liquid natural gas tankers, etc., while entering and leaving ports, as well as to conduct riverine operations, and various naval special warfare operations. The boats used by these units include: small unit river craft, combat rubber raiding craft, rigid-hull inflatable boats, patrol craft, and many other versions of these types of boats. These boats use inboard or outboard, diesel or gasoline engines with either propeller or water jet propulsion.	
Information Typical to the Event	**Platform:** Boats **Systems:** None **Ordnance/Munitions:** Small- and medium-caliber (up to and including 40mm [explosive and non-explosive]) **Targets:** Recoverable or expendable floating target (Figure A-4) (stationary or towed) **Duration:** 1 hour	**Location:** Mariana Islands Training and Testing Study Area > 12 nm [explosive rounds] Study Area > 3 nm from land [non-explosive rounds] Transit Corridor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosions (E2), vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectile, target fragments), vessel and in-water device strike **Entanglement:** None **Ingestion:** Projectiles and target fragments, projectiles, casings	
Detailed Military Expended Material Information	Projectiles and target fragments, projectiles, casings One target used per event, typically a stationary target such as a 50-gallon (189-liter) steel drum.	
Assumptions used for Analysis	Assume all Alternatives 1 and 2 events include the use of some explosive rounds. Most events will involve boat crews training with MK 203 40mm grenade launcher.	

A.5.3 MARITIME SECURITY OPERATIONS (MSO)

Activity Name	Activity Description	
Anti-Surface Warfare		
Maritime Security Operations (MSO)	Helicopter and surface ship crews conduct a suite of Maritime Security Operations (e.g., Vessel, Search, Board, and Seizure; Maritime Interdiction Operations; Force Protection; and Anti-Piracy Operation).	
Long Description	Helicopter and surface ship crews conduct a suite of Maritime Security Operations (e.g., visit search, board, and seizure; maritime interdiction operations; force protection; and anti-piracy operation). These activities involve training of boarding parties delivered by helicopters and surface ships to surface vessels for the purpose of simulating vessel search and seizure operations. Various training scenarios are employed and may include small arms with non-explosive blanks and surveillance or reconnaissance unmanned surface and aerial vehicles, and anti-swimmer grenades. The entire exercise may last 2–3 hours. Vessel Visit, Board, Search, and Seizure: Military and U.S. Coast Guard personnel from vessels and aircraft board suspect vessels, potentially under hostile conditions. Maritime Interdiction Operations: Vessels and aircraft train in pursuing, intercepting, and ultimately detaining suspect vessels. Oil Platform Defense: Naval personnel train to defend oil platforms or other similar at sea structures. Warning Shot/Disabling Fire: Naval and U.S. Coast Guard personnel train in the use of weapons to force fleeing or threatening small boats (typically operating at high speeds) to come to a stop. Ship Force Protection: Vessel crews train in tracking multiple approaching, circling small craft, assessing threat potential, and communicating amongst crewmates and other vessels to ensure vessels are protected against attack. Anti-Piracy Training: Naval and U.S. Coast Guard personnel train in deterring and interrupting piracy activity. Training includes large vessels (pirate “mother ships”), and multiple small, maneuverable, and fast craft.	
Information Typical to the Event	**Platform:** Surface vessel (any), rotary-wing aircraft, small boats, high speed vessels, unmanned vehicles (surface and aerial) **Systems:** None **Ordnance/Munitions:** Small-caliber (non-explosive) and anti-swimmer grenades **Targets:** Range support vessel, high performance boats, remote controlled high speed targets towing surface targets **Duration:** Up to 3 hours	**Location:** Mariana Islands Training and Testing Study Area; Mariana Islands Range Complex
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise, weapons firing noise, underwater explosion (E3) **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike, military expended material strike (projectile, target), **Entanglement:** None **Ingestion:** Small-caliber projectiles, casings, target fragments	
Detailed Military Expended Material Information	Small-caliber projectiles Target fragments Casings, grenade fragments	
Assumptions used for Analysis	Majority of events will occur proximate to NAVBASE Guam including during times of transit in and out of port, as well as during major training events.	

A.5.4 CIVILIAN PORT DEFENSE

Activity Name	Activity Description	
Major Training Events		
Civilian Port Defense	Civilian Port Defense exercises are naval mine warfare activities conducted at various ports and harbors, in support of U.S. Coast Guard and maritime homeland defense/security.	
Long Description	Naval forces provide Mine Warfare capabilities to DHS led event. The three pillars of MIW, Airborne (helicopter), Surface (ships and unmanned vehicles), and Undersea (divers, marine mammals, and unmanned vehicles) mine countermeasures will be brought to bear in order to ensure strategic US ports remain free of mine threats. Various MIW sensors, which utilize active acoustics, will be employed in the detection, classification, and neutralization of mines. Along with traditional MIW techniques, such as helicopter towed mine countermeasures, new technologies (unmanned vehicles) will be utilized. Event locations and scenarios will vary according to U.S. Coast Guard and DHS strategic goals and evolving world events. Purpose of MITT analysis is to ensure adequate Marine Mammal Protection Act (MMPA) authorizations are in place to support the use of acoustic mine detection sensors. Additional analysis and regulatory engagement will be conducted as appropriate as planning for the actual events begin.	
Information Typical to the Event	**Platform:** Surface combatant vessels (e.g., LCS, MCM), U.S. Coast Guard vessels, small boats, rotary wing aircraft **Systems:** Unmanned underwater and surface vehicles, various mine detection sensors (e.g., AN/AQS-20, AN/AQS-24) **Ordnance/Munitions:** High-explosive charges **Targets:** Temporary mine shapes **Duration:** Multiple days	**Location:** Mariana littorals, Mariana Islands Range Complex; Inner and Outer Apra Harbor
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (e.g., HF4); underwater explosions (e.g., E2, E4), vessel noise, aircraft noise **Energy:** Magnetic influence mine sweeping **Physical Disturbance and Strike:** Vessel and in-water device strike, seafloor device (bottom placed mine shapes), aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material	None	
Assumptions Used for Analysis	Non-permanent mine shapes will be laid in various places on the bottom. Shapes are varied, from about 1 meter circular to about 2.5 meters long by 1 meter wide. They will be recovered using normal assets, with diver involvement.	

A.5.5 SEARCH AND RESCUE AT SEA

Activity Name	Activity Description	
Other		
Search and Rescue at Sea	Vessels and aircraft conduct search and rescue of personnel and vessels at sea.	
Long Description	U.S. Coast Guard vessels, Navy vessels, and rotor-wing and fixed-wing aircraft coordinate on scene actions to search and conduct rescue and recovery of personnel or vessels at sea.	
Information Typical to the Event	**Platform:** Ships, rotor-wing aircraft, fixed-wing aircraft, unmanned aerial vehicles **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 3 days	**Location:** Mariana Islands Test and Training Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	

A.5.6 PRECISION ANCHORING

Activity Name	Activity Description	
Other Training		
Precision Anchoring	Releasing of anchors in designated locations.	
Long Description	Vessels navigate to a pre-planned position and deploy the anchor. The vessel uses all means available to determine its position when anchor is dropped, to demonstrate calculating and plotting the anchor's position within 100 yards of center of planned anchorage.	
Information Typical to the Event	**Platform:** All surface vessels **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 1 hour	**Location:** Mariana Islands anchorages
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, seafloor device strike (anchor) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Material Information	None	
Assumptions used for Analysis	None	