Atlantic Fleet Training and Testing
Final Environmental Impact Statement / Overseas Environmental Impact Statement

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Lead Agency
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Cooperating Agency
National Marine Fisheries Service

Action Proponents
United States Fleet Forces
Naval Air Systems Command
Naval Sea Systems Command
Office of Naval Research

For Additional Information
NAVFAC Atlantic
Attn: EV22LD (AFTT EIS/OEIS Project Manager)
6506 Hampton Boulevard
Norfolk, VA 23508-1278
Phone: (757) 322-4645

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APPENDIX A

NAVY ACTIVITIES DESCRIPTIONS

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APPENDIX A NAVY ACTIVITIES DESCRIPTIONS

The Navy has been conducting military readiness activities throughout the northwestern Atlantic Ocean and Gulf of Mexico for decades. The tempo and types of training and testing activities have fluctuated within the Atlantic Fleet Training and Testing (AFTT) 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 Navy's 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 a primary mission area, but are an essential part of Navy training. In addition, because the Navy conducts a number of activities within larger training exercises, descriptions of those larger exercises are also included here. It is important to note that these larger exercises 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[1] 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 cannon for close-in point defense. Strike/fighter aircraft carry anti-aircraft weapons, including air-to-air missiles and aircraft cannon. 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.

[1] The terms 'ship' and 'vessel' are used interchangeably throughout the document.

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 in which aircrew engage in offensive and defensive maneuvering against each other. During air combat maneuver engagements, no ordnance is fired, however 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.	
Information Typical to the Event	**Platform**: Fixed-wing aircraft (F/A-18, F-35, F-5) **Systems**: None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–2 hours	**Location***: VACAPES: W-72, W-386 Navy Cherry Point: W-122 (Areas 1, 8, 15, 16) JAX: W-132, W-133, W-134, W-157 (Areas 3X, 4X), W-158, W-159 Key West: W 174 A/B/C/E/F/G, W-465 A/B, Bonefish 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 Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). 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

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 where aircraft controllers on ships, 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 where personnel on ships use search radars to detect, classify, and track enemy aircraft or missiles up to the point of engagement.	
Information Typical to the Event	**Platform**: Fixed-wing aircraft (F/A-18, F-35, E-2), surface ships (all) **Systems**: None **Ordnance/Munitions:** None **Targets:** Other aircraft; unmanned drones **Duration:** 1–4 hours	**Location*:** VACAPES: W-386, W-72 Navy Cherry Point: W-122 JAX: W-132, W-133, W-134, W-157, W-158, W-159 GOMEX: W-151, W-155
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 Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). No weapons are fired.	

A.1.1.3 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 jet aircraft and a target banner towed by a contracted aircraft (e.g., Lear jet). The banner target is recovered after the event.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (F/A-18, F-35) **Systems:** None **Ordnance/Munitions:** Medium-caliber (non-explosive) **Targets:** Towed banner **Duration:** 1–2 hours	**Location*:** VACAPES: W-72A, W-72B, W-386 Navy Cherry Point: W-122 (Area 9,10, 11, 12) JAX: W-157A, W-133 (Area 2X) Key West: W-174A
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material (non-explosive projectiles) strike; aircraft strike (birds only) **Entanglement:** None **Ingestion:** Medium-caliber projectiles; casings	
Detailed Military Expended Materials Information	Projectiles; casings	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Only non-explosive munitions are used. Target is recovered.	

A.1.1.4 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 are either high-explosive warheads or non-explosive practice munitions. The target is either an unmanned aerial target drone, a tactical air-launched decoy, or a parachute suspended illumination flare. Target drones deploy parachutes and are recovered by boat or helicopter; 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 (F/A-18, F-35) **Systems**: None **Ordnance/Munitions:** Air-to-air missiles: AIM-7, AIM-9, AIM-120, AIM-132 (non-explosive and high-explosive) **Targets:** BQM-34, BQM-74 (Figure A-1), tactical air-launched decoy (Figure A-3), LUU-2 illumination flare (Figure A-2), ADM-141 ITALD **Duration:** 1–2 hours	**Location***: VACAPES: W-72B, W-386 Navy Cherry Point: W-122 JAX: W-132, W-133, W-134, W-157, W-158 Key West: W-174A, W-174B, W-174F
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise; in-air explosives **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, parachutes, flare casings, target fragments)	
Detailed Military Expended Materials Information	Missile and target fragments; parachutes; flare casings	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). 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 MISSILEX 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.1.1.5 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 large-caliber guns.	
Long Description	Surface ship crews defend against threat aircraft or missiles with guns to disable or destroy the threat. An event involves one ship and a simulated threat aircraft or anti-ship missile that is detected by the ship'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 ship. The target is towed by a commercial air services jet.	
Information Typical to the Event	**Platform**: Surface ship (DDG, FFG, LCS, CG); fixed-wing aircraft **Systems**: None **Ordnance/Munitions:** Large-caliber: 5-inch gun, 76 mm, 57 mm (non-explosive under No Action Alternative and high-explosive under Alternatives 1 and 2) **Targets:** Towed targets behind aircraft. **Duration:** 1–2 hours	**Location*:** VACAPES: W-386, W-72 JAX: Gunnery boxes AA, BB
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 Materials Information	Projectiles; projectile fragments; target fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). All projectiles under the No Action Alternative are assumed to be non-explosive. All projectiles under Alternatives 1 and 2 are assumed to be high-explosive. All projectiles explode well above surface.	

A.1.1.6 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 medium-caliber guns.	
Long Description	Surface ship crews defend against threat aircraft or missiles with guns to disable or destroy the threat. An event involves one ship and a simulated threat aircraft or anti-ship missile that is detected by the ship's radar. Medium-caliber guns fire projectiles, typically non-explosive, to disable or destroy the threat before it reaches the ship. The target is towed by a commercial air services jet.	
Information Typical to the Event	**Platform**: Surface ships (all); fixed-wing aircraft **Systems**: None **Ordnance/Munitions:** Medium-caliber (non-explosive) **Targets:** Towed targets behind aircraft **Duration:** 1–2 hours	**Location*:** VACAPES: W-386, W-72 Navy Cherry Point JAX: Gunnery areas: AA, BB Other AFTT Areas: Outside of established ranges where ships may conduct unit level training events while in transit
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 Materials Information	Projectiles; casings	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). All projectiles are non-explosive. Close-In Weapon System employed in all events. Pre-scheduled events occur in typical VACAPES/JAX locations. Routine Close-In Weapon System maintenance related firing can occur throughout the Study Area.	

A.1.1.7 Missile Exercise (Surface-to-Air)

Activity Name	Activity Description	
Anti-Air Warfare		
Missile Exercise (Surface-to-Air) (MISSILEX [S-A])	Surface ship crews defend against threat missiles and aircraft with missiles.	
Long Description	Surface ship crews defend against threat missiles and aircraft with ship launched missiles. The event involves a simulated threat aircraft or anti-ship missile which is detected by the ship's radar. Ship 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 ships (all) **Systems**: None **Ordnance/Munitions:** Surface-to-air missiles (Sea Sparrow, Standard Missile SM-2, Rolling Airframe Missile [high-explosive]) **Targets:** Unmanned drone: BQM-34, BQM-74 **Duration:** 1–2 hours	**Location***: Northeast VACAPES: W-72, W-386 (Air D, G, H, K) Navy Cherry Point: W-122 JAX: W-132, W-133, W-134, W-157, W-158, W-159 GOMEX: OPAREAs
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 Materials Information	Missile fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Assumes that all anti-air missiles are high-explosive. Missile explodes well above surface. All explosive and propellant are consumed. Targets are typically not destroyed and unmanned drones are recovered.	

A.1.2 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 activities 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 activities include 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.1.2.1 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	Surface ship crews use large-caliber (main battery) guns to support forces ashore. One or more ships position themselves up to six nautical miles (nm) from the target area and a land-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 is often supported by target shapes such as tanks, truck, trains, or aircraft on the ground.	
Information Typical to the Event	**Platform**: Surface combatant ships (CG, DDG) **Systems**: None **Ordnance/Munitions:** Large-caliber (5-inch rounds, explosive and non-explosive) **Targets:** Land target **Duration:** 1–2 hours	**Location**: Navy Cherry Point: Firing point from sea is Area 15B. Impact occurs at G-10 Impact Area, Camp Lejeune.
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:** None	
Detailed Military Expended Materials Information	Casings	
Assumptions Used for Analysis	Projectile impact is on land. This event can only be conducted in Navy Cherry Point, as the G-10 range is the only east coast location that can support Naval Surface Fire Support Exercises on a land-based target.	

A.1.2.2 Naval Surface Fire Support Exercise At Sea

Activity Name	Activity Description	
Amphibious Warfare		
Naval Surface Fire Support Exercise – At Sea (FIREX [At Sea])	Surface ship crews use large-caliber guns to support forces ashore; however, the land target is simulated at sea. Rounds are scored by passive acoustic hydrophones located at or near the target area.	
Long Description	Surface ship crews use large-caliber guns to support forces ashore; however, the land target is simulated at sea. Rounds are scored by passive acoustic hydrophones located at or near the target area. The portable scoring system is comprised of sonobuoys (Integrated Maritime Portable Acoustic Scoring and Simulation buoys) set in a pre-designed pattern at specific intervals, which are retrieved after the exercise. An onboard scoring system provides a realistic presentation, such as a land mass with topography, to the ship's combat system. This virtual land target area overlays the sonobuoy array. The ship fires its ordnance into the target area and the acoustic noise resulting from the impact of the round landing in the water is detected by the sonobuoys. The global positioning system position and bearing of the impact is transmitted to the ship and the onboard scoring system triangulates the exact point of impact of the round, allowing the exercise to be conducted as if the ship were firing at an actual land target. Surface ship crews use large-caliber (main battery) guns to support forces ashore.	
Information Typical to the Event	**Platform**: Surface combatant ships (CG, DDG), rigid hull inflatable boats (for recovering buoys) **Systems**: None **Ordnance/Munitions:** Large-caliber (5-inch rounds) explosive and non-explosive practice munitions **Targets:** Integrated Maritime Portable Acoustic Scoring and Simulation buoys **Duration:** 1–2 hours of firing, 8 hours total	**Location***: VACAPES: 5C/D, 7C/D, 8C/D, 1C1/2 Navy Cherry Point: Area 4/5, 13/14 JAX: Surface Gunnery Areas BB, CC GOMEX: Pensacola OPAREA W-151 A/B and W-155A
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E5); vessel noise; weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectiles and projectile fragments); vessel strike **Entanglement:** None **Ingestion:** Projectile fragments	
Detailed Military Expended Materials Information	Projectiles and projectile fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Events occur greater than 12 nm from shore. Non-explosive practice munitions may be used when Integrated Maritime Portable Acoustic Scoring and Simulation buoys can detect projectile splash. High-explosives will be used during all other events. Assume all explosive rounds detonate on impact with water surface.	

A.1.2.3 Marine Expeditionary Unit Certification Exercise

Activity Name	Activity Description	
Amphibious Warfare		
Marine Expeditionary Unit (MEU) Certification Exercise (CERTEX)	Amphibious Ready Group exercises are conducted to validate the Marine Expeditionary Unit's readiness for deployment and include small boat raids; visit, board, search, and seizure training; helicopter and mechanized amphibious raids; and a non-combatant evacuation operation.	
Long Description	Marine Corps amphibious forces move from amphibious ships at sea, by watercraft or aircraft, and introduce a landing force, establish a beachhead, and occupy the area or move further inland for an extended period. The amphibious assault conducted by a Marine expeditionary unit involves employment of the advance force, combat, combat support, and combat service support units in close coordination with the expeditionary strike group and carrier strike group. The landing is conducted in waves and is focused on concentrating forces quickly in order to establish the beachhead. A typical event involves two reinforced companies from the battalion landing team coming ashore via landing crafts and amphibious assault vehicles. Follow-on waves include fire support assets, armored units, and service support elements. This exercise generally occurs during a composite training unit exercise.	
Information Typical to the Event	**Platform**: Surface ships; amphibious vehicles; fixed-wing aircraft; rotary-wing aircraft **Systems**: None **Ordnance/Munitions:** Small-caliber (non-explosive)**** **Targets:** None **Duration:** Up to 3 weeks	**Locations:** Navy Cherry Point: Onslow Bay
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 Materials Information	None	
Assumptions Used for Analysis	Amphibious Readiness Group Major Training Event ****Weapons firing during this event is discussed in appropriate activity descriptions (gunnery exercise, etc.).	

A.1.2.4 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 ships, landing crafts, or 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 ships, and their associated watercraft and aircraft, to move personnel and equipment from ship 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 ships (LHA, LHD, LPD, LSD); amphibious vehicles, rotary-wing aircraft **Systems**: None **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 2 weeks	**Locations:** Navy Cherry Point: Onslow Bay
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 Materials Information	None	
Assumptions Used for Analysis	Typical event:1–3 amphibious ships (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 (MH-53, H-46/MV-22, AH-1, UH-1, AV-8); a Marine Expeditionary Unit (2,200 Marines).	

A.1.2.5 Amphibious Raid/Humanitarian Assistance Operations

Activity Name	Activity Description	
Amphibious Warfare		
Amphibious Raid/Humanitarian Assistance Operations	Small unit forces move swiftly from ships at sea for a specific short term mission. These are quick operations with as few personnel as possible.	
Long Description	Small unit forces swiftly move from amphibious ships 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 kept as small as possible to maximize stealth and speed of the operation. An event may employ assault amphibian vehicle units, small boat units, small unit live-fire and non-live-fire operations. Surveillance or reconnaissance unmanned surface and aerial vehicles may be used during this event. Events are also conducted to train in the delivery of humanitarian assistance to remote locations or areas requiring assistance after natural disasters.	
Information Typical to the Event	**Platform**: Amphibious assault ships (LHA, LHD), amphibious transport dock and dock landing ships (LPD, LSD); amphibious vehicles (landing craft, air cushioned, and amphibious assault vehicles); small boats (rigid hull inflatable boats) **Systems**: Unmanned surface and aerial vehicles **Ordnance/Munitions:** Non-explosive practice munitions **Targets:** None **Duration:** 4–8 hours	**Locations:** Navy Cherry Point: Onslow Bay JAX: Naval Station Mayport
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise; weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Firing of weapons during these events is accounted for in gunnery exercises, surface to surface activities. Events in JAX are conducted at Seminole Beach, Naval Station Mayport.	

A.1.3 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.1.3.1 High-Speed Anti-Radiation Missile Exercise (Air-to-Surface)

Activity Name	Activity Description	
Strike Warfare		
High-Speed Anti-Radiation Missile Exercise (Air-to-Surface) **(HARMEX [A-S])**	Aircrews launch a High-Speed Anti-Radiation Missile against threat radar sites.	
Long Description	Aircrews detect radar signals from a simulated threat radar site and launch a High-Speed Anti-Radiation Missile (high-explosive) to destroy or disable the threat radar site. One or more fighter jets approach the threat radar site from high altitude. Once the target is located with onboard sensors, the aircrew launches a High-Speed Anti-Radiation Missile at the electronic signal. At-sea events train against a target vessel or a specially configured target barge that has a tower with an electronic emitter that the missile will seek after being fired from the launch aircraft.	
Information Typical to the Event	**Platform**: Fixed-wing aircraft (e.g., F/A-18, EA-6B, EA-18G) **Systems**: None **Ordnance/Munitions:** High-Speed Anti-Radiation Missile: high-explosive **Targets:** Barge with an electronic emitter **Duration:** 1–2 hours	**Location***: VACAPES: W-72, W-386 (Air E, F, I, J) Navy Cherry Point: W-122
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise; Vessel noise; in-air explosives **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Vessel strike; military expended material strike (missile fragments); aircraft strike (birds only) **Entanglement:** None **Ingestion:** Missile fragments	
Detailed Military Expended Materials Information	Missile fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). High-explosive missiles will explode well above the water's surface. The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

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. Aircraft-to-surface Anti-surface warfare is conducted by long-range attacks using air-launched cruise missiles, precision guided munitions, or 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, that is, 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 Maritime Security Operations

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., visit, search, board, and seizure; maritime interdiction operations; force protection; and anti-piracy operations).	
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. The entire exercise may last two to three hours. Vessel visit, board, search, and seizure: Military personnel from ships and aircraft board suspect vessels, potentially under hostile conditions. Maritime interdiction operations: Ships 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 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: Ship crews train in tracking multiple approaching, circling small craft, assessing threat potential, and communicating amongst crewmates and other vessels to ensure ships are protected against attack. Anti-piracy training: Naval personnel train in deterring and interrupting piracy activity. Training includes large vessels (pirate "mother ships"), and multiple small, maneuverable, and fast crafts.	
Information Typical to the Event	**Platform**: Surface ship (any); helicopters; small boats; high speed vessels; unmanned vehicles (surface and aerial) **Systems**: None **Ordnance/Munitions:** Small-caliber (non-explosive) **Targets:** Range support vessel; high performance boats; unmanned vessels **Duration:** Up to 3 hours	**Location:** All OPAREAs and littoral areas proximate to homeports
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise; aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectiles); vessel strike; aircraft strike (birds only) **Entanglement:** None **Ingestion:** Small-caliber projectiles; casings	
Detailed Military Expended Materials Information	Small-caliber projectiles; casings (see note below in assumptions)	

Activity Name	Activity Description
Assumptions Used for Analysis	Firing of weapons during these events accounted for in gunnery exercises, surface to surface activities. This occurs during approximately 20 percent of Maritime Security Operations events. Maritime security operations is a broad term used to describe activities intended train naval forces in the skills necessary to protect naval vessels from small boat attack, counter piracy and drug operations (maritime interdiction operations and visit, board, search, and seizure), and protect key infrastructure (e.g., oil platforms). The term "maritime security operations" needs to remain broad as naval forces need to be able to tailor training events to respond to emergent threats. Maritime security operations events typically do not involve live fire of weapons. All maritime security operations events involve vessel movement, sometimes at high rates of speed (naval vessels maneuvering to overtake suspect vessel or small boats (targets) closing in and maneuvering around naval vessels), and some event involve helicopters and boarding parties. Maritime security operations training events are conducted proximate to naval homeports (Norfolk, Jacksonville) including during times of transit in and out of port, as well as during major training events.

A.1.4.2 Maritime Security Operations – Anti-Swimmer Grenades

Activity Name	Activity Description	
Anti-Surface Warfare		
Maritime Security Operations (MSO) – Anti-Swimmer Grenades	Boat crews engage in force protection activities by using anti-swimmer grenades to defend against hostile divers	
Long Description	Boat crews engage in force protection activities by using anti-swimmer grenades to defend against hostile divers. Boat crews train to maneuver boats in specific search patterns, while surveying the area for evidence of SCUBA activity. Crews train in the safe handling and use of anti-swimmer grenades to counter the diver threat.	
Information Typical to the Event	**Platform**: Boats **Systems**: None **Ordnance/Munitions:** Anti-swimmer grenades (high-explosive) **Targets:** None **Duration:** Typically 1 hour	**Location*:** Northeast VACAPES: W-50, R-6606 Navy Cherry Point JAX: Charleston underwater detonation boxes GOMEX: Corpus Christi underwater detonation boxes Event could occur proximate to any homeport.
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E2); vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike (grenade fragments) **Entanglement:** None **Ingestion:** Grenade fragments	
Detailed Military Expended Materials Information	Fragments from high-explosive grenades	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Events will usually be conducted in established underwater detonation areas.	

A.1.4.3 Gunnery Exercise Surface-to-Surface (Ship) – Small-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise Surface-to-Surface (Ship) – Small-Caliber (GUNEX – S-S – [Ship]) Small-Caliber	Ship crews engage surface targets with ship's small-caliber guns designed to provide close range defense against patrol boats, smaller boats, swimmers, and floating mines.	
Long Description	This exercise involves ship crews engaging surface targets at sea with small-caliber (.50 caliber or smaller) weapons. Ships use small-caliber weapons to practice defensive marksmanship, typically against stationary floating targets. The target may be a 10-foot diameter red balloon (Killer Tomato, see Figure A-4), a 50 gallon steel drum, or other available target, such as a cardboard box. Some targets are expended during the exercise and are not recovered. Ship crew qualifications conducted at sea employ stationary targets on deck. Small-caliber projectiles fired during these events will be expended in the water. Shipboard protection systems utilizing small-caliber projectiles will train against high speed mobile targets.	
Information Typical to the Event	**Platform:** Surface ships **Systems:** None **Ordnance/Munitions:** Small-caliber projectiles (non-explosive) **Targets:** Recoverable or expendable floating target (stationary or towed); remote controlled high-speed targets (Figure A-5) **Duration:** 2–3 hours	**Location:** AFTT Study Area beyond 3 nm from shoreline
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike (projectile; target) **Entanglement:** None **Ingestion:** Small-caliber projectiles; casings; target fragments	
Detailed Military Expended Materials Information	Small-caliber projectiles; casings; target fragments	
Assumptions Used for Analysis	Small-caliber gun rounds per event: 1,000–3,000 non-explosive practice munitions The majority of the activity will occur proximate to Navy homeports in Jacksonville, Florida and Norfolk, Virginia.	

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

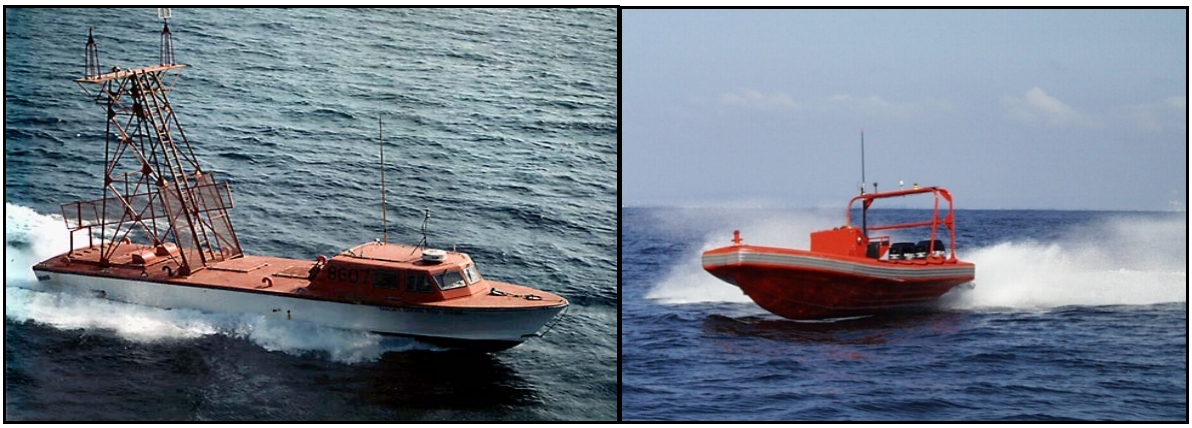

Figure A-5: QST-35 Seaborne Powered Target (on Left) and High-Speed Maneuvering Surface Target (on Right)

A.1.4.4 Gunnery Exercise Surface-to-Surface (Ship) – Medium-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise Surface-to-Surface (Ship) – Medium-Caliber **(GUNEX – S-S [Ship]) – Medium-Caliber**	Ship crews engage surface targets with ship's medium-caliber guns designed to provide close range defense against patrol boats, smaller boats, swimmers, and floating mines.	
Long Description	This exercise involves ship crews engaging surface targets at sea with medium-caliber (larger than .50 caliber up to 56 mm) weapons. Ships use medium-caliber weapons to practice defensive marksmanship, typically against stationary floating (a 10-foot diameter red balloon [Killer Tomato]) and high speed mobile targets. Some targets are expended during the exercise and are not recovered. Shipboard protection systems (Close-In Weapon System) utilizing medium-caliber projectiles will train against high speed mobile targets.	
Information Typical to the Event	**Platform**: Surface ships **Systems**: None **Ordnance/Munitions:** Medium-caliber (high-explosive or non-explosive) **Targets:** Recoverable or expendable floating targets (stationary or towed); remote controlled high speed targets **Duration:** 2–3 hours	**Location*:** VACAPES: OPAREA, W-386, W-72 Cherry Point: OPAREA JAX: OPAREA, typically within Surface Gunnery Areas AA, BB, CC GOMEX: Typically Pensacola and Panama City OPAREAs Other AFTT Areas: Outside of established ranges where ships may conduct unit level training events while in transit
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E1; E2); vessel noise; weapons firing noise **Energy:** None **Physical Disturbance and Strike:** vessel and in-water device strike, military expended material strike (medium-caliber projectiles and casings, projectile fragments, and target fragments) **Entanglement:** None **Ingestion:** Medium-caliber projectiles and casings; target fragments; projectile fragments	
Detailed Military Expended Materials Information	Medium-caliber projectiles and casings; target fragments; projectile fragments Approximately 200 medium-caliber rounds are used 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 steel drums.	
Assumptions used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). All projectiles under the No Action Alternative are non-explosive. Assume all Alternative 1 and 2 events include the use of some explosive rounds.	

A.1.4.5 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 designed to provide defense against ships, patrol boats, smaller boats.	
Long Description	This exercise involves ships' gun crews engaging surface targets at sea with their main battery large-caliber (typically 57 mm, 76 mm, and 5-inch) guns. Targets include the QST-35 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 large-caliber "warning shots." As threats get closer, all weapons may be used to disable the threat. This exercise may involve a single firing ship 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 ships (e.g., CG, DDG, LCS, FFG) **Systems**: None **Ordnance/Munitions:** Large-caliber (high-explosive and non-explosive) **Targets:** Remote controlled high speed targets **Duration:** Up to 3 hours	**Location*:** VACAPES: OPAREA, W-386, W-72 Cherry Point: OPAREA JAX: OPAREA, typically within Surface Gunnery Areas AA, BB, CC GOMEX: Typically Pensacola, Panama City OPAREAs Other AFTT Areas: Outside of established ranges where ships may conduct unit level training events while in transit
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E3; E5); vessel noise; weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike (projectile) **Entanglement:** None **Ingestion:** Target fragments; projectile fragments	
Detailed Military Expended Materials Information	Large-caliber projectiles; casings; target fragments; projectile fragments	

Activity Name	Activity Description
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Activity always occurs beyond 3 nm of the shoreline. 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 3 feet (ft.) of the surface. Non-explosive rounds and fragments from the high-explosive rounds will sink to the bottom of the ocean. For Alternative 2, analysis considers the introduction of (2) kinetic weapon-equipped ships being introduced to the fleet. Increases in events (6) and projectiles expended (240) reflect the likely training requirements of this new weapon system. Assume each non-explosive projectile will be up to 5 inches in diameter and 30 inches in length, and each firing will also expend a metallic sleeve used to convey the projectile down the gun barrel. All projectiles under the No Action Alternative are non-explosive. Assume all Alternative 1 and 2 events include the use of some explosive rounds.

A.1.4.6 Gunnery Exercise Surface-to-Surface (Boat) – Small-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise Surface-to-Surface (Boat) – Small-Caliber **(GUNEX – S-S [Boat]) – Small-Caliber**	Boat crews engage surface targets with small-caliber weapons.	
Long Description	Boat crews engage surface targets with small-caliber weapons. Boat crews may use high or low speeds to approach and engage targets simulating other boats, swimmers, floating mines, or near shore land targets with small-caliber (up to and including .50 caliber) 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-caliber (non-explosive) **Targets:** Recoverable or expendable floating targets **Duration:** 1 hour	**Location*:** Northeast: OPAREAs VACAPES: W-50, R-6606 Cherry Point: OPAREA JAX: Charleston OPAREA GOMEX: Panama City OPAREA, Corpus Christi OPAREA Other AFTT Areas: Outside of established ranges
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; military expended material strike (projectile) **Entanglement:** None **Ingestion:** Projectiles; casings; target fragments	
Detailed Military Expended Materials Information	Projectiles; casings; target fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). The majority of events will occur proximate to naval stations. Events will occur relatively nearshore due to short range of boats and safety concerns. Events mostly occur within 3 nm of the shoreline, but can occur further from shore.	

A.1.4.7 Gunnery Exercise Surface-to-Surface (Boat) – Medium-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise Surface-to-Surface (Boat) – Medium-Caliber (GUNEX – S-S (Boat)) – Medium-Caliber	Small boat crews engage surface targets with medium-caliber weapons.	
Long Description	Boat crews engage surface targets with 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 medium-caliber (up to and including 40 mm) 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:** Medium-caliber (explosive and non-explosive) **Targets:** Recoverable or expendable floating targets (stationary or towed) **Duration:** 1 hour	**Location*:** Northeast VACAPES: W-50C, R-6606 Navy Cherry Point: W-122 JAX: Charleston OPAREA, underwater detonation boxes North and South GOMEX: Panama City OPAREA, underwater detonation Box E3, Corpus Christi
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E1; E2); vessel noise; weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectiles); vessel strike; in-water device strike **Entanglement:** None **Ingestion:** Projectile and target fragments; projectiles; casings	
Detailed Military Expended Materials Information	Projectiles; casings; target fragments; projectile fragments One target is used per event, typically a stationary target such as a 50-gallon (189 liter) steel drum.	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). All projectiles under the No Action Alternative are non-explosive. Assume all Alternative 1 and 2 events include the use of some explosive rounds. Most events will involve boat crews training with MK 203 40 mm grenade launchers. The majority of events will occur proximate to naval stations.	

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 ship crews defend against surface threats (ships or boats) with missiles.	
Long Description	Surface ships launch missiles at surface maritime targets with the goal of destroying or disabling enemy ships or boats. After detecting and confirming a surface threat, the ship will fire a 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, the requirement exists for non-sinking exercise events to certify ship crews. If a sinking exercise target is unavailable, a towed sled would likely be used. Events with littoral combat ships will involve shorter range anti-surface missiles. Events with littoral combat ships would be to certify ship's crew to defend against "close in" (less than 10 miles from shore) surface threats. These exercises are live fire, meaning that 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 ships (CG, DDG, LCS) **Systems**: None **Ordnance/Munitions:** Surface-to-surface and anti-ship missiles (explosive and non-explosive) **Targets:** High speed surface targets; towed sleds **Duration:** 2–4 hours	**Location*:** VACAPES: Typically W-386 (Air K), W-72 JAX: Typically W-157A/W-159A (Missile Laser Training Area)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E10); vessel noise; weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike (missile, target fragments, and missile fragment) **Entanglement:** None **Ingestion:** Missile fragments; target fragments	
Detailed Military Expended Materials Information	Missiles; missile fragments; target fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Assume one missile and one target are used per event. While missiles could explode above the water's surface after contacting the target, analysis assumes all warheads explode at or just below the water's surface. All projectiles under the No Action Alternative are non-explosive. Assume all Alternative 1 and 2 events include the use of some explosive rounds.	

A.1.4.9 Gunnery Exercise Air-to-Surface – Small-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise (Air-to-Surface) – Small-Caliber **(GUNEX [A-S]) – Small-Caliber**	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 targets (stationary or towed); remote high speed target **Duration:** 1 hour	**Location*:** VACAPES: W-72A (Air 1A), W-50C Navy Cherry Point: W-122 (1/2/3/8/9/10/15/16/17) JAX: W-132, W-133, W-134, W-157, W-158
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); aircraft strike (birds only) **Entanglement:** None **Ingestion:** Projectiles; target fragments; casings	
Detailed Military Expended Materials Information	Projectiles; casings; target fragments One target used per event; expendable smoke floats (50 percent), stationary targets (45 percent), or remote controlled targets (5 percent)	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Most events will occur proximate to naval stations where H-60 helicopters are homebased and target services are available (Norfolk, Virginia; Jacksonville, Florida).	

A.1.4.10 Gunnery Exercise Air-to-Surface – Medium-Caliber

Activity Name	Activity Description	
Anti-Surface Warfare		
Gunnery Exercise (Air-to-Surface) – Medium-Caliber **(GUNEX [A-S]) – Medium-Caliber**	Fixed-wing and helicopter aircrews, including embarked personnel, use small- and 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, 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 aircraft (F/A-18, F-35); helicopter (H-60) **Systems**: None **Ordnance/Munitions:** Medium-caliber (non-explosive and explosive) **Targets:** Recoverable or expendable floating targets (stationary or towed); remote high speed target **Duration:** 1 hour	**Location*:** VACAPES: W-386 (Air K) Navy Cherry Point: W-122 JAX: Gunnery areas AA, BB GOMEX: Pensacola OPAREA, W-155 hotbox
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E1; E2); aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectile); in-water device strike; aircraft strike (birds only) **Entanglement:** None **Ingestion:** Projectile and target fragments	
Detailed Military Expended Materials 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	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). 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. All projectiles under the No Action Alternative are non-explosive. Assume all Alternative 1 and 2 events include the use of some explosive rounds.	

A.1.4.11 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 aircrews fire both precision-guided and unguided rockets against surface targets.	
Long Description	Fighter, maritime patrol aircraft, and helicopter aircrews fire both precision-guided 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 or non-explosive practice munitions precision guided rockets. Helicopters designate an at-sea surface target with a laser or optics for precision guided high-explosive or non-explosive practice munitions rockets.	
Information Typical to the Event	**Platform**: Fixed-wing aircraft (e.g., F/A-18, F-35, P-8, unmanned aerial vehicles); helicopters (H-60, Fire Scout) **Systems**: None **Ordnance/Munitions:** Rockets (explosive or non-explosive) **Targets:** Recoverable floating targets (stationary or towed) **Duration:** 1 hour	**Location*:** VACAPES: W-386 (Air K), W-72A JAX: W-157A/W-159A (Missile Laser Training Area) GOMEX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E5); aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** In-water device strike; military expended material strike (rocket, rocket and target fragments); aircraft strike (birds only) **Entanglement:** None **Ingestion:** Target fragments; rocket fragments	
Detailed Military Expended Materials Information	Rockets; target fragments; rocket fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Assume all explosive rockets detonate in the water. Assume all rockets under the No Action Alternative are non-explosive. Assume all rockets under Alternatives 1 and 2 are explosive. Rockets may be used in conjunction with force protection events. The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.1.4.12 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 precision guided high-explosive or non-explosive practice munitions missile. Helicopter launched missiles typically pass through the targets "sail" and, if explosive, detonate at or just below the water's surface.	
Information Typical to the Event	**Platform**: Fixed-wing aircraft and helicopters **Systems**: None **Ordnance/Munitions:** Air-to-surface missiles (high-explosive) **Targets:** Recoverable floating targets (stationary or towed); remotely operated targets **Duration:** 1 hour	**Location*:** VACAPES: Typically W-386 (Air K), W-72A Navy Cherry Point: Typically W-122 (16,17) JAX: Typically W-157A, W-159A (Missile Laser Training Area)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E6; E8); aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** In-water device strike; military expended material strike (missile fragment); aircraft strike (birds only) **Entanglement:** Guidance wire*** **Ingestion:** Missile fragments; target fragments	
Detailed Military Expended Materials Information	Missile fragments; target fragments; guidance wire***	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Assume one missile and one target are used per event. While missiles could explode above the water's surface after contacting targets, analysis assumes that all warheads explode at or just below the water's surface. ***In the Navy Cherry Point Range Complex, up to 8 TOW missiles could be used annually as part of this activity. Each TOW missile would have an associated guidance wire. No other missiles in this activity have a guidance wire associated with them. The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.1.4.13 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	Bombing exercises (air-to-surface) involve training of strike fighter aircraft in delivery of bombs against surface maritime targets. Fixed-wing aircraft conduct bombing exercises 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. The following munitions may be employed by strike fighter aircraft in the course of bombing exercises. Unguided munitions include non-explosive sub scale bombs (MK 76 and BDU-45); explosive and non-explosive general purpose bombs (MK 80 series); MK 20 cluster bomb (explosive, non-explosive). Precision-guided munitions include 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 aircraft (e.g., F/A-18, F-35, P-8) **Systems**: None **Ordnance/Munitions:** Bombs (high-explosive, non-explosive) **Targets:** Expendable floating targets (e.g., smoke float) **Duration:** 1 hour	**Location*:** VACAPES: W-386 (Air K, 7D, 8C), W-72A/B Navy Cherry Point: W-122 JAX: 157A/B, W-158A/B GOMEX: Pensacola OPAREA, W-151 A/C, W-155B
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E8; E9; E10; E12); aircraft noise **Energy:** In-air low energy laser **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 Materials Information	Bombs; bomb fragments; target fragments; smoke floats	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Approximately 90 percent of non-explosive bombs are sub-scale bombs such as the MK 76 and BDU-48. The in-air low energy laser stressor was used in analysis of potential impacts on human resources. 1 MK 58 per event	

A.1.4.14 Laser Targeting

Activity Name	Activity Description	
Anti-Surface Warfare		
Laser Targeting	Fixed-wing, helicopter, and ship crews illuminate enemy targets with lasers.	
Long Description	Fixed-wing 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**: Ships; boats; fixed-wing aircraft and helicopters **Systems**: None **Ordnance/Munitions:** None unless conducted with other events (e.g., missile exercise) **Targets:** None **Duration:** 1–2 hours	**Location*:** VACAPES: W-386 (Air K), W-72A JAX: W-132 W-133, W-134, W-157, W-158
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise; aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Vessel strike; aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Laser targeting for missile/rocket guidance will occur in areas where these events also occur. Use of lasers as force protection non-lethal deterrents will primarily occur proximate to Navy homeports (Norfolk, Virginia and Jacksonville, Florida). The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.1.4.15 Sinking Exercise

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 ships, 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 nm from shore and in water depths greater than 6,000 ft. Ship, aircraft, and submarine crews attack with coordinated tactics and deliver 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 to 8 hours and possibly over 1 to 2 days, however it is unpredictable and ultimately ends when the ship sinks.	
Information Typical to the Event	**Platform**: Ships; aircraft; submarines **Systems**: None **Ordnance/Munitions:** Potentially all available (explosive and non-explosive) **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. The duration of the event is unpredictable and the event ultimately ends when the ship sinks.	**Location:** Other AFTT Areas: sinking exercise box
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E3, E5, E8, E9, E10, E11, and E12); vessel noise; aircraft noise; weapons firing noise **Energy**: None **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; small-caliber projectiles; casings	
Detailed Military Expended Materials Information	Munitions fragments; non-explosive ordnance; guidance wires; casings; ship hulk (decommissioned ships made environmentally safe for sinking according to U.S. Environmental Protection Agency standards)	
Standard Operating Procedures and Mitigations		

Activity Name	Activity Description
Assumptions Used for Analysis	Events occur greater than 50 nm from shore and in water depths greater than 6,000 ft. The participants and assets could include: • 1 full-size target ship hulk • 1–5 CG, DDG, or FFG ships • 1–10 F/A-18, or maritime patrol aircraft • 1 or 2 HH-60H, MH-60, or SH-60B helicopters • 1 E-2 aircraft for Command and Control • 1 submarine • 1–3 range clearance aircraft • 2–4 Harpoon surface-to-surface or air-to-surface missiles • 2–8 air-to-surface Maverick missiles • 2–16 MK 82 general purpose bombs • 2–4 Hellfire air-to-surface missiles • 1 or 2 SLAM-ER air-to-surface missiles • 50–500 rounds 5-inch and 76 mm gun • 1–2 MK 48 heavyweight submarine-launched torpedo • 2–10,000 rounds .50 caliber and 7.62 mm • Assume 2 guidance wires expended per event

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 transmits pulses of sound that travel through the water, reflect off objects, and return to a receiver. By knowing the speed of sound in the water and the time taken for the sound wave to travel to the object and back, active sonar systems can quickly calculate direction and distance from the sonar platform to the underwater object. 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 are 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/Torpedo Exercise – Submarine

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Tracking Exercise/Torpedo Exercise – Submarine (TRACKEX/ TORPEX – Sub)	Submarine crews search for, track, and detect submarines. Exercise torpedoes may be used during this event.	
Long Description	Submarine crews search for, detect, and track a threat submarine to develop firing position to launch a torpedo. A single submerged submarine operates at slow speeds and various depths while using its hull mounted or towed array sonar to track a threat submarine. Passive sonar is used almost exclusively. Non-explosive exercise torpedoes can be fired, and active sonar can be used during this training event. Tracking exercise/torpedo exercise – submarine could occur anywhere throughout the AFTT Study Area. 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 operating areas (OPAREAs) depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** One or more submarines; support craft; rotary-wing aircraft **Systems:** Mid-frequency (primarily passive) and high-frequency sonars **Ordnance/Munitions:** Exercise torpedoes (non-explosive torpedo exercise only) **Targets:** MK 30 **Duration:** 8 hours **Typical Event Area Dimensions:** 30 x 40 nm	**Location*:** Northeast VACAPES Navy Cherry Point JAX (includes Undersea Warfare Training Range) Gulf of Mexico** Other AFTT Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (hull mounted sonar; e.g., ASW4, MF3); high-frequency sonar (e.g., HF3, heavyweight torpedo; TORP2); vessel noise; aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike (torpedo accessories); aircraft strike (birds only) **Entanglement:** Guidance wires **Ingestion:** None	
Detailed Military Expended Materials Information	Torpedo accessories (guidance wires, ballast weights, flex tubing)	

Activity Name	Activity Description
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). ** Gulf of Mexico refers to the body of water. Torpedoes are recovered. Guidance wire has a low breaking strength. Weights and flex tubing sink rapidly. Tracking exercise and torpedo exercise can occur in all locations. Other AFTT Areas events typically refer to those events that occur while vessels are in transit. For the No Action Alternative, 72 torpedoes total for all events. For Alternative 1 and Alternative 2, 80 torpedoes for all events.

A.1.5.2 Tracking Exercise/Torpedo Exercise – Surface

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Tracking Exercise/ Torpedo Exercise – Surface (TRACKEX/ TORPEX – Surface)	Surface ship crews search for, track, and detect submarines. Exercise torpedoes may be used during this event.	
Long Description	Surface ships search for, detect, and track threat submarines to determine a firing position to launch a torpedo and attack the submarine. A surface ship operates at slow speeds while employing hull mounted or towed array sonars. 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 either an MK 39 Expendable Mobile Anti-Submarine Warfare Training Target, MK 30 Recoverable Training Target, or live submarine. Tracking exercise/torpedo exercise – surface could occur anywhere throughout the AFTT Study Area. 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, such as the Undersea Warfare Training Range, but it may be conducted in other OPAREAs depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** One or more ships and submarines; support craft; rotary-wing aircraft **Systems:** Mid-frequency sonars, Nixie **Ordnance/Munitions:** Exercise torpedoes (non-explosive torpedo exercise only) **Targets:** MK 39 or MK 30 **Duration:** 2–4 hours **Typical Event Area Dimensions:** 30 x 40 nm	**Location*:** Northeast VACAPES Navy Cherry Point JAX (includes Undersea Warfare Training Range) Gulf of Mexico** Other AFTT Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar; high-frequency sonar (hull-mounted sonar, lightweight torpedo; e.g., ASW1, ASW3, ASW4; MF1, MF2, MF3, MF4, MF5, MF11, MF12; HF1; TORP1); vessel noise; aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Materials Information	One MK 39 Expendable Mobile Anti-Submarine Warfare Training Target; torpedo accessories (ballast weights) from exercise torpedoes; sonobuoys; parachutes	

Activity Name	Activity Description
Assumptions used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). ** Gulf of Mexico refers to the body of water. Torpedoes are recovered. Tracking exercise and torpedo exercise can occur in all locations. A submarine may provide service as the target except for torpedo exercise events. Other AFTT Areas events typically refer to those events that occur while vessels are in transit. For the No Action Alternative, 18 torpedoes total for all events. For Alternative 1 and Alternative 2, 18 torpedoes for all events.

A.1.5.3 Tracking Exercise/Torpedo Exercise – Helicopter

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Tracking Exercise/ Torpedo Exercise-Helicopter (TRACKEX/ TORPEX – Helo)	Helicopter crews search for, track, and detect submarines. Recoverable air launched torpedoes may be employed against submarine targets.	
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 ft. (914 m). Both passive and active sonobuoys are employed. The dipping sonar is employed from an altitude of about 50 ft. (15 m) 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 a MK 39 Expendable Mobile Anti-Submarine Warfare Training Target or a live submarine. A MK 30 recoverable target may be used if available. 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. 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 underwater range, such as the Undersea Warfare Training Range, but it may be conducted in other OPAREAs depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft; helicopters; surface ships **Systems:** Mid-frequency helicopter dipping sonar; sonobuoys **Ordnance/Munitions:** Exercise torpedoes (non-explosive) **Targets:** Expendable Mobile Anti-Submarine Warfare Training Target or MK 30 **Duration:** 2–4 hours **Typical Event Area Dimensions:** 20 x 30 nm	**Location:** VACAPES Navy Cherry Point JAX: includes Undersea Warfare Training Range Other AFTT Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (sonobuoy, dipping sonar, lightweight torpedo; e.g., ASW4; MF4, MF5; TORP1); aircraft noise; vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike; aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion**: Parachutes	
Detailed Military Expended Materials Information	1 MK 39 (expendable target); if target is air-dropped, 1 parachute per target (no more than 432/year); torpedo accessories (ballast weights/parachutes) from exercise torpedoes; sonobuoys with parachutes	

Activity Name	Activity Description
Assumptions Used for Analysis	Tracking exercise and torpedo exercise can occur in all locations. For the No Action Alternative, 18 torpedoes total for all events. For Alternative 1 and Alternative 2, 18 torpedoes for all events.

A.1.5.4 Tracking Exercise/Torpedo Exercise – Maritime Patrol Aircraft

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Tracking Exercise/ Torpedo Exercise-Maritime Patrol Aircraft (TRACKEX/ TORPEX – MPA)	Maritime patrol aircraft crews search for, 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 ft. (914 m). 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 ships, 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 OPAREAs depending on training requirements and available assets.	
Information Typical to the Event	**Platform:** One or more aircraft, one or more surface ships **Systems:** Sonobuoys **Ordnance/Munitions:** Exercise torpedoes (non-explosive) **Targets:** MK 30, MK 39; submarine **Duration:** 2–8 hours **Typical Event Area Dimensions:** Up to 60 x 60 nm	**Location:** Northeast VACAPES Navy Cherry Point JAX: includes Undersea Warfare Training Range Gulf of Mexico**
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (sonobuoy, lightweight torpedo; e.g., MF5; TORP1); vessel noise; aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only); vessel strike; in-water device strike; military expended material strike **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Materials Information	One MK 39 (expendable target); torpedo accessories (ballast weights/parachutes) from exercise torpedoes; sonobuoys with parachutes	

Activity Name	Activity Description
Assumptions Used for Analysi	** Gulf of Mexico refers to the body of water. If target is air-dropped, one parachute per target (no more than 752/year). Tracking exercise and torpedo exercise can occur in all locations. A submarine may provide service as the target except for torpedo exercise events. Other AFTT Areas events typically refer to those events that occur while vessels are in transit.

A.1.5.5 Tracking Exercise – Maritime Patrol Aircraft Extended Echo Ranging Sonobuoys

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Tracking Exercise/ Torpedo Exercise– Maritime Patrol Advanced Extended Echo Ranging Sonobuoys (TRACKEX–MPA Sonobuoy)	Maritime patrol aircraft crews search for, detect, and track submarines with extended echo ranging sonobuoys. Recoverable air launched torpedoes may be employed against submarine targets.	
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:** One maritime patrol aircraft **Systems:** Improved Extended Echo Ranging and Multistatic Active Coherent sonobuoy systems **Ordnance/Munitions:** None **Targets:** MK 30, MK 39 **Duration:** 2–8 hours **Typical Event Area Dimensions:** 60 x 60 nm	**Location:** Northeast VACAPES Navy Cherry Point JAX: includes Undersea Warfare Training Range Gulf of Mexico**
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (sonobuoy; e.g., ASW2); underwater explosives (E4); aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only); military expended material strike **Entanglement:** Parachutes **Ingestion:** Parachutes; sonobuoy fragments	
Detailed Military Expended Materials Information	One MK 39 (expendable target); sonobuoys with parachutes (estimate of 3,200)	
Assumptions used for Analysis	** Gulf of Mexico refers to the body of water. If target is air-dropped, one parachute is used per target (no more than 320/year).	

A.1.5.6 Anti-Submarine Warfare Tactical Development Exercise

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Anti-Submarine Warfare Tactical Development Exercise	Multiple ships, aircraft, and submarines coordinate their efforts to search for, detect, and track submarines with the use of all sensors. Anti-Submarine Warfare Tactical Development Exercise is a dedicated anti-submarine warfare event.	
Long Description	Multiple ships, aircraft, and submarines coordinate their efforts to search for, detect, and track submarines with the use of all sensors. Anti-Submarine Warfare Tactical Development Exercise is a fleet training exercise involving surface ships, submarines, and aircraft. Active and passive sonar and sonobuoys are used to conduct anti-submarine warfare training exercises. The purpose of the exercise is to assess fleet anti-submarine warfare performance and capability among various units operating together in a specific threat environment.	
Information Typical to the Event	**Platform:** Surface ships; submarines; fixed-wing aircraft; helicopters **Systems:** Hull mounted sonar; dipping sonar; sonobuoys **Ordnance/Munitions:** None **Targets:** Expendable Mobile Anti-Submarine Warfare Training Targets **Duration:** 5–7 days **Typical Event Area Dimensions:** 30 x 30 nm	**Location:** JAX (includes Undersea Warfare Training Range)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** sonar (hull-mounted sonar, dipping sonar, sonobuoys; e.g., ASW4; HF1; MF1, MF2, MF3, MF4, MF5); acoustic countermeasures (e.g., ASW3); vessel noise; aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike; aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Materials Information	One MK 39 (expendable target); sonobuoys; countermeasures	
Assumptions Used for Analysis	Air-launched sonobuoys will have a parachute.	

A.1.5.7 Integrated Anti-Submarine Warfare Course

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Integrated Anti-Submarine Warfare Course (IAC)	Multiple ships, aircrafts, and submarines integrate the use of their sensors, including sonobuoys, to search for, detect, classify, localize, and track a threat submarine to launch a torpedo.	
Long Description	Integrated Anti-Submarine Warfare Course is a tailored course of instruction designed to improve Sea Combat Commander and strike group integrated anti-submarine warfare warfighting skill sets. Integrated Anti-Submarine Warfare Course is a coordinated training scenario that typically involves five surface ships, two to three embarked helicopters, a submarine and one maritime patrol aircraft searching for, locating, and attacking one submarine. The scenario consists of two 12-hour events that occur five times per year. The submarine may practice simulated attacks against the ships while being tracked. Hull mounted, towed array and dipping sonar is employed by ships and helicopters. The submarine also periodically operates its sonar.	
Information Typical to the Event	**Platform**: Surface ships; fixed-wing aircraft; helicopters; submarines; unmanned vehicles **Systems**: Hull mounted; towed array; dipping sonars; sonobuoys **Ordnance/Munitions:** Sonobuoys **Targets:** Expendable Mobile Anti-Submarine Warfare Training Targets **Duration:** 2–5 days (two 12-hour events) **Typical Event Area Dimensions:** 120 x 60 nm	**Location:** VACAPES Navy Cherry Point JAX Gulf of Mexico**
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (dipping sonar, hull-mounted sonar, sonobuoys; e.g., ASW4; HF1; MF1, MF2, MF3, MF4, MF5, MF6); acoustic countermeasures (e.g., ASW2, ASW3); vessel noise; aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike; aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Materials Information	Countermeasures	
Assumptions Used for Analysis	Two MK 39 targets may be used in place of an actual submarine target. Air deployed sonobuoys will each have a parachute. ** Gulf of Mexico refers to the body of water.	

A.1.5.8 Group Sail

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Group Sail	Multiple ships and helicopters integrate the use of sensors, including sonobuoys, to search for, detect, and track a threat submarine. Group Sails are not dedicated anti-submarine warfare events and involve multiple warfare areas.	
Long Description	Multiple ships and helicopters integrate the use of their sensors, including sonobuoys, to search for, detect, classify, localize, and track a threat submarine to launch a torpedo. Group Sail is an intermediate training exercise primarily intended to introduce coordinated operations after unit level training and prior to composite training. This event stresses planning, coordination, and communications during multiple warfare training scenarios. Two or more ships and up to two helicopters searching for, locating, and attacking one submarine. Typically, one ship and helicopter are actively prosecuting while the other ship and helicopter are repositioning. Simultaneously, the submarine may practice simulated attacks against the ships. Multiple acoustic sources may be active at one time.	
Information Typical to the Event	**Platform**: Submarine; helicopters; surface ships **Systems**: Hull mounted sonar; towed array and dipping sonar; sonobuoys (some explosive sonobuoys may be used) **Ordnance/Munitions:** None **Targets:** Expendable Mobile Anti-Submarine Warfare Training Targets **Duration:** 2–3 days **Typical Event Area Dimensions:** 30 x 30 nm	**Location:** VACAPES Navy Cherry Point JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (hull mounted sonar, towed array, dipping sonar, sonobuoys; e.g., ASW2; HF1; MF1, MF2, MF3, MF4, MF5, MF6); acoustic countermeasures (e.g., ASW3); vessel noise; aircraft noise; underwater explosives (E4) **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike; aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes; sonobuoy fragments	
Detailed Military Expended Materials Information	Sonobuoys; parachutes; countermeasures; sonobuoy fragments	
Assumptions Used for Analysis	While preference will be to train against an actual submarine, or MK 30 recoverable target, assume only MK 39 expendable targets will be used. One MK 39 Expendable Mobile Anti-Submarine Warfare Training Target may be used in place of an actual submarine target.	

A.1.5.9 Submarine Command Course Operations

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Submarine Command Course (SCC)	Train prospective submarine Commanding Officers to operate against surface, air, and subsurface threats.	
Long Description	Train prospective Commanding Officers on submarines to operate against each other to locate and conduct simulated attacks. Submarine Command Course is a Commander, U.S. Submarine Forces requirement to provide training to prospective submarine commanders in rigorous and realistic scenarios. This training assesses prospective commanding officers' abilities to operate in numerous hostile environments, encompassing surface ships, aircraft, as well as other submarines. The course incorporates anti-submarine warfare tracking exercise, anti-submarine warfare torpedo exercise.	
Information Typical to the Event	**Platform:** One or more submarines; surface ships; fixed-wing aircraft; rotary-wing aircraft **Systems:** Mid-frequency (primarily passive) and high-frequency sonars **Ordnance/Munitions:** Exercise torpedoes (torpedo exercise only) **Targets:** MK 30 **Duration:** 3–5 days (at-sea portion) **Typical Event Area Dimensions:** 30 x 40 nm	**Location:** Northeast JAX Other AFTT Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency hull-mounted sonar (MF1, MF2, MF3), helicopter dipping sonar (MF4), sonobuoy (MF5), mid-frequency acoustic countermeasures (ASW3, ASW4), high-frequency hull-mounted sonar (HF1), lightweight torpedo (TORP1), heavyweight torpedo (TORP2) **Energy:** None **Physical Disturbance and Strike:** Vessel and in-water device strike; military expended material strike; aircraft strike (birds only) **Entanglement:** Guidance wires; parachutes **Ingestion:** Torpedo accessories (ballast weights); parachutes	
Detailed Military Expended Materials Information	Torpedo accessories (guidance wire, ballast weights, flex tubing); sonobuoys (parachutes); countermeasures	
Assumptions used for Analysis	Torpedoes are recovered. Guidance wire is brittle and breaks easily. Weights sink rapidly. For Alternatives 1 and 2, the anti-submarine warfare portion of this event is incorporated in Tracking Exercise/Torpedo Exercise Submarine.	

A.1.5.10 Anti-Submarine Warfare for Composite Training Unit Exercise

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Anti-Submarine Warfare for Composite Training Unit Exercise (COMPTUEX)	Anti-submarine warfare activities conducted during a Composite Training Unit Exercise.	
Long Description	Intermediate level battle group exercise designed to create a cohesive strike group prior to deployment or Joint Task Force Exercise. Typically seven surface ships, helicopters, maritime patrol aircraft, two submarines, and various unmanned vehicles. Each strike group performs a rehearsal called Composite Training Unit Exercise before deployment. Prior to the Composite Training Unit Exercise, each ship and aircraft in the strike group trains in their specialty. The Composite Training Unit Exercise is an intermediate-level strike group exercise designed to forge the group into a cohesive fighting team. Composite Training Unit Exercise is normally conducted during a 2 to 3 week period prior to a Joint Task Force Exercise and consists of an 18 day schedule of event driven exercise, and a 3 day Final Battle Problem. The Composite Training Unit Exercise is an integration phase, at-sea, major range event. For the Carrier Strike Group, this exercise integrates the aircraft carrier and carrier air wing with surface and submarine units in a challenging operational environment. For the expeditionary strike group/amphibious readiness group, this exercise integrates amphibious ships with their associated air wing, surface ships, submarines, and the Marine expeditionary unit. Live-fire operations that may take place during composite training unit exercise include long-range air strikes, naval surface fire support, and surface-to-air, surface-to-surface, and air-to-surface missile exercises. The Marine expeditionary unit also conducts realistic training based on anticipated operational requirements and to further develop the required coordination between Navy and Marine Corps forces. Special operations training may also be integrated with the exercise scenario.	
Information Typical to the Event	**Platform**: Surface ships, fixed-wing aircraft, helicopters, submarines, unmanned vehicles **Systems**: All sonars **Ordnance/Munitions:** All ship and aircraft weapons, explosive sonobuoys **Targets:** All surface, air, and anti-submarine warfare targets (Expendable Mobile Anti-Submarine Warfare Training Targets) **Duration:** 21 days **Typical event area dimensions:** 60 x 120 nm	**Location:** VACAPES Navy Cherry Point JAX Gulf of Mexico**
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (hull-mounted sonar, dipping sonar, sonobuoys, towed arrays; e.g., ASW2, ASW4; HF1; MF1, MF2, MF3, MF4, MF5, MF6, MF12); acoustic countermeasures (e.g., ASW3); vessel noise; aircraft noise; underwater explosives (E4) **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike; aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes; countermeasures; sonobuoy fragments	
Detailed Military Expended Materials Information	One MK 39 (expendable target); each air deployed sonobuoy will have a parachute; countermeasures.	

Activity Name	Activity Description
Assumptions Used for Analysis	** Gulf of Mexico refers to the body of water. For Composite Training Unit Exercise only the anti-submarine warfare activities were analyzed as a Composite Training Unit Exercise. Other warfare area training conducted during the Composite Training Unit Exercise was analyzed as unit level training (gunnery exercise, missile exercise, etc.).

A.1.5.11 Anti-Submarine Warfare for Joint Task Force Exercise/Sustainment Exercise

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Anti-Submarine Warfare for Joint Task Force Exercise (JTFEX)/ Sustainment Exercise (SUSTAINEX)	Anti-submarine warfare activities conducted during a Joint Task Force Exercise / Sustainment Exercise	
Long Description	**Joint Task Force Exercise** This is the culmination of training and preparation for deployment. This exercise requires U.S. naval forces to integrate all assets to accomplish missions in a multi-threat, multi-dimensional environment. The exercise serves as the ready-to-deploy certification for the Navy-Marine team, requiring tests of critical plans, synchronized employment of available assets and realistic training with live ordnance. Joint Task Force Exercise is normally 10 days long, not including a 3-day in-port force protection exercise, and is the final at-sea exercise for the Carrier Strike Group or Expeditionary Strike Group prior to deployment. Joint Task Force Exercise occurs three to four times per year. **Sustainment Exercise** The requirement to conduct post-deployment training, and maintenance. This ensures that the components of a strike group maintain an acceptable level of readiness after returning from deployment. A sustainment exercise is designed to challenge the strike group in all warfare areas. This exercise is similar to a Composite Training Unit Exercise but of shorter duration.	
Information Typical to the Event	**Platform**: Surface ships; fixed-wing aircraft; helicopters; submarines, unmanned vehicles **Systems**: All sonars **Ordnance/Munitions:** All ship and aircraft weapons, explosive sonobuoys may be used **Targets:** All surface, air, and anti-submarine warfare targets (Expendable Mobile Anti-Submarine Warfare Training Targets) **Duration:** 10 days **Typical event area dimensions:** Up to 180 x 180 nm	**Location:** VACAPES Navy Cherry Point JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (hull mounted sonar, dipping sonar, towed arrays, sonobuoys; e.g., ASW2, ASW4; HF1; MF1, MF2, MF3, MF4, MF5, MF6, MF12); acoustic countermeasures (e.g., ASW3); underwater explosives (E4); vessel noise; aircraft noise **Energy:** None **Physical Disturbance and Strike**: Vessel strike; in-water device strike; military expended material strike; aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes; countermeasures; sonobuoy fragments	
Detailed Military Expended Materials Information	One MK 39 (expendable target); countermeasures	
Assumptions Used for Analysis	Sonobuoys: each air deployed sonobuoy will have a parachute. For Joint Task Force Exercise/Sustainment Exercise only the anti-submarine warfare activities were analyzed as a Joint Task Force Exercise/Sustainment Exercise. Other warfare area training conducted during the Joint Task Force Exercise/Sustainment Exercise was analyzed as unit level training (gunnery exercise, missile exercise, etc.).	

A.1.6 ELECTRONIC WARFARE

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.1.6.1 Electronic Warfare Operations

Activity Name	Activity Description	
Electronic Warfare (EW)		
Electronic Warfare Operations (EW OPS)	Aircraft and surface ship 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 and surface ship crews 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 ships 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 ship maneuvers and either chaff, flares, active electronic countermeasures, or a combination of them to defeat the threat.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft; helicopters; surface ships **Systems:** None **Ordnance/Munitions:** None **Targets:** Land based fixed/mobile threat emitters **Duration:** 1–2 hours	**Location*:** VACAPES: W-386 (Air K), W-72 Navy Cherry Point: W-122 JAX: W-132, W-133, W-134, W-157, W-158
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 Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). All chaff and flares involved in this event are covered under chaff exercises and flare exercises, respectively.	

A.1.6.2 Counter Targeting Flare Exercise

Activity Name	Activity Description	
Electronic Warfare (EW)		
Counter Targeting – Flare Exercise (FLAREX)	Fixed-wing aircraft and helicopters crews defend against an attack by deploying flares to disrupt threat infrared missile guidance systems.	
Long Description	Fixed-wing aircraft and helicopter crews 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 launched and 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 while operating above 3,000 ft. Flare exercises are often conducted with chaff exercises, rather than as a stand-alone exercise.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft; helicopters **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–2 hours	**Location*:** VACAPES: W-386, W-72 Navy Cherry Point: W-122 (1,8,15,16) JAX: W-157A (Area 3X, 4X) GOMEX: Panama City OPAREA, W-151 A/B Key West: W-174 A/B/C/E/F/G, W-465 A/B, Bonefish 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:** Expended components of flares (pistons)	
Detailed Military Expended Materials Information	Flares	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Approximately 5 flares per aircraft	

A.1.6.3 Counter Targeting Chaff Exercise – Ship

Activity Name	Activity Description	
Electronic Warfare (EW)		
Counter Targeting Chaff Exercise (CHAFFEX) – Ship	Surface ship crews defend against an attack by deploying chaff, a radar reflective material, which disrupt threat targeting and missile guidance radars.	
Long Description	Surface ship crews deploy chaff to disrupt threat targeting and missile guidance radars and to defend against an attack. Surface ship 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. The typical event duration is approximately 1.5 hours. 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 to create a target 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 ships **Systems:** None **Ordnance/Munitions:** None **Targets:** MK 53 **Duration:** 1.5 hours	**Location*:** VACAPES: W-386, W-72 Navy Cherry Point: W-122 (1, 8, 15, 16) JAX: W-157A (Area 3X, 4X) GOMEX: W-151 A/B, W-155 A/B
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 Materials Information	Chaff; chaff canisters; end caps; pistons; MK 53 decoys	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Assume half of the events use decoys	

A.1.6.4 Counter Targeting Chaff Exercise – Aircraft

Activity Name	Activity Description	
Electronic Warfare (EW)		
Counter Targeting Chaff Exercise (CHAFFEX) – Aircraft	Fixed-wing 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-wing aircraft and helicopter crews deploy chaff to disrupt threat targeting and missile guidance radars and to defend against an attack. Fixed-wing 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 to elicit frequency responses, which deceive enemy radars. Chaff is employed to create a target that will lure enemy radar and weapons system away from the actual friendly platform.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft; helicopters **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1.5 hours	**Location*:** VACAPES: W-386, W-72 Navy Cherry Point: W-122 (1, 8, 15, 16) JAX: W-157A (Area 3X, 4X) GOMEX: W-151 A/B, W-155 A/B Key West: W-174 A/B/C/E/F/G, W-465 A/B
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 Materials Information	Chaff cartridges; plastic end caps; pistons	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Chaff is usually expended while conducting other training activities, such as air combat maneuvering.	

A.1.7 MINE WARFARE

Mine warfare 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.1.7.1 Mine Countermeasure Exercise – Ship Sonar

Activity Name	Activity Description	
Mine Warfare (MIW)		
Mine Countermeasures Exercise (MCM) – Ship Sonar	Littoral combat ship crews detect and avoid mines while navigating restricted areas or channels using active sonar.	
Long Description	Surface ship 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 zones of greater than 40 ft. to deep water. Events could be embedded in major training events.	
Information Typical to the Event	**Platform:** Surface ships (Littoral Combat Ships); unmanned vehicles **Systems:** AN/AQS-20, Remote Minehunting System, AN/AQS-24 **Ordnance/Munitions:** None **Targets:** Minefields; temporary mines; or no targets (training to deploy/operate gear). **Duration:** 1.5–4 hours	**Location*:** VACAPES: W-50, surface grid 13, 1A1, 1A2, 6, 7C, 7D, Air G, lower Chesapeake Bay JAX: Carrier Strike Group mine training area (surface grids 26 B through D [Warning Areas 158A and 158E] and areas proximate to Charleston underwater detonation boxes) GOMEX: Panama City mine warfare areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (mine-hunting sonar; HF4); vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; seafloor devices **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	No military expended material use is anticipated. Temporarily placed mines will be recovered.	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). No explosives are to be 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/damage. Events will take place in water depths of 40 ft. and greater. Existing placed mine shapes to be used. There is the potential for temporary placement of mine shapes.	

A.1.7.2 Mine Neutralization – Explosive Ordnance Disposal

Activity Name	Activity Description	
Mine Warfare (MIW)		
Mine Neutralization/ Explosive Ordnance Disposal (EOD)	Personnel disable threat mines. Explosive charges are 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 from 10 to 60 pounds of TNT equivalent. These operations are normally conducted during daylight hours for safety reasons. Time delay fuses may be used for these events.	
Information Typical to the Event	**Platform:** Helicopters, small boats **Systems:** None **Ordnance/Munitions:** Underwater detonation charges **Targets:** Minefields **Duration:** Up to 4 hours	**Location*:** VACAPES: W-50 and proximate to W-50 VACAPES: Little Creek Navy Cherry Point: Underwater detonation area JAX: Charleston underwater detonation boxes GOMEX: Panama City OPAREA Key West: UNDET Test Site H, UNDET Box, EA-1
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E1; E4; E5; E6; E7; E8); 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 Materials Information	Target fragments; mooring blocks	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Time delayed fuses may be used (up to 10 minutes) for charges up to 20 lb. net explosive weight. Charge placed anywhere in water column, including bottom. Mine shapes will be recovered. Events in Little Creek range from events with 120 charges of under 1 lb. net explosive weight to events that include a single charge of approximately 25 lb. net explosive weight.	

A.1.7.3 Underwater Mine Countermeasure Raise, Tow, Beach and Exploitation Operations

Activity Name	Activity Description	
Mine Warfare (MIW)		
Underwater Mine Countermeasure (UMCM) Raise, Tow, Beach and Exploitation Operations	Personnel locate mines, perform mine neutralization, raise and tow mines to the beach, and conduct exploitation operations for intelligence gathering.	
Long Description	Navy divers, typically explosive ordnance disposal personnel, locate mines using unmanned underwater vehicle, marine mammals, or other diver search techniques. Mines are then neutralized, or prevented from working as they are intended to. Explosive ordnance disposal personnel ensure the neutralization measures are effective and the shapes are safe to bring to the beach. A lift balloon is attached to the line and slowly tows the shape to the beach. The final step, exploitation, is intelligence gathering, identifying the mine and how it works, and then disassembling it or disposing of it.	
Information Typical to the Event	**Platform:** Helicopters; small boats; unmanned underwater vehicles **Systems:** None **Ordnance/Munitions:** None **Targets:** Minefields **Duration:** Up to 4 hours	**Location*:** VACAPES: W-50, R-6606, lower Chesapeake Bay Navy Cherry Point: Amphibious Ready Group mine warfare training area (seaspace radiating from Onslow Beach, Camp Lejeune) JAX: Carrier Strike Group mine training area (surface grids 26 B through D [Warning Areas 158A and 158E] and areas proximate to Charleston underwater detonations boxes) GOMEX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise; aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; aircraft strike (birds only); seafloor device strike (mine placement) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Mooring blocks	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). No underwater detonations are performed. Events primarily conducted in W-50 and beaches at Dam Neck. Mine shapes are recovered as part of the event.	

A.1.7.4 Airborne Mine Countermeasure – Towed Mine Neutralization

Activity Name	Activity Description	
Mine Warfare (MIW)		
Airborne Mine Countermeasures (AMCM) -towed mine neutralization	Ship crews, helicopter aircrews tow systems (e.g., Organic Airborne and Surface Influence Sweep, MK 104/105) through the water which are designed to disable or trigger mines.	
Long Description	Helicopter/ship crews and unmanned surface vehicle/unmanned underwater vehicle operators use towed devices to trigger mines that are designed to detonate 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 may be conducted with non-explosive training mineshapes. Devices used include the following: Organic Airborne and Surface Influence Sweep (OASIS), a towed device that imitates the magnetic and acoustic signatures of naval ships and submarines; MK 105 sled, which creates a magnetic field used to trigger mines, and can be used in conjunction with the MK 103 cable cutter system and the MK 104 acoustic countermeasure; AN/SPU-1/W (magnetic orange pipe), a magnetic pipe that is used to trigger magnetically influenced mines.	
Information Typical to the Event	**Platform:** surface vessel (Littoral Combat Ship); unmanned surface vehicle; helicopters **Systems:** None **Ordnance/Munitions:** Cable cutters **Targets:** Existing minefields; temporary placed mines; or no targets (training to deploy/operate gear) **Duration:** Typically 1.5–4 hours	**Location*:** VACAPES: W-50, surface grid 13, 1A1, 1A2, 6, 7C, 7D, Air G, lower Chesapeake Bay Navy Cherry Point: Amphibious Ready Group mine warfare training area (seaspace radiating from Onslow Beach, Camp Lejeune) JAX: Carrier Strike Group mine training area (surface grids 26 B through D [Warning Areas 158A and 158E] and areas proximate to Charleston underwater detonation boxes) GOMEX: Panama City mine warfare areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise; aircraft noise **Energy:** Electromagnetic **Physical Disturbance and Strike:** Vessel strike; in-water device strike; aircraft strike (birds only); seafloor device strike (bottom placed mine shapes) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Devices are 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 a shotgun shell). Acoustic sweeps generate ship type noise via a mechanical system. Towing systems though minefields (or without mines, to train to deploy, tow, and recover) may involve instrumented mines. Mine shapes will be recovered.	

A.1.7.5 Airborne Mine Countermeasure – Mine Detection

Activity Name	Activity Description	
Mine Warfare (MIW)		
Airborne Mine Countermeasures – Mine Detection	Ship crews or 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/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:** Helicopters; 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 1.5–4 hours	**Location*:** VACAPES: W-50, surface grid 13, 1A1, 1A2, 6, 7C 7D, Air G, lower Chesapeake Bay Navy Cherry Point: Amphibious Ready Group Mine Warfare Training Area (seaspace radiating from Onslow Beach, Camp Lejeune) JAX: Carrier Strike Group Mine Training Area (surface grids 26 B through D [Warning Areas 158A and 158E] and areas proximate to Charleston underwater detonation boxes) GOMEX: Panama City mine warfare areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (mine detection systems; HF4); vessel noise; aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Vessel strike; in-water device strike; aircraft strike (birds only); seafloor device strike (bottom placed mine shapes) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Sonar mine detection systems towed from helicopters, ships, and unmanned surface vehicles are used. Airborne laser systems are used to detect mine shapes. Laser systems are similar to commercial LIDAR. The in-air low energy laser stressor was used in analysis of potential impacts on human resources. Mine shapes may be deployed via ship and will be recovered.	

A.1.7.6 Mine Countermeasure – Mine Neutralization, Small- and Medium-Caliber

Activity Name	Activity Description	
Mine Warfare (MIW)		
Mine Countermeasures – Mine Neutralization, Small- and Medium-Caliber	Ship crews or helicopter aircrews disable mines by firing small- and medium-caliber projectiles.	
Long Description	Ship and helicopter crews utilize small- and medium-caliber weapons to neutralize potential mines. Weapons may employ laser detection and targeting systems. Small- and medium-caliber projectiles are non-explosive and neutralize mines by breaching casing, causing the mine to flood or detonate.	
Information Typical to the Event	**Platform:** Helicopters; surface vessels **Systems:** None **Ordnance/Munitions:** Small-caliber and medium-caliber (non-explosive) **Targets:** Existing minefields; temporarily placed mines **Duration:** Typically 1.5–4 hours	**Location*:** VACAPES: W-50, surface grid 13, 1A1, 1A2, 6, 7C, 7D, Air G, lower Chesapeake Bay Navy Cherry Point: Amphibious Ready Group Mine Warfare Training Area (seaspace radiating from Onslow Beach, Camp Lejeune beach) JAX: Carrier Strike Group Mine Training Area (surface grids 26 B through D [Warning Areas 158A and 158E] and areas proximate to Charleston UNDET boxes)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise; weapons firing noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Vessel strike; in-water device strike; military expended material strike (projectiles); seafloor device strike (bottom placed mine shapes); aircraft strike (birds only) **Entanglement:** None **Ingestion:** Small-caliber projectiles; medium-caliber projectiles; casings	
Detailed Military Expended Materials Information	Small-caliber projectiles; medium-caliber projectiles; casings	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.1.7.7 Mine Countermeasure Mine Neutralization – Remotely Operated Vehicle

Activity Name	Activity Description	
Mine Warfare (MIW)		
Mine Countermeasures – Mine Neutralization – Remotely Operated Vehicles	Ship crews or helicopter aircrews disable mines using remotely operated underwater vehicles.	
Long Description	Ship 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:** Helicopters; ships **Systems:** Acoustic mine targeting system **Ordnance/Munitions:** Neutralizers (explosive and non-explosive) **Targets:** Existing minefields; temporarily placed mines **Duration:** 1.5–4 hours	**Location*:** VACAPES: W-50, surface grid 13, 1A1, 1A2, 6, 7C, 7D, Air G, lower Chesapeake Bay Navy Cherry Point: Amphibious Ready Group Mine Warfare Training Area (seaspace radiating from Onslow Beach, Camp Lejeune) JAX: Carrier Strike Group Mine Training Area (surface grids 26 B through D [Warning Areas 158A and 158E] and areas proximate to Charleston underwater detonation boxes) GOMEX: Panama City mine warfare areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E4); vessel noise; aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; in-water device strike; sea floor device strike (bottom placed mine shapes); aircraft strike (birds only) **Entanglement:** Fiber optic cable **Ingestion:** Neutralizer fragments	
Detailed Military Expended Materials Information	Neutralizer fragments; fiber optic cables	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Acoustic sources associated with remotely operated vehicle mine neutralization systems do not require quantitative analysis. See Section 2.3.7.2 (Source Classes Qualitatively Analyzed).	

A.1.7.8 Mine Laying

Activity Name	Activity Description	
Mine Warfare (MIW)		
Mine Laying	Fixed-wing aircraft and submarine crews drop/launch non-explosive mine shapes.	
Long Description	Fixed-wing aircraft lay offensive or defensive mines for a tactical advantage for friendly forces. Fixed-wing aircraft lay a precise minefield pattern for specific tactical situations. The aircrew typically makes multiple passes in the same flight pattern, and drop one or more training shapes per pass (four shapes total). Training shapes are non-explosive and are recovered when possible.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (F/A-18, P-3, P-8, F-35) **Systems:** None **Ordnance/Munitions:** Non-explosive mine shapes; "quickstrike" mines **Targets:** None **Duration:** 1 hour	**Location*:** VACAPES: W-72A (Area 13, Area 20 or W-72A surface grids 1A1 and 1A3) Navy Cherry Point: W-122 Area 15 JAX: W-157A and W-158A
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive mine shapes); aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Non-explosive mine shapes	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Mine laying is similar to a non-explosive bombing exercise. These events primarily occur during major training exercises. While mine shapes will be recovered if possible, assume they will not for the analysis. Mine laying will typically take place in waters less than 100 ft. in depth. Assume 12 mine shapes are used per event.	

A.1.7.9 Coordinated Unit Level Helicopter Airborne Mine Countermeasures Exercises

Activity Name	Activity Description	
Mine Warfare (MIW)		
Coordinated Unit Level Helicopter Airborne Mine Countermeasure Exercises	A detachment of helicopters and crews train as a unit in the use of airborne mine countermeasures, such as towed mine detection and neutralization systems.	
Long Description	Naval aircrews train, as a squadron, in the use of various airborne mine countermeasures. Systems employed include towed mine detection systems, mechanical (cable cutting) mine sweeps, magnetic and acoustic mine sweeps, and other airborne systems and sensors. Mine shapes will be used. If necessary, permanently placed mine shapes will be supplemented with approximately 24 additional, temporarily placed mine shapes. Training mine shapes could be bottom placed, moored, or floating.	
Information Typical to the Event	**Platform:** Helicopters **Systems:** Various airborne mine countermeasures **Ordnance/Munitions:** None **Targets:** Permanent and temporary mine shapes **Duration:** Multiple days	**Location*:** VACAPES: W-50, surface grid 13, 1A1, 1A2, 6, 7C, 7D, Air G, lower Chesapeake Bay Navy Cherry Point: Amphibious Ready Group Mine Warfare Training Area (seaspace radiating from Onslow Beach, Camp Lejeune) JAX: Carrier Strike Group Mine Training Area (surface grids 26 B through D [Warning Areas 158A and 158E] and areas proximate to Charleston underwater detonation boxes) GOMEX: Panama City Mine Warfare Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (mine hunting; HF4); aircraft noise **Energy:** Electromagnetic (magnetic influence mine sweeping) **Physical Disturbance and Strike:** Vessel strike; in-water device strike; seafloor device strike (bottom placed mine shapes); aircraft strike (birds only) **Entanglement:** Fiber optic cable **Ingestion:** None	
Detailed Military Expended Materials Information	If used during an event, remotely operated mine neutralizer systems could expend fiber optic cable. Projectiles (medium-caliber) could be used, similar to mine countermeasures – mine neutralization small- and medium-caliber events.	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Multiple helicopters conduct airborne mine countermeasure training using an assortment of mine warfare gear similar to unit level events, except that a squadron trains together. Assume up to 24 temporary mine shapes will be deployed to support each of these events.	

A.1.7.10 Civilian Port Defense

Activity Name	Activity Description	
Mine Warfare (MIW)		
Civilian Port Defense-MIW	Civilian port defense activities are maritime security operations conducted for military and civilian ports and harbors.	
Long Description	Naval forces provide mine warfare capabilities to Department of Homeland Security sponsored events. The three pillars of mine warfare, 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 U.S. ports remain free of mine threats. Various mine warfare sensors, which utilize active acoustics, will be employed in the detection, classification, and neutralization of mines. Along with traditional mine warfare techniques, such as helicopter towed mine countermeasures, new technologies (unmanned vehicles) will be utilized. Marine mammal systems may be used during the exercise. Event locations and scenarios will vary according to Department of Homeland Security strategic goals and evolving world events. The purpose of AFTT 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 before the actual events begin.	
Information Typical to the Event	**Platform:** Surface ships, boats, helicopters **Systems:** Unmanned underwater and surface vehicles, various mine detection sensors (AN/AQS-20, AN/AQS-24) **Ordnance/Munitions:** High-explosive charges **Targets:** Temporary mine shapes **Duration:** Multiple days	**Location:** Waters around: Earle, New Jersey; Groton, Connecticut; Hampton Roads, Virginia; Morehead City and Wilmington, North Carolina; Kings Bay, Georgia; Jacksonville, Florida; and Beaumont and Corpus Christi, Texas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (mine hunting; HF4); underwater explosives (E2; E4); vessel noise; aircraft noise **Energy:** Electromagnetic (magnetic influence mine sweeping) **Physical Disturbance and Strike:** Vessel strike; in-water device strikes; seafloor device strike (bottom placed mine shapes); aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Explosives may be used if required for scheduled mine neutralization events. This EIS/OEIS provides programmatic analysis for acoustic effects only. Mine shapes will be recovered. While goal is to conduct once per year, alternating east/west coast, assume that an east coast event will occur every other year with a total of three per five year period.	

A.1.8 MAJOR EXERCISES

A major training event is comprised of several "unit level" range exercises 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 in 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 during individual, crew, and smaller-unit training events. In a major training event, however, these disparate training tasks are conducted in concert, rather than in isolation.

Major range events are listed below.

A.1.8.1 Composite Training Unit Exercise

The Composite Training Unit Exercise is an Integration Phase, at-sea, major range event. For the Carrier Strike Group, this exercise integrates the aircraft carrier and carrier air wing with surface and submarine units in a challenging operational environment. For the expeditionary strike group, this exercise integrates amphibious ships with their associated air wing, surface ships, submarines, and Marine expeditionary unit. Live-fire operations that may take place during composite training unit exercise include long-range air strikes, Naval surface fire support, and surface-to-air, surface-to-surface, and air-to-surface missile exercises. The Marine expeditionary unit also conducts realistic training based on anticipated operational requirements and to further develop the required coordination between Navy and Marine Corps forces. Special operations training may also be integrated with the exercise scenario. Marine mammal systems may be used during the exercise. The composite training unit exercise is typically 21 days in length. The exercise is conducted in accordance with a schedule of events, which may include two one-day, scenario-driven, “mini” battle problems, culminating with a scenario-driven three-day Final Battle Problem. Composite training unit exercise occurs three to four times per year.

A.1.8.2 Joint Task Force Exercise

The Joint Task Force Exercise is a dynamic and complex major range event that is the culminating exercise in the Sustainment Phase training for the Carrier Strike Groups and Expeditionary Strike Groups. For an Expeditionary Strike Group, the exercise incorporates an Amphibious Ready Group Certification Exercise for the amphibious ships and a Special Operations Capable Certification for the Marine expeditionary unit. When schedules align, the joint task force exercise may be conducted concurrently for an Expeditionary Strike Group and Carrier Strike Group. Joint task force exercise emphasizes mission planning and effective execution by all primary and support warfare commanders, including command and control, surveillance, intelligence, logistics support, and the integration of tactical fires. Joint task force exercises are complex scenario-driven exercises that evaluate a strike group in all warfare areas. Marine mammal systems may be used during the exercise. Joint task force exercise is normally 10 days long, not including a three-day in-port force protection exercise, and is the final at-sea exercise for the Carrier Strike Group or Expeditionary Strike Group prior to deployment. Joint task force exercise occurs three to four times per year.

A.1.8.3 Sustainment Exercise

Included in the Fleet Response Training Plan is a requirement to conduct post-deployment training, and maintenance. This ensures that the components of a strike group maintain an acceptable level of readiness after returning from deployment. A sustainment exercise is an exercise designed to challenge the strike group in all warfare areas. Marine mammal systems may be used during the exercise. This exercise is similar to a composite training unit exercise but of shorter duration.

A.1.9 OTHER TRAINING ACTIVITIES

A.1.9.1 Search and Rescue

Activity Name	Activity Description	
Other Training Exercises		
Search and Rescue (SAR)	Helicopter crews rescue military personnel at sea.	
Long Description	Helicopter crews rescue military personnel at sea. Helicopters fly below 3,000 ft. and locate personnel to be rescued. Smoke floats are expended.	
Information Typical to the Event	**Platform:** Helicopters (H-60); small boats **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–3 hours	**Location:** JAX: Proximate to Naval Station Mayport beaches and St. Johns River
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 Materials Information	None	
Assumptions Used for Analysis		

A.1.9.2 Precision Anchoring

Activity Name	Activity Description	
Other Training Exercises		
Precision Anchoring	Ships train by releasing of anchors in designated locations.	
Long Description	Ship crews choose the best available anchoring sites. The ship then 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 ships **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 1 hour	**Location:** VACAPES: Established anchorages JAX: Established anchorages GOMEX: Established 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 Materials Information	None	
Assumptions used for Analysis		

A.1.9.3 Elevated Causeway System

Activity Name	Activity Description	
Other Training Exercises		
Elevated Causeway System (ELCAS)	A temporary pier is constructed off of the beach. Piles are driven into the sand and then later removed.	
Long Description	A pier is constructed off of the beach. The pier is designed to allow for offload of materials and equipment from supply ships. Piles are driven into the sand with an impact hammer. Causeway platforms are then hoisted and secured onto the piles with hydraulic jacks and cranes. It is assembled by joining standard causeway sections together and can be assembled in 10 days. The pier, including associated piles, is removed at the conclusion of training.	
Information Typical to the Event	**Platform:** Boats **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Multiple days	**Location:** VACAPES: Joint Expeditionary Base – Little Creek and Joint Expeditionary Base – Fort Story Navy Cherry Point: Camp Lejeune
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Pile driving and removal **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	This EIS/OEIS is providing programmatic analysis of acoustic impacts from pile driving only.	

A.1.9.4 Submarine Navigation

Activity Name	Activity Description	
Other Training Exercises		
Submarine Navigation (SUB NAV)	Submarine crews operate sonar for navigation and object detection while transiting in/out of port during reduced visibility.	
Long Description	Submarine crews train to operate sonar for navigation. The ability to navigate using sonar is critical for object detection while transiting in/out of port during periods of reduced visibility. During this activity the submarine will be surfaced.	
Information Typical to the Event	**Platform:** Submarines **Systems:** High-frequency submarine sonar system **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 2 hours	**Location:** Northeast: Submarine Base Groton, Portsmouth Naval Shipyard VACAPES: Naval Station Norfolk JAX: Naval Station Mayport, Port Canaveral
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (submarine high-frequency system; HF1); hull-mounted sonar (e.g., MF3) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.1.9.5 Submarine Under Ice Certification

Activity Name	Activity Description	
Other Training Exercises		
Submarine Under Ice Certification	Submarine crews train to operate under ice. Ice conditions are simulated during training and certification events.	
Long Description	Submarine crews train to operate under ice. Ice conditions are simulated during training and certification events. A single exercise is comprised of 36 hours of training, spread out over 5 days in 6-hour training sessions.	
Information Typical to the Event	**Platform:** Submarine **Systems:** Submarine high-frequency sources **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 6 hours	**Location*:** Northeast: OPAREAs VACAPES: OPAREA Navy Cherry Point: OPAREA JAX: OPAREAs
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (submarine sources; HF1) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives).	

A.1.9.6 Surface Ship Object Detection

Activity Name	Activity Description	
Other Training Exercises		
Surface Ship Object Detection	Surface ship crews operate sonar for navigation and object detection while transiting in/out of port during reduced visibility.	
Long Description	Surface ships locate underwater objects that may impede transit in/out of port during periods of reduced visibility. Object detection and navigational training is conduced while transiting in and out of port using either the AN/SQS-53 or AN/SQS-56 in the Kingfisher mode. This training is conducted primarily in the shallow water shipping lanes off the coasts but may be conducted adjacent to any Navy port.	
Information Typical to the Event	**Platform:** Surface ships **Systems:** Hull mounted sonar systems **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 2 hours	**Location*:** VACAPES: Naval Station Norfolk JAX: Naval Station Mayport
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (hull mounted sonar; MF1K; MF2K), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives).	

A.1.9.7 Surface Ship Sonar Maintenance

Activity Name	Activity Description	
Other Training Exercises		
Surface Ship Sonar Maintenance (in OPAREAs and Ports)	Pierside and at-sea maintenance of sonar systems	
Long Description	This scenario consists of surface ships performing periodic maintenance to the surface ship sonar while in port or at sea. This maintenance takes up to 4 hours. Surface ships 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 ships **Systems:** Hull mounted sonar systems **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 4 hours	**Location*:** VACAPES: Naval Station Norfolk, OPAREA Navy Cherry Point: OPAREA JAX: Naval Station Mayport, OPAREAs GOMEX: OPAREAs Other AFTT Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (hull mounted sonar; MF1, MF2), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Other AFTT Areas refers to areas outside of existing range complexes and testing ranges.	

A.1.9.8 Submarine Sonar Maintenance

Activity Name	Activity Description	
Other Training Exercises		
Submarine Sonar Maintenance (in OPAREAs and Ports)	Pierside and at-sea maintenance of sonar systems.	
Long Description	A submarine performs periodic maintenance on the AN/BQQ-10 sonar system 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 **Ordnance/Munitions:** None **Targets:** None **Duration:** From 45 minutes to 1 hour	**Location*:** Northeast: Submarine Base Groton, Portsmouth Naval Shipyard VACAPES: Naval Station Norfolk Navy Cherry Point JAX: Naval Station Mayport, Port Canaveral Other AFTT Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (submarine sonars; MF3) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-1 of Chapter 2 (Description of Proposed Action and Alternatives). Other AFTT Areas refers to areas outside of existing range complexes and testing ranges.	

A.1.9.9 Undersea Warfare Training Range

Activity Name	Activity Description	
Specific Training Range		
Undersea Warfare Training Range (USWTR)	Anti-submarine warfare training will occur at the Undersea Warfare Training Range in the JAX OPAREA.	
Long Description	Anti-submarine warfare training will occur at the Undersea Warfare Training Range in the JAX OPAREA. The Undersea Warfare Training Range is an instrumented sea space, equipped with cables and hydrophones. This capability allows for real time tracking of anti-submarine warfare exercise participants, the assessment of tactics employed and crew proficiency. The ability to provide detailed feedback to the trainees greatly improves the training value of the anti-submarine warfare exercise.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft; helicopters; surface ships, submarines **Systems:** Mid-frequency helicopter dipping, hull mounted, towed sonar; sonobuoys; Nixie **Ordnance/Munitions:** Exercise torpedoes (non-explosive) **Targets:** Expendable Mobile Anti-Submarine Warfare Training Target or MK 30 **Duration:** Not Applicable	**Location:** JAX: Undersea Warfare Training Range
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Various sonar systems (sonobuoy, dipping sonar, torpedo guidance, hull mounted and towed); aircraft noise; vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike; aircraft strike (birds only); vessel and in-water device strike **Entanglement:** Parachutes, guidance wires **Ingestion:** Parachutes	
Detailed Military Expended Materials Information	MK 39 Expendable Mobile Anti-Submarine Warfare Training Targets Torpedo accessories (ballast weights) from exercise torpedoes, sonobuoys, parachutes	
Assumptions Used for Analysis	Torpedoes are recovered. Guidance wire has a low breaking strength. Weights and flex tubing sink rapidly. Typical Undersea Warfare Training Range Events: Approximate number of tracking exercise/torpedo exercises annually • Helicopter, 214 events • Maritime patrol aircraft, 100 events • Maritime patrol multi-static active coherent sonobuoys, 43 events • Surface, 102 events • Submarine, 16 events	

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-AIR WARFARE

A.2.1.1 Air Combat Maneuver Test

Activity Name	Activity Description	
Anti-Air Warfare (AAW)		
Air Combat Maneuver	Aircrews engage in flight maneuvers designed to gain a tactical advantage during combat.	
Long Description	Air combat maneuver is the general term used to describe an air-to-air test event involving two or more aircraft, each engaged in continuous proactive and reactive changes in aircraft attitude, altitude, and airspeed. No weapons are fired during air combat maneuver activities.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** F-35 (2 flight hours/event at 5 days/week); F/A-18 A-D or E/F variants (1.5 flight hours/event), E/A-18G (2 flight hours/event)	**Location:** VACAPES Navy Cherry Point JAX GOMEX AFTT Study 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:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	2 chaff flares per event (all chaff and flare expenditures are captured under Chaff Test and Flare Test, respectively)	

A.2.1.2 Air Platform/Vehicle Test

Activity Name	Activity Description	
Anti-Air Warfare (AAW)		
Air Platform/Vehicle Test	Test performed to quantify the flying qualities, handling, airworthiness, stability, controllability, and integrity of an air platform or vehicle. No weapons are released during an air platform/vehicle test.	
Long Description	The air platform/vehicle test describes the testing performed to quantify the flying qualities, handling, airworthiness, stability, controllability, and integrity of an air platform/vehicle. Integration of non-weapons system in-flight refueling tests are also conducted as part of an air platform/vehicle test. Test results are compared against design and performance specifications for compliance. The test results are also used to define stability and controllability characteristics and limitations and to improve and update existing analytical and predictive models. A wide variety of fixed-wing and rotary-wing aircraft, including unmanned aerial systems would undergo air platform/vehicle testing. No weapons are released during an air platform/vehicle test. Aircraft may employ laser detection for targeting systems and trailing antenna. Events may involve two or more fighter jet aircraft and a towed target tractor by a contracted aircraft (e.g., Lear jet for laser targeting tests).	
Information Typical to the Event	**Platform:** Fixed and rotary-wing aircraft, includes unmanned aerial systems **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–8 flight hours/event	**Location*:** VACAPES: W-386, W-387A, W-72A, W-72B, but could include other warning/restricted areas JAX Key West GOMEX AFTT Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Military expended material strike (fuel tanks or similar), aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Fuel tanks, carriages, dispensers, or similar types of support systems on aircraft may be jettisoned depending on test	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). It is estimated that 2–4 fuel tanks are expended per event; however this can vary based on requirements. Fuel tanks may contain water to simulate different fuel levels. The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.2.1.3 Air Platform Weapons Integration Test

Activity Name	Activity Description	
Anti-Air Warfare (AAW)		
Air Platform Weapons Integration Test	Test performed to quantify the compatibility of weapons with the aircraft from which they would be launched or released. Mostly non-explosive weapons or shapes are used.	
Long Description	The air platform eeapons integration test describes the testing performed to quantify the compatibility of weapons with the aircraft from which they would be released. Tests evaluate the compatibility of the weapon and its carriage, suspension, and launch equipment with the performance and handling characteristics of the designated aircraft. Additional tests assess the ability of the weapon to separate or launch safely from the aircraft at combat velocities, including at supersonic speeds. Test results are compared against design specifications for compliance. The test results are also used to define performance characteristics and to improve and update existing analytical and predictive models.	
Information Typical to the Event	**Platform:** Fixed and rotary-wing aircraft **Systems:** Gun systems integration, Air Intercept Missile (AIM) Missile Series (e.g., AIM-9x) and Advanced Medium Range Air-to-Air Missile (AMRAAM); AGM-114R, MK 46, MK 54, 20 mm **Ordnance/Munitions:** Missiles, rockets, small- and medium-caliber projectiles, bombs (non-explosive) **Targets:** Drones, such as the BQM-74 and 34, may be used as targets for weapon and mission system test events. Surface targets will also be used as needed for proposed test events. **Duration:** F/A-18 A-D or F/A-18 E/F (1.5 flight hours/event), E/A-18G (2 flight hours/event); F-35 (1.5–2.5 hrs./event), MH-60 (2.5 flight hours/event)	**Location*:** VACAPES: W-386, W-72A, R-6604
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectiles, missiles, rockets, bombs); aircraft strike (birds only) **Entanglement:** None **Ingestion:** Small projectiles, medium projectiles, casings	
Detailed Military Expended Materials Information	• Small-caliber projectiles • Medium-caliber projectiles • Non-explosive rockets and missiles • Non-explosive bombs • Weapons carriage, suspension, and launch equipment	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). Estimate 2–4 weapons carriages expended per event	

A.2.1.4 Air-to-Air Weapons System Test

Activity Name	Activity Description	
Anti-Air Warfare (AAW)		
Air-to-Air Weapons Systems Test	Test to evaluate the effectiveness of air-launched weapons against designated airborne targets.	
Long Description	The air-to-air weapons systems test evaluates the performance of air-launched weapons systems against airborne targets, such as the BQM-34, a high performance target simulating a strike fighter aircraft. During an air-to-air weapons systems test, a strike fighter aircraft locates, tracks, and in some tests fires on an airborne target used to simulate another strike fighter aircraft using non-explosive ordnance. Fixed-wing or rotary-wing aircraft may be used. No testing of explosive weapons is planned.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft **Systems:** Electronic combat systems; Air Intercept Missile, Missile Series (e.g., AIM-9) and Advanced Medium Range Air-to-Air Missile; modified aircraft system or aircraft gun that typically fires non-explosive rounds **Ordnance/Munitions:** Missiles, small- and medium-caliber projectiles (non-explosive) **Targets:** BQM-34, BQM-74, GQM 163 Coyote, Tactical Air-Launched Decoys, and paraflares **Duration:** F/A-18 A-D or F/A-18 E/F (1.5 flight hours/event); E/A-18G (2 hours/event); F-35 (2 flight hours/event); 2.5 flight hours/event) MH-60	**Location*:** VACAPES: W-386, W-72, R-6604
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strikes (projectiles, missiles); aircraft strike (birds only) **Entanglement:** None **Ingestion:** Small-caliber projectiles, medium-caliber projectiles, casings	
Detailed Military Expended Materials Information	Small-caliber projectiles, medium-caliber projectiles, casings, missiles, target fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). All chaff and flare expenditure in this event is captured under Chaff Test and Flare Test, respectively.	

A.2.1.5 Air-to-Air Missile Test

Activity Name	Activity Description	
Anti-Air Warfare (AAW)		
Air-to-Air Missile Test	Test to evaluate the effectiveness of air-launched missiles against designated airborne targets. Fixed-wing aircraft will be used.	
Long Description	This event is similar to the training event missile exercise (air-to-air). Tests are a type of air-to-air weapons system test in which air-to-air missiles (non-explosive) are fired from fixed-wing aircraft against unmanned aerial drones such as BQM-34 and BQM-74.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, includes aerial drones **Systems:** Air Intercept Missiles (e.g., AIM-9) and Advanced Medium Range Air-to-Air Missile (AMRAAM) (e.g., AIM-120 AMRAAM) **Ordnance/Munitions:** Air Intercept Missile and Advanced Medium Range Air-to-Air Missile (non-explosive) **Targets:** BQM-34, BQM-74, GQM-163 Coyote, Tactical Air-Launched Decoys, ITALD, and paraflares **Duration:** F/A-18 A-D or F/A-18 E/F (1.5 flight hours/event); E/A-18G (2 hours/event); F-35 (2 flight hours/event)	**Location*:** VACAPES: W-386, W-72, R-6604
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended materials strike (missile, parachutes); aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes; flare pistons	
Detailed Military Expended Materials Information	Missiles, flare pistons, parachutes from paraflares	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). All chaff and flare expenditure in this event is captured under Chaff Test and Flare Test, respectively, with the exception of paraflares used as targets. Assume one paraflare per missile.	

A.2.1.6 Air-to-Air Gunnery Test – Medium-Caliber

Activity Name	Activity Description	
Anti-Air Warfare (AAW)		
Air-to-Air Gunnery Test – Medium-Caliber	Test to evaluate the effectiveness of air-to-air guns against designated airborne targets. Fixed-wing aircraft may be used.	
Long Description	This event is similar to the training event gunnery exercise air-to-air. An air-to-air gunnery test involves the firing of guns from fixed-wing aircraft against a towed aerial banner which serves as the target. Non-explosive rounds are fired and the targets fired upon are unmanned aerial drones.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft (e.g., F/A-18 A-D F/A-18E/F, E/A-18G **Systems:** Gun systems **Ordnance/Munitions:** Medium-caliber projectiles (non-explosive) **Targets:** BQM-34, BQM-74, GQM 163 Coyote **Duration:** F/A-18 A-D/ or F/A-18E/F (1.5 flight hours/event); E/A-18G (2 flight hours/event)	**Location*:** VACAPES: W-386, W-72, R-6604
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectiles); aircraft strike (birds only) **Entanglement:** None **Ingestion:** Medium-caliber projectiles; casings	
Detailed Military Expended Materials Information	Medium-caliber projectiles, casings	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives).	

A.2.1.7 Intelligence, Surveillance, and Reconnaissance Test

Activity Name	Activity Description	
Anti-Air Warfare (AAW)		
Intelligence, Surveillance, and Reconnaissance Test	Aircrews use all available sensors to collect data on threat vessels.	
Long Description	An anti-air warfare intelligence, surveillance, and reconnaissance test involves evaluating communications capabilities of fixed-wing and rotary-wing aircraft, including unmanned systems that can carry cameras, sensors, communications equipment, or other payloads. New systems are tested at sea to ensure proper communications between aircraft and ships. Several unmanned aerial systems are planned for testing, including the Broad Area Maritime Surveillance system, Fire Scout vertical take-off and landing tactical unmanned air vehicle, and the Unmanned Combat Air System Aircraft Carrier Demonstration Unmanned Aerial System. Unmanned Aerial Systems are remotely piloted or self-piloted aircraft. Tactical unmanned aerial systems are designed to support tactical commanders with near-real-time imagery intelligence at ranges up to 200 kilometers. Most small to mid-sized unmanned systems, such as Small Tactical Unmanned Aerial System/Tier II, act as eyes in the sky, relaying raw imagery back to military personnel on the ground. The data are then processed, analyzed, and shared up and down the chain of command. New technology systems, such as the MK XII-Mode 5, provide combat identification friend or foe and are used for aircraft and ship-based communications.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, rotary-wing aircraft, Broad Area Maritime Surveillance system, Fire Scout vertical take-off and landing tactical unmanned air vehicle, and the Unmanned Combat Air System Aircraft Carrier Demonstration; Small Tactical Unmanned Aerial System/Tier II **Systems:** MK XII-Mode 5 **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–20 flight hours/event	**Location:** VACAPES Navy Cherry Point JAX AFTT Study 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:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.2.2 ANTI-SURFACE WARFARE

Surface Warfare is a type of naval warfare in which aircraft, surface ships, and submarines employ weapons, sensors, and operations directed against enemy surface vessels. Naval Air Systems Command Surface Warfare tests include various air-to-surface missile, gunnery, and bombing tests.

A sinking exercise is a specialized Fleet training event that provides an opportunity for Naval Air Systems Command aircrew along with ship and submarine crews to deliver high-explosive ordnance on a deactivated vessel that has been cleaned and environmentally remediated. The vessel is deliberately sunk using multiple weapons systems. A Naval Air Systems Command testing event may take place in conjunction with a sinking exercise to test aircraft or aircraft systems in the delivery of high-explosive ordnance on a surface target.

A.2.2.1 Air-to-Surface Missile Test

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW)		
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 weapons 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 may involve both fixed-wing and rotary-wing aircraft launching missiles at surface maritime targets to evaluate the weapons system or as part of another systems 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, and some operational tests would use explosive missiles (i.e., high-explosive warhead). All developmental testing will use non-explosive (i.e., non-explosive warhead) with a live motor. Naval Air Systems Command plans to conduct integration testing of the MH-60 helicopters and the joint air to ground missile. Both stationary and mobile targets would be used during testing. Approximately 25 percent of some operational tests could use explosive missiles (i.e., high-explosive warhead). All developmental testing will use non-explosive missiles. Similar integration tests would be conducted with the MH-60 and the Hellfire air to ground missile. Approximately 25 percent of these tests could involve explosive missiles. P-3 and P-8 fixed-wing aircraft plan to conduct software and weapons verification testing with Harpoon or JSOW (or equivalent) missiles. Some explosive missiles are planned for use.	
Information Typical to the Event	**Platform:** Fixed-wing and rotary-wing aircraft **Systems:** **Ordnance/Munitions:** Joint air to ground missile, Hellfire air-to-ground missile (explosive), Harpoon, JSOW (non-explosive), captive air training missile **Targets:** Stationary and mobile surface marine targets **Duration:** P-3 or P-8 (4 flight hours/event); MH-60 (2 flight hours/event)	**Location*:** VACAPES: W-386 (85 percent), W-72 (10 percent), RR-6604 (5 percent)] JAX GOMEX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E6; E10); aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (missiles), aircraft strike (birds only) **Entanglement:** None **Ingestion:** Missile fragments; target fragments	

Activity Name	Activity Description
Detailed Military Expended Materials Information	Missiles, missile fragments, target fragments
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). 2 air-to-surface missiles/event, 25 percent which will be high-explosive.

A.2.2.2 Air-to-Surface Gunnery Test

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW)		
Air-to-Surface Gunnery Test	This event is similar to the training event gunnery exercise air-to-surface. Strike fighter and helicopter aircrews evaluate new or enhanced aircraft guns against surface maritime targets to test that the gun, gun ammunition, or associated systems meet required specifications or to train aircrew in the operation of a new or enhanced weapons system.	
Long Description	Strike fighter and helicopter aircrews evaluate new or enhanced aircraft guns against surface maritime targets to test that the gun, gun ammunition, or associated systems meets required specifications or to train aircrew in the operation of a new or enhanced weapons system. Non-explosive practice munitions are typically used during this type of test; however, a small number of high-explosive rounds may be used during final testing. Rounds that may be used include 7.62 mm, 20 mm, 30 mm, 0.30 caliber, and 0.50 caliber gun ammunition.	
Information Typical to the Event	**Platform:** Fixed-wing and rotary-wing aircraft **Systems:** MH-60: GAU-17 (7.62 mm), GAU-21 (0.50 cal), M197 (20 mm), M230 (30 mm), M240 (7.62 mm) **Ordnance/Munitions:** Small- and medium-caliber projectiles (e.g., 7.62 mm, 20 mm, 30 mm, 30 mm supercavitating, non-explosive and explosive) **Targets:** Stationary and mobile surface maritime targets may be used **Duration:** F-35 (2 flight hours/event); F/A-18 A-D and F/A-18 E/F (2 hours/event) MH-60 (2.5 flight hours/event)	**Location*:** VACAPES: W-386 (85 percent), W-72 (10 percent), RR-6604 (5 percent) JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E1); aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectiles); aircraft strike (birds only) **Entanglement:** None **Ingestion:** Small- and medium-caliber projectiles, casings, target fragments, projectile fragments	
Detailed Military Expended Materials Information	Projectiles, casings, target fragments, projectile fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). All projectiles under the No Action Alternative are non-explosive. Assume all Alternative 1 and 2 events include the use of some explosive rounds.	

A.2.2.3 Rocket Test

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW)		
Rocket Test	Rocket tests evaluate the integration, accuracy, performance, and safe separation of guided and unguided 2.75-inch rockets fired from a hovering or forward flying helicopter or from a fixed-wing strike aircraft.	
Long Description	Rocket tests are conducted to evaluate the integration, accuracy, performance, and safe separation of laser-guided and unguided 2.75-inch rockets fired from a hovering or forward flying helicopter or from a fixed-wing strike aircraft. Rocket tests would involve the release of primarily live motor/non-explosive warhead rockets. Some high-explosive warhead rockets would be tested, and during a jettison test, rockets with a non-explosive motor and non-explosive warhead would be jettisoned along with the rocket launcher. Rocket tests are also conducted to train aircrew on the use of new or enhanced weapons systems. Rocket types may include variations of the Hydra-70 rocket developed under the Advanced Precision Kill Weapons System program or similar munitions developed under Low-cost Guided Imaging Rocket program as well as MEDUSA rockets. All rockets planned for testing are 2.75-inch rockets. Some rocket tests may be conducted in conjunction with upgrades to or integration of the Forward Looking Infrared targeting system.	
Information Typical to the Event	**Platform:** Fixed-wing or rotary-wing (MH-60) aircraft, Fire Scout vertical take-off unmanned aerial vehicle **Systems:** **Ordnance/Munitions:** 2.75 in. Hydra-70 (or similar) (explosive and non-explosive) **Targets:** Stationary and mobile surface maritime targets may be used **Duration:** MH-60 (2.5 flight hours/event); F/A-18 variants (1.5 flight hours/event), F-35 (2 flight hours/event)	**Location*:** VACAPES: W-386 (Air G, Air H) JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E5); aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Military expended material strike (rockets); aircraft strike (birds only) **Entanglement:** None **Ingestion:** Rocket fragments, target fragments	
Detailed Military Expended Materials Information	Rockets; rocket fragments, target fragments; rocket launchers	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). Under the No Action Alternative, all rockets are non-explosive. Multiple rockets fired/event, 25 percent of which will be high-explosive. The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.2.2.4 Air-to-Surface Bombing Test

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW)		
Air-to-Surface Bombing Test	This event is similar to the training event bombing exercise air-to-surface. Strike fighter and maritime patrol aircraft test the delivery of bombs (non-explosive) against surface maritime targets with the goal of evaluating the bomb, the bomb carry and delivery system, and any associated systems that may have been newly developed or enhanced.	
Long Description	Strike fighter and maritime patrol aircraft test the delivery of bombs (non-explosive) against surface maritime targets with the goal of evaluating the bomb, the bomb carry and delivery system, and any associated systems that may have been newly developed or enhanced. Both high-explosive and non-explosive bombs may be released during this type of test; however, the vast majority of releases will be non-explosive bombs and typically include non-explosive general purpose bombs (e.g., MK 82 and MK 83) and guided bomb units (e.g., GBU-12 and GBU-32) of various sizes. Surface targets may also be used.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft **Systems:** None **Ordnance/Munitions:** Bombs (e.g., MK 82, MK 83, GBU-12, GBU-32, non-explosive) **Targets:** Stationary surface maritime targets may be used **Duration:** F-35 (2 flight hours/event); P-8 and P-3 (4 flight hours/event); F/A-18 variants (1.5 flight hours/event); EA-18G (2 flight hours/event)	**Location*:** VACAPES: W-386, W-72
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive bombs); aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Non-explosive bombs	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives).	

A.2.2.5 Laser Targeting Test

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW)		
Laser Targeting	Aircrews illuminate enemy targets with lasers.	
Long Description	During a laser targeting test, aircrew use laser targeting devices integrated into aircraft or weapons systems to evaluate targeting accuracy and precision and to train aircrew in the use of newly developed or enhanced laser targeting devices, which are designed to illuminate designated targets for engagement with laser-guided weapons. No weapons are released during a laser targeting test.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft (MH-60); fixed-wing aircraft (P-8) **Systems:** Laser targeting systems, including the Laser Range Designator on the MH-60 helicopters **Ordnance/Munitions:** None **Targets:** None **Duration:** 2.5 flight hours/event	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Aircraft strikes (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.2.2.6 High Energy Laser Weapons Test

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW)		
High Energy Laser Weapon Test	High energy laser weapons tests would evaluate the specifications, integration, and performance of an aircraft mounted, approximately 25 kilowatt high energy laser. The laser is intended to be used as a weapon to disable small surface vessels.	
Long Description	During a high energy laser weapons test, aircrew would evaluate the specifications, integration, and performance of an aircraft mounted, approximately 25 kilowatt high energy laser that is intended to be used as a weapon against stationary and mobile, small surface vessels. The high energy laser would be employed from a hovering or forward flight helicopter (MH-60) and is designed to disable the surface vessel, rendering it immobile. The high energy laser would have a range of up to six kilometers (km). Small boats or other unmanned surface targets would be used during the high energy laser test.	
Information Typical to the Event	**Platform**: MH-60 helicopter **Systems**: High energy laser **Ordnance/Munitions:** None **Targets:** Small Surface Boats **Duration:** MH-60: 2.5 flight hours/event	**Location:** VACAPES
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise; vessel noise **Energy:** High energy laser **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Target fragments	
Detailed Military Expended Materials Information	Target fragments	
Assumptions Used for Analysis		

A.2.3 ELECTRONIC WARFARE

A.2.3.1 Electronic System Evaluation

Activity Name	Activity Description	
Electronic Warfare (EW)		
Electronic Systems Evaluation	Test that evaluates the effectiveness of electronic systems to control, deny, or monitor critical portions of the electromagnetic spectrum. In general, electronic warfare testing will assess the performance of three types of electronic warfare systems: electronic attack, electronic protect, and electronic support.	
Long Description	Electronic systems evaluations are performed to determine the effectiveness of designated electronic warfare systems to control, deny, or monitor critical portions of the electromagnetic spectrum. In general, electronic warfare testing will assess the performance of three types of electronic warfare systems; specifically, electronic attack, electronic protect, and electronic support. Aircraft electronic attack systems are designed to confuse the enemy or deny the enemy the use of its electronically-targeted weapons systems. The suppression of enemy air defenses and active jamming against hostile aircraft and surface combatant radars are examples of the application of electronic attack. Aircraft electronic protect systems are designed to intercept, identify, categorize, and defeat threat weapons systems that are already targeting that or other friendly aircraft. Aircraft electronic support systems employ passive tactics to intercept, exploit, locate (target), collect, collate, and decipher information from the radio frequency spectrum for the purpose of determining the intentions of the radiating source. Test results are compared against design specifications to evaluate the performance of the actual electronic warfare system. The test results are also used to define performance characteristics and to improve and update existing analytical and predictive models.	
Information Typical to the Event	**Platform:** Fixed-wing and rotary-wing aircraft **Systems:** Electronic warfare systems (electronic attack, electronic protect, and electronic support) **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–6 flight hours/event	**Location*:** VACAPES: W-386, W-72 GOMEX
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 Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). All chaff and flare expenditure is captured under Chaff Test and Flare Test, respectively.	

A.2.3.2 Chaff Test

<table>
<tr><th>Activity Name</th><th colspan="2">Activity Description</th></tr>
<tr><td colspan="3">Electronic Warfare (EW)</td></tr>
<tr><td>Chaff Test</td><td colspan="2">This event is similar to the training event chaff exercise. Chaff tests evaluate newly developed or enhanced chaff, chaff dispensing equipment, or modified aircraft systems against chaff deployment. Tests may also train pilots and aircrew in the use of new chaff dispensing equipment. Chaff tests are often conducted with flare tests and air combat maneuver events, as well as other test events, and are not typically conducted as standalone tests.</td></tr>
<tr><td>Long Description</td><td colspan="2">Chaff tests are conducted to evaluate newly developed or enhanced chaff dispensing equipment, to ensure other newly developed or modified aircraft systems are compatible with chaff deployment, and to train pilots and aircrew in the use of new chaff dispensing equipment. Fixed-winged aircraft and helicopters deploy chaff to disrupt threat targeting and missile guidance radars and to defend against an attack (Electronic Protect deployment). Chaff tests are often conducted with flare tests or air combat maneuver events, as well as other tests, rather than as a standalone test. Weapons are not typically fired during chaff tests. Chaff is employed for a number of different tactical reasons, but the end goal is to create a target that will distract enemy radar and weapon systems away from the friendly platform. Chaff may also be employed offensively (Electronic Attack deployment), such as before a major strike to "hide" inbound striking aircraft.

Different chaff types (e.g., RR-129A/AL, RR-144A/AL, and RR-170A/AL) are used by a variety of different Navy aircraft; however all chaff consists of a radar reflector material made of thin, narrow, metallic strips cut in various lengths, and is intended to elicit frequency responses which deceive enemy radars. Chaff is employed for a number of different tactical reasons, but the end goal is to create a target that will distract enemy radar and weapon systems away from the friendly platform. Chaff may also be employed offensively, such as before a major strike to "hide" inbound striking aircraft or ships.

Defensive chaff tests are the most common type of chaff test. In most cases, the chaff test is conducted to evaluate systems on the aircraft deploying the chaff, but it is also critical to view the effect of the chaff from the "enemy" perspective so that radar system operators may practice corrective procedures to overcome the chaff jamming effect. Chaff tests are often designed to gain experience and data from both perspectives.

Chaff is typically deployed from an aircraft as the aircraft makes evasive maneuvers to defeat a simulated threat missile or threat aircraft. The chaff deploys in a cloud of the highly reflective filaments and deceives the guidance system of an inbound missile, allowing the aircraft to escape the threat.

Naval Air Systems Command chaff tests are conducted year-round.</td></tr>
<tr><td>Information Typical to the Event</td><td>Platform: Fixed-wing aircraft, rotary-wing aircraft
Systems: Chaff (RR-129A/AL, RR-144A/AL, and RR-170A/AL)
Ordnance/Munitions: None
Targets: None
Duration: F/A-18 A/D or F/A-18 E/F (1.5 flight hours/event); EA-18G (2 flight hours/event); MH-60 (2 flight hours/event); CH-53K (14 days/year at 2 flight hours/event); P-3 (4 flight hours/event)</td><td>Location:
VACAPES: W-386, W-72
Navy Cherry Point
JAX
GOMEX</td></tr>
<tr><td>Potential Impact Concerns
(Information regarding deconstruct categories and stressors)</td><td colspan="2">Acoustic: Aircraft noise
Energy: None
Physical Disturbance and Strike: Aircraft strike (birds only)
Entanglement: None
Ingestion: Chaff; end caps; pistons</td></tr>
</table>

Activity Name	Activity Description
Detailed Military Expended Materials Information	Chaff, end caps, pistons, flares
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). Estimated 60–100 chaff canisters per event. All releases from MH-60 would be up to 60 canisters per event.

A.2.3.3 Flare Test

Activity Name	Activity Description	
Electronic Warfare (EW)		
Flare Test	This event is similar to the training event flare exercise. 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 chaff tests and air combat maneuver events, as well as other test events, and are not typically conducted as stand alone tests.	
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 chaff tests and air combat maneuver events, as well as 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. Flare dispensers may also be jettisoned during a flare test intended to assess the safe release of the dispenser in the event of an emergency. Fixed-wing aircraft and helicopters deploy flares as a defensive tactic (electronic protect deployment) 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 ft. 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 Naval Air Systems Command 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. Both fixed-wing and rotary-wing aircraft would conduct flare tests.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, rotary-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:** MH-60 (2.0 flight hours/event; 30 events/year); CH-53K (14 events/year at 2 flight hours/event); F/A-18 A-D or F/A-18 E/F (1.5 flight hours/event) and EA-18G (2 flight hours/event); P-3/ P-8 (4 flight hours/event); F-35 (2 flight hours/event)	**Location*:** VACAPES: W-386, W-72 Navy Cherry Point JAX GOMEX
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	
Detailed Military Expended Materials Information	Flares (end caps and pistons), chaff	

Activity Name	Activity Description
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). Flare use from all other events are captured under this activity. Estimated 60–100 flares per event. All releases from MH-60 would be up to 60 flares per event.

A.2.4 ANTI-SUBMARINE WARFARE

Anti-submarine warfare activities involve helicopter and maritime patrol aircraft, ships, and submarines, conducting operations alone or in combination, to enhance or evaluate the ability to locate, track, and neutralize submarines. Anti-submarine warfare tests are intended to evaluate the capabilities of a variety of active and passive sonar systems. Some systems are used to characterize the environment by measuring water depth, for example, whereas others are designed to locate mines and identify, track, and target submarines. Passive sonar systems "listen" for sound by using underwater microphones, called hydrophones, which receive, filter, amplify, and process underwater sound in search of certain acoustic signatures. No sound is introduced into the water when using passive sonar. Passive sonar can indicate the presence, character, and movement of a submarine, to the extent that the submarine generates noise.

Active sonar is the most effective means for locating quiet, modern submarines because active sonar is not dependent on the sound being generated by the submarine. Active sonar transmits pulses of sound that travel through the water, reflect off objects, and return to a receiver. By knowing the speed of sound in water and the time taken for the sound wave to travel to the object and back, active sonar systems can quickly calculate direction and distance from the sonar platform to the underwater object. Being able to accurately track moving submarines is essential to U.S. ship survivability.

Advanced, large-scale anti-submarine warfare events (i.e. anti-submarine warfare coordinated events) involving active sonar are conducted in coordinated, at-sea activities during multidimensional fleet training events involving submarines, ships, fixed-wing aircraft, and helicopters. These integrated training events offer opportunities to conduct testing activities and to train aircrews in the use of new or newly enhanced systems during a large-scale, complex exercise. Coordinated anti-submarine warfare events often involve 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 multidimensional battlespace.

The torpedoes released during a torpedo employment exercise are non-explosive. No other weapons are fired during anti-submarine warfare tests. Anti-submarine warfare sonar systems are deployed from certain classes of surface ships, submarines, helicopters, and fixed-wing patrol aircraft (Table 2.3-1). Helicopters equipped with dipping sonar or sonobuoys are utilized to locate suspect submarines or submarine targets within the training area. In addition, fixed-wing patrol aircrafts are used to deploy both active and passive sonobuoys to assist in locating and tracking submarines during the duration of the test.

There are three types of active sonar: low-frequency (below 1 kHz), mid-frequency (1 to 10 kHz), and high-frequency (above 10 kHz). Table 2.3-1 (see Chapter 2, Description of Proposed Action and Alternatives) lists the types of sonar and sound sources that Naval Air Systems Command plans to evaluate in the Study Area. There are no plans to test low frequency sound sources.

High-frequency active sonar operates at frequencies greater than 10 kHz. At higher acoustic frequencies, sound rapidly dissipates in the ocean environment, resulting in short detection ranges. High-frequency sonar is used primarily for determining water depth, hunting mines, and guiding torpedoes.

Mid-frequency active sonar operates between 1 and 10 kHz, enabling operators to detect underwater objects at greater distances than with high-frequency active sonar, but at shorter distances than with low-frequency active sonar. Because of this detection ranging capability, mid-frequency active sonar is the Navy's primary tool for conducting anti-submarine warfare. Many anti-submarine warfare experiments and tests have demonstrated that this improved capability for long-range detection of adversary submarines before they are able to conduct an attack is essential to U.S. ship survivability.

Anti-submarine warfare tests include sonobuoy lot acceptance tests, which evaluate the integrity of a series, or lot, of sonobuoys before the lot is turned over to the fleet; dipping sonar tests in both shallow and deep water; torpedo tests (non-explosive warhead); and sonobuoy tests with both coherent (tonal) and incoherent (explosive) sonobuoys. The types of testing sound sources employed by Naval Air Systems Command during anti-submarine warfare sonar tests in the Study Area are identified in Table 2.3-1 and descriptions of anti-submarine warfare tests are provided in the sections below.

A.2.4.1 Anti-Submarine Torpedo Test

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
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, track, and attack a submarine or similar target.	
Long Description	Similar to a torpedo exercise, an anti-submarine warfare torpedo test evaluates ASW systems onboard rotary-wing (i.e., MH-60 helicopter) and fixed-wing (maritime patrol aircraft-P-8) aircraft and the ability to search for, detect, classify, localize, track and attack a submarine or similar target (e.g., MK 39 EMATT or MK 30). The focus of the anti-submarine warfare torpedo test is 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-60) and sonobuoys (e.g., AN/SSQ-62). MK 39 or MK 30 targets simulate a submarine threat and are deployed at varying depths and speeds. If available, tests may be conducted using an actual submarine as the target. 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). Eighty five percent of 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-wing and rotary-wing aircraft **Systems:** Torpedoes that may be evaluated: MK 46, MK 54, MK 50, and MK 56; systems used in conjunction with testing torpedoes: AN/AQS-22 dipping sonar (MH-60); sonobuoys (e.g., AN/SSQ-62) **Ordnance/Munitions:** Torpedoes (MK 46, MK 54, MK 50, and MK 56) (non-explosive) **Targets:** MK 39 EMATT, MK 30, submarine **Duration:** MH-60 2 flight hours/event; P-3/P-8 6 flight hours/event	**Location:** VACAPES JAX

Activity Name	Activity Description
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (MF4), sonobuoys (MF5); torpedoes (TORP1); aircraft noise **Energy:** None **Physical Disturbance and Strike:** In-water device strike; military expended material strike, aircraft strike (birds only) **Entanglement:** Parachutes, guidance wire **Ingestion:** Parachutes
Detailed Military Expended Materials Information	Torpedo accessories (e.g., parachute assembly, guidance wire), sonobuoys, ballast, targets
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.2.4.2 Kilo Dip

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Kilo Dip	Functional check of the AN/AQS-22 dipping sonar prior to conduct full test or training event on the dipping sonar.	
Long Description	A kilo dip is the operational term used to describe a functional check of a helicopter deployed dipping sonar system. During a functional check, a single MH-60 helicopter would transit to an area designated for dipping sonar testing (i.e., a dip point usually close to shore) and would deploy the AN/AQS-22 sonar transducer assembly via a reel mechanism to a predetermined depth or series of depths while the helicopter hovers over the dip point. Once at the desired depth, the AN/AQS-22 sonar transducer would be activated and would transmit a pulsed, acoustic signal (i.e., ping) for approximately two to four minutes (enough time to check that all systems are functioning properly). After the check is completed, the AN/AQS-22 sonar transducer assembly would be reeled in, and in some instances the helicopter would transit to a second dip point before the procedure is repeated. A kilo dip is a precursor to more comprehensive testing.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft **Systems:** AN/AQS-22 **Ordnance/Munitions:** None **Targets:** None **Duration:** 1.5 flight hours/event	**Location*:** Northeast: Narragansett Bay VACAPES: W-386, W-72 Navy Cherry Point JAX: W-157, W-158, W-159
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (MF4), aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives).	

A.2.4.3 Sonobuoy Lot Acceptance Test

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Sonobuoy Lot Acceptance test	Sonobuoys are deployed from surface vessels and aircraft to verify the integrity and performance of a lot or group of sonobuoys in advance of delivery to the fleet for operational use	
Long Description	Sonobuoys are deployed from surface vessels and aircraft to verify the integrity and performance of a lot or group of sonobuoys in advance of delivery to the fleet for operational use. Lot acceptance testing would occur for the following types of sonobuoys: AN/SSQ-62 DICASS, AN/SSQ-110 IEER, AN/SSQ-125 MAC, MK 61 SUS, MK 64 SUS, MK 82 SUS, MK 84 SUS, mini source, and high duty cycle. Some sonobuoys are explosive.	
Information Typical to the Event	**Platform:** Surface vessels, fixed-wing aircraft **Systems:** Sonobuoys (AN/SSQ-62 DICASS, AN/SSQ-110 IEER, AN/SSQ-125 MAC, MK 61 SUS, MK 64 SUS, MK 82 SUS, MK 84 SUS, mini source, and high duty cycle) **Ordnance/Munitions:** None **Targets:** None **Duration:** 6 flight hours/event	**Location:** Key West
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Sonar (e.g., ASW2; MF5, MF6), underwater explosives (E3; E4), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, vessel strike, aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes; sonobuoy fragments	
Detailed Military Expended Materials Information	Parachutes; sonobuoy fragments	
Assumptions Used for Analysis	Assume one parachute per sonobuoy Assume an average of 80 non-explosive sonobuoys per event; however the number of sonobuoys used in each event may vary	

A.2.4.4 Anti-Submarine Warfare Tracking Test – Helicopter

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Anti-Submarine Tracking Test – Helicopter	This event is similar to the training event anti-submarine tracking exercise-helicopter. The test evaluates the sensors and systems used to detect and track submarines and to ensure that helicopter systems used to deploy the tracking systems perform to specifications.	
Long Description	Similar to an anti-submarine tracking exercise-helicopter, an anti-submarine tracking test—helicopter 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. Typically, one MH-60 helicopter conducts anti-submarine warfare testing using the AN/AQS-22 dipping sonar, tonal sonobuoys (e.g., AN/SSQ-62), passive sonobuoys (e.g., AN/SSQ-53D/E), or explosive sonobuoys (e.g., mini sound-source seeker buoys). Targets (e.g., MK 39 EMATT or MK 30) may also be employed during an anti-submarine event. If available, tests may be conducted using an actual submarine as the target. This activity would be conducted in shallow or deep waters and could initiate from a land base or from a surface ship. Helicopter anti-submarine tests are intended to evaluate 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. Some anti-submarine helicopter tracking tests could be conducted as part of an anti-submarine tracking coordinated event with fleet training activities.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft **Systems:** AN/AQS-22 dipping sonar, tonal sonobuoys (e.g., AN/SSQ-62), explosive sonobuoys (e.g., mini sound-source seeker buoys), passive sonobuoys (e.g., AN/SSQ-53),and new development mid-frequency active sonar buoys (follow-on to DICASS) **Ordnance/Munitions:** Explosive sonobuoys; mini sound-source seeker buoys (“mini-buoys”) **Targets:** MK 39, MK 30, submarine **Duration:** 2 flight hours/event	**Location*:** Northeast VACAPES: W-386, W-72 Navy Cherry Point JAX: W-157, W-158, W-159 GOMEX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (MF4); sonobuoys (MF5); underwater explosives (E3), aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike, aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachute; explosive sonobuoy fragments	
Detailed Military Expended Materials Information	• 1 MK 39 or MK 30 target (MK 30 is recovered and reused, MK 39 is not) • If target is air dropped, 1 parachute/target • 0–24 sonobuoys/event (1 parachute/sonobuoy) • Explosive sonobuoy fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives).	

A.2.4.5 Anti-Submarine Warfare Tracking Test – Maritime Patrol Aircraft

Activity Name	Activity Description	
Anti-Submarine Warfare (ASW)		
Anti-Submarine Warfare Tracking Test – 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, an 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-8 fixed-wing aircraft conduct anti-submarine warfare testing using tonal sonobuoys (e.g., AN/SSQ-62 DICASS), explosive sonobuoys (e.g., AN/SSQ-110 IEER), passive sonobuoys (e.g., AN/SSQ 53 DIFAR), torpedoes (e.g., MK 46), smoke devices (e.g., MK 58), SUS devices (e.g., MK 61 SUS), flares, and chaff. Targets (e.g., MK 39 EMATT) may also be employed during an anti-submarine warfare scenario. If available, tests may be conducted using an actual submarine as the target. This activity would be conducted in deep (typically beyond 100 ft.) waters and weapons testing could be initiated from a land base or a surface ship. Some anti-submarine warfare maritime patrol aircraft tracking tests could be conducted as part of a coordinated event with fleet training activities.	
Information Typical to the Event	**Platform:** P-3 or P-8 fixed-wing aircraft **Systems:** Sonobuoys (e.g., AN/SSQ-62), passive sonobuoys (e.g., AN/SSQ-53) **Ordnance/Munitions:** IEER, SUS, high duty cycle sonobuoys **Targets:** MK 39, MK 30, smoke device, submarine **Duration:** 4–6 flight hours/event	**Location:** Northeast VACAPES Navy Cherry Point JAX GOMEX Other AFTT Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (ASW2; MF5, MF6), underwater explosives (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	
Detailed Military Expended Materials Information	• 1 MK 39 or MK 30 target (MK 30 is recovered and reused, MK 39 is not) • If target air dropped, 1 parachute/target • 20–60 sonobuoys/event (1 parachute/sonobuoy) • Smoke device	
Assumptions Used for Analysis	Torpedo, missile, flare, and chaff use will be captured under anti-submarine warfare torpedo test, anti-surface warfare missile test, flare test, and chaff test, respectively. Analysis of these will not be conducted under this activity. 1 MK 58 per event	

A.2.5 MINE WARFARE

Mine warfare involves 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 the water at predetermined depths to destroy ships or submarines. Naval mines are deposited and left in place until triggered by the approach of or contact with an enemy ship, or until removed or otherwise destroyed. Naval mines can be laid by minelayers, other ships, submarines, and aircraft. Naval Air Systems Command mine warfare testing events include airborne mine countermeasures events, mine laying events (similar to mine exercises), and mine neutralization events. Sonar systems and sound sources associated with mine warfare testing events are listed in Table 2.3-2 (see Chapter 2, Description of Proposed Action and Alternatives). The AN/ASQ-235, an airborne projectile-based mine clearance system, and AN/ALQ-220 (Organic and Surface Influence Sweep) are mine neutralization systems capable of destroying mines or otherwise rendering them non-functional. The AN/AQS-20A and airborne laser mine detection system are mine hunting systems used for locating and recording the positions of mines for avoidance or subsequent neutralization.

A.2.5.1 Airborne Mine Neutralization Systems Test – ASQ-235 (Airborne Mine Neutralization System)

Activity Name	Activity Description	
Mine Warfare (MIW)		
Airborne Mine Neutralization Systems (AMNS) Test	Airborne mine neutralization tests of the airborne mine neutralization system evaluate the system's ability to detect and destroy mines off of the MH-60 airborne mine countermeasures capable helicopter. The airborne mine neutralization system uses up to four unmanned underwater vehicles equipped with high-frequency sonar, video cameras, and explosive neutralizers.	
Long Description	Mine neutralization tests evaluate aircraft and aircraft systems intended to neutralize or otherwise destroy mines through the use of explosives or other munitions. For most neutralization tests, mine shapes or non-explosive mines are used to evaluate new or enhanced mine neutralization systems. The airborne mine neutralization system uses up to four unmanned underwater vehicles equipped with high-frequency sonar and video cameras to detect submerged mines. The unmanned underwater vehicles are also equipped with explosives to neutralize the mines after they are located. Data from unmanned underwater vehicles are relayed to the operator in the helicopter through a fiber-optic cable enabling the operator to position the neutralizing charge onto the most vulnerable area of the mine. The explosive charge is then detonated to neutralize the mine. For most tests, recoverable non-explosive neutralizers are used. A mine shape, rather than a high-explosive mine, serves as the target and a range support vessel recovers the non-explosive neutralizer and the mine shape following the test. Testing scenarios include a non-explosive neutralizer against and non-explosive mine shape, or a high-explosive neutralizer against a non-explosive mine shape or a high-explosive neutralizer against an explosive mine.	
Information Typical to the Event	**Platform:** MH-60 helicopter **Systems:** Airborne Mine Neutralization System (e.g., AN/ASQ-235) **Ordnance/Munitions:** Neutralizers (explosive and non-explosive); mines (explosive and non-explosive) **Targets:** Floating/moored/bottom mine or shapes, high-explosive neutralizers **Duration:** 2.5 flight hours/event	**Location*:** VACAPES: W-50, W-72, W-386 SFOMF NSWC PCD

Activity Name	Activity Description
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E4; E11), aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Aircraft strike (birds only); military expended material strike; seafloor device strike (mine shapes) **Entanglement:** Fiber optic cable **Ingestion:** Mine fragments, neutralizer fragments, fiber optic cable fragments
Detailed Military Expended Materials Information	• Fiber-optic cable, plus additional expended material, such as the can that holds and deploys the cable • 1–4 neutralizers deployed per high-explosive event Mine shapes are typically retrieved and reused, if they are not too badly damaged from neutralization attempt.
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). The in-air low energy laser stressor was used in analysis of potential impacts on human resources.

A.2.5.2 Airborne Projectile-Based Mine Clearance System

Activity Name	Activity Description	
Mine Warfare (MIW)		
Airborne Projectile-based Mine Clearance System	An MH-60 helicopter uses a laser-based detection system to search for mines and to fix mine locations for neutralization with an airborne projectile-based mine clearance system. The system neutralizes mines by firing a small- or medium-caliber non-explosive, supercavitating projectile from a hovering helicopter.	
Long Description	During an airborne projectile-based mine clearance system test, a MH-60 helicopter evaluates the search capabilities of an airborne projectile-based mine clearance system (such as the AN/AWS-2 Rapid Airborne Mine Clearance System] to detect mines and fix mine locations using a laser. The airborne projectile-based mine clearance system can work in tandem with the airborne laser mine detection system by providing a mine neutralizing (destroying) capability for airborne laser mine detection system-detected, near-surface mines. The gun (such as the Bushmaster) fires a small- or medium-caliber (such as a 30 mm) non-explosive, supercavitating projectile at the target from a hovering MH-60. The projectile penetrates the target, rendering it non-functional. Mine shapes (as opposed to high-explosive mines) would almost always be used as the targets during a test. In the event a high-explosive mine is used during the final testing phase an underwater explosion may be generated as the mine is neutralized.	
Information Typical to the Event	**Platform**: MH-60 helicopter **Systems**: Rapid Airborne Mine Clearance System or similar system **Ordnance/Munitions:** Small- or medium-caliber supercavitating projectile (non-explosive), mines (non-explosive and explosive) **Targets:** Floating/moored/bottom /mine or mine shape **Duration:** 2.5 flight hours/event	**Location*:** VACAPES: W-50 NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E11); aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Military expended material strike (projectiles), seafloor device strike (mine shapes), aircraft strikes (birds only) **Entanglement:** None **Ingestion:** Projectiles (small- and medium-caliber), target fragments	
Detailed Military Expended Materials Information	Projectiles (small- and medium-caliber); target fragments. Mine shapes are typically retrieved and reused, if they are not too badly damaged from neutralization attempt.	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). All mines under the No Action Alternative are non-explosive. The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.2.5.3 Airborne Towed Mine Sweeping Test

Activity Name	Activity Description	
Mine Warfare (MIW)		
Airborne Towed Minesweeping Test	An airborne towed minesweeping test (such as the Organic Airborne and Surface Influence Sweep) would be conducted by a MH-60 helicopter to evaluate the functionality of towed minesweeping devices and the MH-60 at sea. The OASIS is towed from a forward flying helicopter and works by emitting an electromagnetic field and mechanically generated underwater sound to simulate the presence of a ship. The sound and electromagnetic signature cause nearby mines to explode.	
Long Description	An airborne towed minesweeping test (such as the Organic Airborne and Surface Influence Sweep) would be conducted by an airborne mine countermeasures capable MH-60 helicopter to evaluate the functionality of Organic Airborne and Surface Influence Sweep and MH-60 at sea. For most tests, mine sweeping would be simulated using Versatile Exercise Mine System (non-explosive mine shapes that emit a plume of smoke rather than exploding) and high-explosive mines at the culmination of testing, approximately 1 per event. The Organic Airborne and Surface Influence Sweep works by emitting an electromagnetic field and underwater sound generated from a mechanical source to simulate a ship's sound signature. The Organic Airborne and Surface Influence Sweep serves to "sweep" or cause explosive mines to detonate when exposed to the electromagnetic field and simulated ship sound signature. The sound generated from the Organic Airborne and Surface Influence Sweep is not sonar, but rather a mechanically-generated sound to simulate a ship prop.	
Information Typical to the Event	**Platform:** MH-60 **Systems:** Towed minesweeping systems (e.g., Organic Airborne and Surface Influence Sweep) **Ordnance/Munitions:** Mines (explosive), Versatile Exercise Mine System **Targets:** Floating/moored/bottom mines (non-explosive and explosive) **Duration:** 2.5 flight hours/event	**Location*:** VACAPES: W-50, W-72 NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (E11); aircraft noise **Energy:** Electromagnetic **Physical Disturbance and Strike:** In-water towed device strike, seafloor device strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Mine fragments	
Detailed Military Expended Materials Information	Mine fragments	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). Non-explosive mine shapes will be recovered.	

A.2.5.4 Airborne Towed Mine Hunting Sonar Test

Activity Name	Activity Description	
Mine Warfare (MIW)		
Airborne Towed Minehunting Sonar Test	A mine-hunting system that is towed from an MH-60 helicopter with sonar for detection and classification of bottom and moored mines. An electro-optical sensor allows for identification of bottom mines.	
Long Description	Tests of towed mine-hunting sonar systems (such as the AN/AQS-20A, or "Q20") evaluate the search capabilities of this helicopter-towed, mine hunting, detection, and classification system. The sonar on the Q20 identifies mine-like objects in the deeper parts of the water column, but is not designed to identify near-surface mines.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft (MH-60) **Systems:** Towed mine-hunting sonar systems (AN/AQS-20A) **Ordnance/Munitions:** None **Targets:** Floating/moored/near surface mine or mine shape **Duration:** 2.5 flight hours/event	**Location*:** VACAPES: W-50, W-72 NSWC PCD SFOMF
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (HF4), aircraft noise **Energy:** None **Physical Disturbance and Strike:** In-water towed device strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information		
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives).	

A.2.5.5 Airborne Laser-Based Mine Detection System Test

Activity Name	Activity Description	
Mine Warfare (MIW)		
Airborne Laser-Based Mine Detection System Test	An airborne mine hunting test of the AN/AES-1 Airborne Laser Mine Detection System, that is operated from the MH-60 helicopter and evaluates the system's ability to detect, classify, and fix the location of floating and near-surface, moored mines. The system uses a laser to locate mines and may operate in conjunction with an airborne projectile-based mine detection system to neutralize mines.	
Long Description	During an Airborne Mine Countermeasures test, a MH-60 helicopter evaluates the search capabilities of the AN/AES-1 Airborne Laser Mine Detection System. Airborne Laser Mine Detection System is a mine hunting system designed to detect, classify, and localize floating and near-surface, moored sea mines using a laser system. The Airborne Laser Mine Detection System will be integrated into the MH-60 helicopter to provide a rapid wide-area reconnaissance and assessment of mine threats in littoral zones, confined straits, choke points, and amphibious objective areas for Carrier and Expeditionary Strike Groups. The Airborne Laser Mine Detection System uses pulsed laser light to image the entire near-surface volume potentially containing mines. Airborne Laser Mine Detection System is capable of day or night operations without stopping to deploy or recover equipment and without towing any equipment in the water. With untethered operations, it can attain high area search rates. This design uses the forward motion of the aircraft to generate image data negating the requirement for complex scanning mechanisms and ensuring high system reliability. Airborne Laser Mine Detection System also provides accurate target geo-location to support follow on neutralization of the detected mines. Airborne Laser Mine Detection System works in conjunction with Airborne Projectile-Based Mine Clearance System.	
Information Typical to the Event	**Platform:** MH-60 helicopter **Systems:** AN/AES-1 Airborne Laser Mine Detection System **Ordnance/Munitions:** None **Targets:** Floating/moored mine shapes **Duration:** 2.5 flight hours/event	**Location*:** VACAPES: W-50, W-72 NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives). The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.2.5.6 Mine Laying Test

Activity Name	Activity Description	
Mine Warfare (MIW)		
Mine Laying Test	Fixed-winged aircraft evaluate the performance of mine laying equipment and software systems to lay mines. A mine test may also train aircrew in laying mines using a new or enhanced mine deployment system.	
Long Description	During a mine laying test, fixed-winged aircraft evaluate the performance of aircraft mine laying equipment or associated software systems to lay mines using non-explosive mine shapes. A mine test may also train aircrew in the technique of laying mines and in using a new or enhanced mine deployment system. Aircrew typically drop a series of about four non-explosive mine shapes (i.e., MK 76, BDU-45, or BDU-48), making multiple passes in the same flight pattern and dropping one or more shapes each time. The mine shapes are scored for accuracy as they enter the water. The non-explosive mine shapes are expendable and are typically not recovered after the test.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft **Systems:** None **Ordnance/Munitions:** Mine shapes (i.e., MK 62, MK 63. or MK 65 quick-strike; non-explosive) **Targets:** None **Duration:** 2 flight hours/event	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only); seafloor device strike (mine shape) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Mine shapes (10/event)	
Assumptions Used for Analysis		

A.2.6 OTHER TESTING ACTIVITIES

A.2.6.1 Test and Evaluation – Catapult Launch

Activity Name	Activity Description	
Other Testing		
Test and Evaluation Catapult Launch	Tests evaluate the function of aircraft carrier catapults at sea following enhancements, modifications, or repairs to catapult launch systems, including aircraft catapult launch tests. No weapons or other expendable materials would be released.	
Long Description	Aircraft catapults are systems used to assist aircraft take-off in aircraft carriers. Catapults consist of a track built into the flight deck, below which is a large piston or shuttle that is attached through the track to the nose gear of the aircraft. Navy aircraft launch systems are powered by steam or driven by an electromagnetic motor. Steam-powered catapults draw steam from the ship's boilers to the catapult steam receivers or accumulator, where it is stored at the desired pressure. From the receivers/accumulator, steam is directed to the launching valves, and provides the energy to launch aircraft. The most significant differences between the various types of steam catapults are the length and capacity. An electromagnetic launch system provides higher launch energy capability, reduced weight, volume, and maintenance, increased controllability, availability, reliability, and efficiency. The present electromagnetic aircraft launch system design centers around a linear synchronous motor and supplied power from pulsed disk alternators through a cycloconverter. Average power, obtained from an independent source on the host platform, is stored kinetically in the rotors of the disk alternators. It is then released in a 2–3 second pulse during a launch. This high-frequency power is fed to the cycloconverter which acts as a rising voltage, rising frequency source to the launch motor. The linear synchronous motor takes the power from the cycloconverter and accelerates the aircraft down the launch stroke, all the while providing "real time" closed loop control. Catapult launch tests would occur on fleet aircraft carriers during deployment. The specific locations of carriers from 2014–2020 is unknown. No weapons or other expendable materials would be released during catapult tests.	
Information Typical to the Event	**Platform:** CVN 68–78, fixed-wing aircraft **Systems:** Catapult; electromagnetic aircraft launch system **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–6 flight hours/event	**Location:** VACAPES Navy Cherry Point JAX AFTT 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 Materials Information	None	
Assumptions Used for Analysis		

A.2.6.2 Air Platform Shipboard Integration Test

Activity Name	Activity Description	
Other Testing		
Air Platform Shipboard Integration Test	Fixed wing aircraft are tested to determine operability from shipboard platforms, performance of shipboard physical operations, and to verify and evaluate communications and tactical data links.	
Long Description	The air platform shipboard integration test is performed to evaluate the compatibility of an aircraft to operate from designated shipboard platforms, perform shipboard physical operations, and to verify and evaluate communications and tactical data links. This test function also includes an assessment of carrier-shipboard suitability, hazards of electromagnetic radiation to ordnance, hazard of electromagnetic radiation to personnel, and high energy radio frequency.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft **Systems:** Data link and communication systems, hazards of electromagnetic radiation to ordnance, hazard of electromagnetic radiation to personnel, high energy radio frequency **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–6 flight hours/event	**Location*:** VACAPES: W-386, W-72 Navy Cherry Point JAX
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 Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives).	

A.2.6.3 Shipboard Electronic Systems Evaluation

Activity Name	Activity Description	
Other Testing		
Shipboard Electronic Systems Evaluation	Tests measure ship antenna radiation patterns and test communication systems with a variety of aircraft.	
Long Description	Shipboard electronic systems evaluation tests measure ship antenna radiation patterns and evaluate communication systems linking ships and aircraft. Aircraft capable of landing on a ship (e.g., aircraft carrier or littoral combat ship) temporarily deploy to a nearshore ship and conduct a variety of tests over a period of days to test newly installed or modified systems onboard the aircraft for compatibility with shipboard electronic systems. Follow-on test and evaluation of unmanned aerial systems would consist of dynamic interface testing, shipboard electromagnetic testing, and envelope expansion tests intended to evaluate capability of the unmanned aerial systems to conduct launch and recovery operations from a ship at sea as well as perform missions in a maritime environment. Altitudes would range from mean seal level to 15,000 feet mean seal level with the majority of flights occurring between mean seal level and 3,000 feet. Unmanned aerial systems would include STUAS/Tier II tactical unmanned aerial systems, BAMS, Fire Scout VTUAV, and UCAS-D testing. Shipboard testing of the Joint Precision Approach and Landing System (test new technology systems to provide precision guidance to aircraft landing on air capable ships. At-sea flight test of the CH-53K would consist of shipboard compatibility (dynamic interface/envelope expansion) and, during Operational Evaluation, amphibious assault scenarios. SESE tests of the V-22 helicopter would involve flight and wind envelope expansion interface testing with LHA, LHD, and LPD class ships.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, rotary-wing aircraft, unmanned aerial systems **Systems:** Joint Precision Approach and Landing System **Ordnance/Munitions:** None **Targets:** None **Duration:** 2–20 flight hours/event	**Location*:** VACAPES: W-386, W-72 Navy Cherry Point JAX
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 Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives).	

A.2.6.4 Maritime Security

Activity Name	Activity Description	
Other Testing		
Maritime Security	Maritime patrol aircraft and helicopters participate in maritime security activities and fleet training events. Aircraft and surface ships identify, track, intercept, board, and inspect foreign merchant vessels suspected of not complying with United Nations/allied sanctions or conflict rules of engagement.	
Long Description	Crews from Navy helicopters and surface ships identify, track, intercept, board, and inspect foreign merchant vessels suspected of not complying with United Nations/allied sanctions or conflict rules of engagement. The boarding party will be delivered from a surface ship via rigid-hull inflatable boat or similar small craft if the target vessel is non-hostile or via helicopter if hostile. This training event is non-firing. Naval Air Systems Command maritime patrol aircraft and helicopters may participate in maritime security activities and training events.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** Paintballs **Targets:** High performance small boats and unmanned vehicles **Duration:** Under 12 hours	**Location*:** VACAPES: W-386, W-72 Navy Cherry Point JAX
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 Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-2 of Chapter 2 (Description of Proposed Action and Alternatives).	

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 NEW SHIP CONSTRUCTION

Ship construction activities include pierside testing events, a series of sea trials, and developmental and operational test and evaluation programs. Pierside and at-sea testing of systems aboard a ship may include activation of acoustic sources, acoustic countermeasures, radars, and radio equipment. Pierside events also consist of light-off and operational checks of the vessel's propulsion, weapons, and other combat systems prior to at-sea operations. However, for purposes of this EIS/OEIS, pierside testing at Navy contractor shipyards will consist only of tactical sonar systems. At sea, each new ship is operated at full power and subjected to high-speed runs and steering tests. At-sea test firing of shipboard weapons systems, including guns, is also conducted.

A.3.1.1 Surface Combatant Sea Trials – Pierside Sonar Testing

Activity Name	Activity Description	
Ship Construction and Maintenance		
New Ship Construction		
Surface Combatant Sea Trials – Pierside Sonar Testing	Ship's sonar systems are tested pierside to ensure proper operation.	
Long Description	Pierside sonar testing is one part of the total surface combatant sea trial activity. Surface combatant sonars are tested pierside to ensure proper operation prior to conducting the at-sea portion of the sea trial. Surface combatants included in this activity are the ARLEIGH BURKE class (DDG 51) and the ZUMWALT class (DDG 1000) destroyers.	
Information Typical to the Event	**Platform:** Surface combatant (e.g., DDG 51 and DDG 1000) **Systems:** Mid-frequency sonars **Ordnance/Munitions:** None **Targets:** None **Duration:** 3 weeks total per ship, with each source run independently and not continuously during this time	**Location:** Bath, Maine Norfolk, Virginia Mayport, Florida Pascagoula, Mississippi
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF1K, MF10), underwater communications (e.g., MF9) **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.1.2 Surface Combatant Sea Trials – Propulsion Testing

Activity Name	Activity Description	
New Ship Construction		
Surface Combatant Sea Trials – Propulsion Testing	Ship is run at high speeds in various formations (e.g., straight-line and reciprocal paths).	
Long Description	Propulsion testing is one part of the total surface combatant sea trial activity. Propulsion testing includes ship maneuvering, including full power runs (speeds in excess of 30 knots) and endurance runs.	
Information Typical to the Event	**Platform:** Surface combatant (e.g., DDG 51 and DDG 1000) **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Full-power runs are conducted for a total of 4 hours, and endurance runs are conducted for a total of 2 hours	**Location*:** Northeast: Boston Area Complex Gulf of Mexico:** GOMEX: W-155B VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). **Gulf of Mexico refers to the body of water. Ships may not be traveling in a straight line. Ships will operate across the full spectrum of capable speeds. Ships will not be conducting test constantly for the entire duration.	

A.3.1.3 Surface Combatant Sea Trials – Gun Testing

Activity Name	Activity Description	
New Ship Construction		
Surface Combatant Sea Trials – Gun Testing	Gun systems are tested using non-explosive rounds.	
Long Description	Large-caliber gun testing is one part of the total surface combatant sea trial activity. Tests currently include firing of the 5 inch .62 caliber gun, and will potentially include a 155 mm gun for future DDG 1000 platforms.	
Information Typical to the Event	**Platform:** Surface combatant (e.g., DDG 51 and DDG 1000) **Systems:** Large-caliber guns (5 inch, 155 mm); close-in weapon system **Ordnance/Munitions:** Large-caliber projectiles (e.g., 5 inch, 155 mm) (non-explosive); medium-caliber projectiles (non-explosive) **Targets:** None **Duration:** Within the 4-day surface combat sea trial	**Location*:** Northeast: CGULL OPAREA Gulf of Mexico:** GOMEX: W-151C VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, military expended material strike (non-explosive projectiles) **Entanglement:** None **Ingestion:** Medium-caliber projectiles	
Detailed Military Expended Materials Information	26 large-caliber non-explosive practice munitions/event; 700 medium-caliber non-explosive practice munitions/event Projectiles, casings	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). **Gulf of Mexico refers to the body of water. Ships will not be conducting test constantly for the entire duration. 26 large-caliber rounds per event 700 medium-caliber rounds per event	

A.3.1.4 Surface Combatant Sea Trials – Missile Testing

Activity Name	Activity Description	
New Ship Construction		
Surface Combatant Sea Trials – Missile Testing	Non-explosive or explosive missiles are fired at target drones to test the launching system.	
Long Description	Missile testing is one part of the total surface combatant sea trial activity. During the event, support craft launch target drones, upon which two non-explosive or explosive missiles are fired.	
Information Typical to the Event	**Platform:** Surface combatant (e.g., DDG 51 and DDG 1000) **Systems:** Missile launch system **Ordnance/Munitions:** Missiles (explosive and non-explosive) **Targets:** Retrievable mobile targets (e.g., drones) **Duration:** Within the 4-day surface combat sea trial	**Location*:** Northeast: CGULL OPAREA Gulf of Mexico:** GOMEX: W-151C VACAPES JAX
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 (non-explosive practice munitions; munition fragments), vessel strike; aircraft strike (birds only) **Entanglement:** None **Ingestion:** Munition fragments	
Detailed Military Expended Materials Information	2 missiles (non-explosive or explosive)/event	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). **Gulf of Mexico refers to the body of water. Ships will not be conducting test constantly for the entire duration. Two missiles per event (these could be either explosive or non-explosive). Target drones are recovered by supporting craft.	

A.3.1.5 Surface Combatant Sea Trials – Decoy Testing

Activity Name	Activity Description	
New Ship Construction		
Surface Combatant Sea Trials – Decoy Testing	Surface combatant ships test the MK 36 decoy launching system.	
Long Description	Testing of the MK 36 Decoy Launching system is one part of the total surface combatant sea trial activity. During the event, chaff cartridges or concrete slugs are launched to ensure proper operation of the system.	
Information Typical to the Event	**Platform:** Surface combatant (e.g., DDG 51 and DDG 1000) **Systems:** MK 36 Decoy Launching system **Ordnance/Munitions:** None **Targets:** None **Duration:** Within the 4-day surface combat sea trial	**Location*:** Northeast: CGULL OPAREA Gulf of Mexico:** (GOMEX: W-151C) VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; expended material other than munitions (concrete slugs) **Entanglement:** None **Ingestion:** End caps, pistons, chaff	
Detailed Military Expended Materials Information	36 chaff cartridges or concrete slugs/event	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). **Gulf of Mexico refers to the body of water. Ships will not be conducting test constantly for the entire duration. 36 chaff cartridges or concrete slugs/event	

A.3.1.6 Surface Combatant Sea Trials – Surface Warfare Testing – Large-Caliber

Activity Name	Activity Description	
New Ship Construction		
Surface Combatant Sea Trials – Surface Warfare Testing – Large-Caliber	Ships defend against surface targets with large-caliber guns.	
Long Description	Surface warfare testing is one part of the total surface combatant sea trial activity. During this event, a high-speed maneuverable surface target would run a weaving pattern towards the ship at speeds in excess of 20 knots. The surface combatant would fire non-explosive large-caliber rounds at the incoming target.	
Information Typical to the Event	**Platform:** Surface combatant (e.g., DDG 51 and DDG 1000) **Systems:** Large-caliber weapons systems **Ordnance/Munitions:** Large-caliber projectiles (e.g., 5 inch, 155 mm) (non-explosive) **Targets:** Surface targets (e.g., high-speed maneuverable surface target) **Duration:** Within the 4-day surface combat sea trial	**Location*:** Northeast: CGULL OPAREA Gulf of Mexico:** (GOMEX: W-151C) VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise; weapons firing noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, military expended material strike (non-explosive practice munitions) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Large-caliber projectiles	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). **Gulf of Mexico refers to the body of water. Ships will not be conducting test constantly for the entire duration. 48 rounds per event	

A.3.1.7 Surface Combatant Sea Trials – Anti-Submarine Warfare Testing

Activity Name	Activity Description	
New Ship Construction		
Surface Combatant Sea Trials – Anti-Submarine Warfare Testing	Ships demonstrate capability of countermeasure systems and underwater surveillance and communications systems.	
Long Description	Anti-submarine warfare testing is one part of the total surface combatant sea trial activity. During this event, hull-mounted sonar systems are operated to test the capability of the systems. Mid- and high-frequency acoustic sources are used during this activity.	
Information Typical to the Event	**Platform:** Surface combatant (e.g., DDG 51 and DDG 1000) **Systems:** Surface ship sonars, countermeasure systems, and underwater surveillance and communications systems **Ordnance/Munitions:** None **Targets:** Motorized autonomous targets (e.g., Expendable Mobile Anti-Submarine Warfare Training Target) **Duration:** Within the 4-day surface combat sea trial	**Location*:** Northeast: CGULL OPAREA Gulf of Mexico** (GOMEX: W-151C) VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonars (e.g., MF1, MF1K, MF10), acoustic countermeasures (e.g., ASW3), underwater communications (e.g., MF9), vessel noise **Energy:** None **Physical Disturbance and Strike**: Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	3 passive sonobuoys/event; targets	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). **Gulf of Mexico refers to the body of water. Ships will not be conducting test constantly for the entire duration.	

A.3.1.8 Aircraft Carrier Sea Trials – Propulsion Testing

Activity Name	Activity Description	
New Ship Construction		
Aircraft Carrier Sea Trial – Propulsion Testing	Ship is run at high speeds in various formations (e.g., straight-line and reciprocal paths).	
Long Description	Propulsion testing is one part of the total aircraft carrier sea trial activity. Propulsion testing includes ship maneuvering, including full power runs (speeds in excess of 30 knots) and endurance runs in both straight line and reciprocal paths.	
Information Typical to the Event	**Platform:** Aircraft carrier **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Within the 1–2 day aircraft carrier sea trial	**Location:** VACAPES
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike**: Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Ships may not be traveling in a straight line. Ships will operate across the full spectrum of capable speeds. Ships will not be conducting test constantly for the entire duration.	

A.3.1.9 Aircraft Carrier Sea Trials – Gun Testing – Small-Caliber

Activity Name	Activity Description	
New Ship Construction		
Aircraft Carrier Sea Trial – Gun Testing Small-Caliber	Gun systems are tested using non-explosive rounds.	
Long Description	Small-caliber gun testing is included as part of the total aircraft carrier sea trial activity. Small-caliber gun testing includes .50 caliber guns.	
Information Typical to the Event	**Platform:** Aircraft carrier **Systems:** .50 caliber gun **Ordnance/Munitions:** Small-caliber projectiles (e.g., .50 caliber) (non-explosive) **Targets:** None **Duration:** Within the 1–2 day aircraft carrier sea trial	**Location:** VACAPES Navy Cherry Point JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike**: Military expended material strike (non-explosive projectiles), vessel strike **Entanglement:** None **Ingestion:** Small-caliber projectiles, casings	
Detailed Military Expended Materials Information	Casings, projectiles	
Assumptions Used for Analysis	Ships will not be conducting test constantly for the entire duration. Events can occur in any of the range complexes. 100 rounds per event	

A.3.1.10 Aircraft Carrier Sea Trials – Gun Testing – Medium-Caliber

Activity Name	Activity Description	
New Ship Construction		
Aircraft Carrier Sea Trial – Gun Testing Medium-Caliber	Gun systems are tested using non-explosive and explosive rounds.	
Long Description	Medium-caliber gun testing is included as part of the total aircraft carrier sea trial activity. Medium-caliber gun testing includes 20 mm guns. In addition, fixed-wing aircraft deployed from an aircraft carrier will fire medium-caliber guns.	
Information Typical to the Event	**Platform:** Aircraft carrier, fixed-wing aircraft **Systems:** Medium-caliber gun systems **Ordnance/Munitions:** Medium-caliber projectiles (20 mm) (non-explosive and explosive) **Targets:** None **Duration:** Within the 1–2 day aircraft carrier sea trial	**Location:** VACAPES Navy Cherry Point JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Aircraft noise, weapons firing noise, underwater explosives (e.g., E1), vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (projectiles, fragments), aircraft strike (birds only), vessel strike **Entanglement:** None **Ingestion:** Projectiles, casings, fragments	
Detailed Military Expended Materials Information	Casings, projectiles, fragments	
Assumptions Used for Analysis	Ships will not be conducting test constantly for the entire duration. Events can occur in any of the range complexes. Approximately one percent of projectiles are high-explosive.	

A.3.1.11 Aircraft Carrier Sea Trials – Missile Testing

Activity Name	Activity Description	
New Ship Construction		
Aircraft Carrier Sea Trial – Missile Testing	Surface-to-air missiles are fired to test the launching system.	
Long Description	Aircraft carrier sea trials include self defense systems such as surface-to-air missiles.	
Information Typical to the Event	**Platform:** Aircraft carrier **Systems:** Missile launching system **Ordnance/Munitions:** Missiles (e.g., Evolved Sea Sparrow Missile or Rolling Airframe Missile) (explosive) **Targets:** Drone **Duration:** Within the 1–2 day aircraft carrier sea trial	**Location:** VACAPES
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** In-air explosives, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (fragments), vessel strike; aircraft strike (birds only) **Entanglement:** None **Ingestion:** Missile fragments	
Detailed Military Expended Materials Information	Missile fragments	
Assumptions Used for Analysis	Ships will not be conducting test constantly for the entire duration. Missiles explode in the air. One target per event	

A.3.1.12 Aircraft Carrier Sea Trials – Bomb Testing

Activity Name	Activity Description	
New Ship Construction		
Aircraft Carrier Sea Trial – Bomb Testing	Air-to-surface non-explosive bombs are delivered from carrier-launched fixed-wing aircraft.	
Long Description	Fixed-wing aircraft deployed from an aircraft carrier will deliver non-explosive practice bombs.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, aircraft carrier **Systems:** None **Ordnance/Munitions:** Non-explosive practice bombs **Targets:** Surface target (towed or smoke float) **Duration:** Within the 1–2 day aircraft carrier sea trial	**Location:** JAX
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 bombs), aircraft strike (birds only), vessel strike, in-water device strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Non-explosive bombs	
Assumptions Used for Analysis	Ships will not be conducting test constantly for the entire duration. Two bombs per event Assume one target per event	

A.3.1.13 Submarine Sea Trials – Pierside Sonar Testing

Activity Name	Activity Description	
New Ship Construction		
Submarine Sea Trial – Pierside Sonar Testing	Tests submarine's sonar systems pierside to ensure proper operation.	
Long Description	Pierside sonar testing is one part of the total submarine sea trial activity. Submarine sonar systems are tested pierside to ensure proper operation prior to conducting the at-sea portion of the sea trial.	
Information Typical to the Event	**Platform:** Submarines **Systems:** Submarine sonars, underwater communications **Ordnance/Munitions:** None **Targets:** None **Duration:** Within a 5-day sea trial	**Location:** Groton, Connecticut Newport News, Virginia
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF3), high-frequency sonar (e.g., HF1), underwater communication (e.g., M3, MF10) **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Ships will not be conducting test constantly for the entire duration.	

A.3.1.14 Submarine Sea Trials – Propulsion Testing

Activity Name	Activity Description	
New Ship Construction		
Submarine Sea Trial – Propulsion Testing	Submarine is run at high speeds in various formations, and at various depths.	
Long Description	Propulsion testing is one part of the total submarine sea trial activity. During this activity, submarines undergo a controlled deep dive to test depth, emergency surfacing, full-power operations, high speed turns, and extreme depth changes.	
Information Typical to the Event	**Platform:** Submarines **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Within a 5-day sea trial	**Location:** Northeast VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Subs will not be conducting test constantly for the entire duration. Subs may not be traveling in a straight line. Subs will operate across the full spectrum of capable speeds.	

A.3.1.15 Submarine Sea Trials – Weapons System Testing

Activity Name	Activity Description	
New Ship Construction		
Submarine Sea Trial – Weapons System Testing	Submarine weapons systems are tested by cycling water through them in lieu of actual weapons firing.	
Long Description	Weapons system testing is one part of the total submarine sea trial activity. During this event, the submarine launches "water slugs" in lieu of actual torpedoes or countermeasures.	
Information Typical to the Event	**Platform:** Submarines **Systems:** Torpedo and countermeasure systems **Ordnance/Munitions:** None **Targets:** None **Duration:** Within a 5-day sea trial	**Location:** Northeast VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Submarines will not be conducting test constantly for the entire duration.	

A.3.1.16 Submarine Sea Trials – Anti-Submarine Warfare Testing

Activity Name	Activity Description	
New Ship Construction		
Submarine Sea Trial – Anti-Submarine Warfare Testing	Submarines demonstrate capability of underwater surveillance and communications systems.	
Long Description	Anti-submarine warfare testing is one part of the total submarine sea trial activity. During this event, hull-mounted sonar systems and underwater communications are operated to test the capability of the systems. Mid- and high-frequency acoustic sources are used during this activity.	
Information Typical to the Event	**Platform:** Submarines **Systems:** Surveillance and communication systems **Ordnance/Munitions:** None **Targets:** Submarines, motorized autonomous targets (e.g., Expendable Mobile Anti-Submarine Warfare Training Target) **Duration:** Within a 5-day sea trial	**Location:** Northeast VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF3), high-frequency sonar (e.g., HF1), underwater communication (e.g., M3, MF10) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Targets	
Assumptions Used for Analysis	Subs will not be conducting test constantly for the entire duration.	

A.3.1.17 Other Class Ship Sea Trials – Propulsion Testing

Activity Name	Activity Description	
New Ship Construction		
Other Class Ship Sea Trial – Propulsion Testing	Ship is run at high speeds in various formations (e.g., straight-line and reciprocal paths).	
Long Description	Propulsion testing is one part of the total sea trial activity. During this event, the ship is tested for maneuverability, including full power and endurance runs.	
Information Typical to the Event	**Platform:** Amphibious warfare ships, surface combatant (e.g., Littoral Combat Ship), support craft/other – specialized high speed , support craft/other **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** During one day of a 5-day sea trial	**Location*:** AFTT Study Area: VACAPES Gulf of Mexico:** GOMEX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). **Gulf of Mexico refers to the body of water. Ships will not be conducting test constantly for the entire duration. Ships may not be traveling in a straight line. Ships will operate across the full spectrum of capable speeds.	

A.3.1.18 Other Class Ship Sea Trials – Gun Testing – Small-Caliber

Activity Name	Activity Description	
New Ship Construction		
Other Class Ship Sea Trial – Gun Testing Small-Caliber	Ships defend against surface targets with small-caliber guns.	
Long Description	Small-caliber gun testing is included as part of the total sea trial activity. Small-caliber gun testing includes .50 caliber guns.	
Information Typical to the Event	**Platform:** Amphibious warfare ships, surface combatant (e.g., Littoral Combat Ship), support craft/other – specialized high speed , support craft/other **Systems:** Small-caliber weapon systems **Ordnance/Munitions:** Small-caliber projectiles (non-explosive) **Targets:** None **Duration:** Within the 5-day sea trial	**Location*:** Gulf of Mexico**: GOMEX VACAPES
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive projectiles), vessel strike **Entanglement:** None **Ingestion:** Small-caliber projectiles, casings	
Detailed Military Expended Materials Information	Small-caliber projectiles, casings	
Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). **Gulf of Mexico refers to the body of water. Ships will not be conducting test constantly for the entire duration.	

A.3.1.19 Anti-Submarine Warfare Mission Package Testing

Activity Name	Activity Description	
New Ship Construction		
Anti-Submarine Warfare Mission Package Testing	Ships and their supporting platforms (e.g., helicopters, unmanned aerial systems) detect, localize, and prosecute submarines.	
Long Description	Littoral combat ships 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, culminating in the deployment of lightweight torpedoes to engage the threat.	
Information Typical to the Event	**Platform:** Surface combatant, rotary-wing aircraft **Systems:** Surface ship sonars, helicopter-deployed sonars, active sonobuoys, torpedo sonars **Ordnance/Munitions:** Non-explosive torpedoes **Targets:** Motorized autonomous targets (e.g., Expendable Mobile Anti-Submarine Warfare Training Target) **Duration:** 1–2 weeks, with 4–8 hours of active sonar use with intervals of non-activity in between	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF12), helicopter-deployed sonar (e.g., MF4), active sonobuoys (e.g., MF5), torpedo sonar (e.g., TORP1); Anti-submarine sonar (e.g., ASW1); acoustic countermeasures (e.g., ASW3); vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike; aircraft strike (birds only); military expended material strike **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Materials Information	Lightweight torpedo launch accessories; sonobuoys; parachutes	
Assumptions used for Analysis	One target per event All sonobuoys have parachutes unless otherwise noted. 2 sonobuoys expended per event	

A.3.1.20 Surface Warfare Mission Package Testing– Gun Testing Small-Caliber

Activity Name	Activity Description	
New Ship Construction		
Surface Warfare Mission Package Testing – Gun Testing Small-Caliber	Ships defend against surface targets with small-caliber guns.	
Long Description	Littoral combat ships conduct surface warfare by detecting, tracking, and prosecuting small-boat 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 30 mm gun weapon system.	
Information Typical to the Event	**Platform:** Surface combatant **Systems:** Small-caliber weapon systems **Ordnance/Munitions:** Small-caliber projectiles (.50 caliber) (non-explosive) **Targets:** None **Duration:** 1–2 weeks, with intervals of surface warfare mission package use during this time	**Location:** AFTT Study Area (typically in designated Fleet OPAREAs)*
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive projectiles); vessel strike **Entanglement:** None **Ingestion:** Small projectiles, casings	
Detailed Military Expended Materials Information	Casings, small projectiles	
Assumptions used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). 500 rounds per event	

A.3.1.21 Surface Warfare Mission Package Testing – Gun Testing Medium-Caliber

Activity Name	Activity Description	
New Ship Construction		
Surface Warfare Mission Package Testing – Gun Testing Medium-Caliber	Ships defend against surface targets with medium-caliber guns.	
Long Description	Littoral combat ships conduct surface warfare by detecting, tracking, and prosecuting small-boat 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 30 mm gun weapon system.	
Information Typical to the Event	**Platform:** Surface combatant **Systems:** Medium-caliber gun systems **Ordnance/Munitions:** Medium-caliber projectiles (explosive and non-explosive) **Targets:** None **Duration:** 1–2 weeks, with intervals of surface warfare mission package use during this time	**Location:** AFTT Study Area (typically in designated fleet OPAREAs)*
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E1); weapons firing noise; vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive projectiles); vessel strike **Entanglement:** None **Ingestion:** Projectiles, casings, fragments	
Detailed Military Expended Materials Information	Casings, projectiles, fragments	
Assumptions used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). 700 explosive and 700 non-explosive rounds per event	

A.3.1.22 Surface Warfare Mission Package Testing – Gun Testing Large-Caliber

Activity Name	Activity Description	
New Ship Construction		
Surface Warfare Mission Package Testing – Gun Testing Large-Caliber	Ships defend against surface targets with large-caliber guns.	
Long Description	Littoral combat ships conduct surface warfare by detecting, tracking, and prosecuting small-boat 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 57 mm gun weapon system.	
Information Typical to the Event	**Platform:** Surface combatant **Systems:** Gun systems **Ordnance/Munitions:** Large-caliber projectiles (explosive and non-explosive) **Targets:** None **Duration:** 1–2 weeks, with intervals of surface warfare mission package use during this time	**Location:** AFTT Study Area (typically in designated fleet OPAREAs)*
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** In-air explosive; weapons firing noise; vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive projectiles, fragments); vessel strike **Entanglement:** None **Ingestion:** Fragments	
Detailed Military Expended Materials Information	Casings, projectiles; fragments	
Assumptions used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). 980 explosive rounds per event 420 non-explosive rounds per event	

A.3.1.23 Surface Warfare Mission Package Testing – Missile/Rocket Testing

Activity Name	Activity Description	
New Ship Construction		
Surface Warfare Mission Package Testing – Missile/Rocket Testing	Ships defend against surface targets with medium range missiles or rockets.	
Long Description	Littoral combat ships conduct surface warfare by detecting, tracking, and prosecuting small-boat threats. The surface warfare mission package provides a layered strike/defensive capability by use of its embarked support aircraft, medium range missiles or rockets, and gun weapon system.	
Information Typical to the Event	**Platform:** Surface combatant, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** Missiles (e.g., anti-surface) (non-explosive and explosive) **Targets:** None **Duration:** 1–2 weeks, with intervals of surface warfare mission package use during this time	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E6), weapons firing noise, aircraft noise; vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike; military expended material strike (non-explosive projectiles and explosive fragments), aircraft strike (birds only) **Entanglement:** None **Ingestion:** Fragments	
Detailed Military Expended Materials Information	Missile or rocket fragments	
Assumptions used for Analysis	2 missiles or rockets per event	

A.3.1.24 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 systems, magnetic and acoustic sensor systems deployed by ship or support helicopters, and laser systems. Mines are then neutralized using magnetic, acoustic, and supercavitating systems.	
Information Typical to the Event	**Platform:** Surface combatant, unmanned underwater vehicles, rotary-wing 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:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Towed sonar systems (e.g., HF4), underwater explosives (e.g., E4), aircraft noise, vessel noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Fragments	
Detailed Military Expended Materials Information	Fragments	
Assumptions Used for Analysis	8 charges per event The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.3.1.25 Post-Homeporting Testing

Activity Name	Activity Description	
New Ship Construction		
Post-Homeporting Testing (all classes)	Tests electronic, navigation, and refueling capabilities.	
Long Description	Post-homeporting testing includes Shipboard Electronic Systems Evaluation Facility measurements of antenna radiation patterns, Tactical Air Navigation certification, Identification Friend or Foe Verification, Dynamic Interface test (to validate helicopter operations), and underway replenishments.	
Information Typical to the Event	**Platform:** All classes of surface ships **Systems:** Electronic and navigation systems **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–5 days, depending upon the test being conducted (e.g., Shipboard Electronic Systems Evaluation Facility testing is 1 day, dynamic interface testing is 5 days)	**Location:** Northeast VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.2 SHIP SHOCK TRIALS

Each new class (or major upgrade) of surface ships constructed for the Navy may undergo an at-sea shock trial. A shock trial consists of a series of underwater detonations that send shock waves through the ship's hull to simulate near misses during combat. A series of up to four underwater detonations would be conducted at various distances from the ship (charges are set closer to the ship as the trial progressives). Anticipated shock trials prior to 2019 include a CVN 21 Class aircraft carrier, DDG 1000 Zumwalt Class Destroyer, Independence Class Littoral Combat Ship, and Freedom Class Littoral Combat Ship.

A.3.2.1 Aircraft Carrier Full Ship Shock Trial

Activity Name	Activity Description	
Ship Shock Trials		
Aircraft Carrier Full Ship Shock Trial	Underwater detonations against an aircraft carrier.	
Long Description	Each new class (or major upgrade) of surface ships constructed for the Navy may undergo an at-sea shock trial. A shock trial is a series of underwater detonations that sends a shock wave through the ship's hull to simulate near misses during combat. A series of up to four underwater detonations would be conducted at various distances from the ship (charges are set closer to the ship as the trial progressives).	
Information Typical to the Event	**Platform:** Aircraft carrier, support craft/other **Systems:** None **Ordnance/Munitions:** High-explosive charges **Targets:** None **Duration:** Typically over 4 weeks, with one detonation per week. However, smaller charges may be detonated on consecutive days.	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E17), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** Charge fragments	
Detailed Military Expended Materials Information	Charge fragments	
Assumptions Used for Analysis	Four charges per event Only one event will occur per five year period. Event may occur in either JAX or VACAPES. Will occur in waters deeper than 650 ft. *Modeling scenario:* Four 40,000-lb. charges	

A.3.2.2 DDG 1000 Zumwalt Class Destroyer Full Ship Shock Trial

Activity Name	Activity Description	
Shock Trials		
DDG 1000 Zumwalt Class Destroyer Full Ship Shock Trial	Underwater detonations against DDG 1000 Zumwalt Class Destroyer.	
Long Description	Each new class (or major upgrade) of surface ships constructed for the Navy may undergo an at-sea shock trial. A shock trial is a series of underwater detonations that sends a shock wave through the ship's hull to simulate near misses during combat. A series of up to four underwater detonations would be conducted at various distances from the ship (charges are set closer to the ship as the trial progressives).	
Information Typical to the Event	**Platform:** Surface combatant, support craft/other **Systems:** None **Ordnance/Munitions:** High-explosive charges **Targets:** None **Duration:** Typically over 4 weeks, with one detonation per week. However, smaller charges may be detonated on consecutive days.	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E16), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** Charge fragments	
Detailed Military Expended Materials Information	Charge fragments	
Assumptions Used for Analysis	Four charges per event One event will occur during the five year period. Event may occur in either JAX or VACAPES. Will occur in waters deeper than 650 ft. *Modeling scenario:* Four 10,000-lb. charges	

A.3.2.3 Littoral Combat Ship Full Ship Shock Trial

Activity Name	Activity Description	
Shock Trials		
Littoral Combat Ship Full Ship Shock Trial	Underwater detonations against Littoral Combat Ship.	
Long Description	Each new class (or major upgrade) of surface ships constructed for the Navy may undergo an at-sea shock trial. A shock trial is a series of underwater detonations that sends a shock wave through the ship's hull to simulate near misses during combat. A series of up to four underwater detonations would be conducted at various distances from the ship (charges are set closer to the ship as the trial progressives).	
Information Typical to the Event	**Platform:** Surface combatant, support craft/other **Systems:** None **Ordnance/Munitions:** High-explosive charges **Targets**: None **Duration:** Typically over 4 weeks, with one detonation per week. However, smaller charges may be detonated on consecutive days.	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E16), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** Charge fragments	
Detailed Military Expended Materials Information	Charge fragments	
Assumptions Used for Analysis	Four charges per event Two events will occur through five year period. Event may occur in either JAX or VACAPES. Will occur in waters deeper than 650 ft. *Modeling scenario:* Four 10,000-lb. charges	

A.3.3 LIFE CYCLE ACTIVITIES

Testing activities are conducted throughout the life cycle of a Navy ship to verify performance and mission capabilities. Tactical sonar system testing occurs pierside during maintenance, repair and overhaul availabilities, and at sea immediately following most major industrial periods. A Combat System Ship Qualification Trial is conducted for new ships and for ships that have undergone modification or overhaul of their combat systems.

A.3.3.1 Ship Signature Testing

Activity Name	Activity Description	
Life Cycle Activities		
Ship Signature Testing	Tests ship and submarine radar signatures and electromagnetic countermeasures.	
Long Description	Radar cross signature testing of surface ships is accomplished on new vessels and periodically throughout a ship's life cycle to measure how detectable the ship is to radar. For example, Assessment Identification of Mine Susceptibility measurements are specific electromagnetic and passive acoustical tests performed on mine countermeasure ships 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 life cycle phases of the acquisition process for submarines. Signature testing of all surface ships 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 ship and submarine classes **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 20 days	**Location:** VACAPES Joint Expeditionary Base Little Creek, Virginia Beach, Virginia Gulf of Mexico**
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	**Gulf of Mexico refers to the body of water.	

A.3.3.2 Surface Ship Sonar Testing/Maintenance (in OPAREAs and Ports)

Activity Name	Activity Description	
Life Cycle Activities		
Surface Ship Sonar Testing/Maintenance (in OPAREAs and Ports)	Pierside and at-sea testing of ship systems occurs periodically following major maintenance periods and for routine maintenance.	
Long Description	Following major and routine maintenance periods, pierside and at-sea testing and maintenance is required. Multiple systems with active and passive acoustic sources such as tactical sonars, navigation systems, fathometers, underwater communications systems, underwater distress beacons, range finders, and other similar systems, would be tested.	
Information Typical to the Event	**Platform:** All surface ship classes **Systems:** Surface ship sonars, fathometers, underwater communications **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 3 weeks, with intermittent use of active sonar	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF1K), underwater communications (e.g., MF9, MF10), acoustic countermeasures (e.g., ASW3), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Sonar would not be continuously active for the duration of the test.	

A.3.3.3 Submarine Sonar Testing/Maintenance (in OPAREAs and Ports)

Activity Name	Activity Description	
Life cycle Activities		
Submarine Sonar Testing/Maintenance (in OPAREAs and Ports)	Pierside and at-sea testing of submarine systems occurs periodically following major maintenance periods and for routine maintenance.	
Long Description	Following major and routine maintenance periods, pierside and at-sea testing and maintenance is required. Multiple systems with active and passive acoustic sources such as navigation systems, fathometers, underwater communications systems, underwater distress beacons, range finders, and other similar systems, would be tested.	
Information Typical to the Event	**Platform:** Submarine **Systems:** Submarine sonars, fathometers, underwater communications, tracking pingers **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to three weeks, with intermittent use of active sonar	**Location:** Northeast VACAPES
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF3), high-frequency sonar (HF1, HF3), underwater communications (e.g., M3), **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Sonar would not be used continuously throughout duration of test.	

A.3.3.4 Combat System Ship Qualification Trial – In-Port Maintenance Period

Activity Name	Activity Description	
Life cycle Activities		
Combat System Ship Qualification Trial (CSSQT) – In-Port Maintenance Period	Each combat system is tested to ensure they are functioning in a technically acceptable manner and are operationally ready to support at-sea Combat System Ship Qualification Trial events.	
Long Description	Each combat system is tested to ensure they are functioning in a technically acceptable manner and are operationally ready to support at-sea Combat System Ship Qualification Trial events. The ship's test plans and procedures, Maintenance Repair/Requirements Cards, and computerized planned maintenance system are used in establishing testing standards for each system and pieces of equipment. Ship's crew, under supervision of subject matter experts, complete all actions and receive remedial training where required. Trouble observation reports are written on noted discrepancies.	
Information Typical to the Event	**Platform:** Surface combatant, amphibious warfare ship **Systems:** All combat systems **Ordnance/Munitions:** None **Targets:** None **Duration:** 3 weeks	**Location:** Norfolk, Virginia Mayport, Florida
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1) **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Sonar would not be continuously active for the duration of the test.	

A.3.3.5 Combat System Ship Qualification Trial – Air Defense

Activity Name	Activity Description	
Life cycle Activities		
Combat System Ship Qualification Trial (CSSQT) – Air Defense (AD)	Tests the ship's capability to detect, identify, track, and successfully engage live and simulated targets.	
Long Description	Air defense events are conducted in clear and varied electronic attack environments, using a mix of missile firings to verify the ship's capability to detect, identify, track, and successfully engage live and simulated targets. The tests include testing the radar's track load in the presence of debris, long range engagement processing, low-elevation detection and tracking, track load in the presence of electronic attack and chaff, and missile performance.	
Information Typical to the Event	**Platform:** Surface combatant, amphibious warfare ship **Systems:** All combat systems **Ordnance/Munitions**: Missiles (e.g., anti-air) (non-explosive and explosive), medium-caliber projectiles (non-explosive), large-caliber projectiles (explosive and non-explosive) **Targets:** Retrievable mobile targets (e.g., drones) and towed targets **Duration:** 1 week	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** In-air explosives, weapons firing noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive practice munitions, munition fragments), aircraft strike (birds only), vessel strike **Entanglement:** None **Ingestion:** Chaff, target fragments, medium-caliber projectiles, end caps, pistons, casings, munition fragments	
Detailed Military Expended Materials Information	• 2,000 medium-caliber projectiles/event non-explosive • 20 large-caliber projectiles/event (explosive and non-explosive) • 6 surface-to-air missiles/event (explosive and non-explosive) • Munition fragments • Target fragments • Chaff, end caps, pistons – 24 canisters per event • Targets	
Assumptions Used for Analysis		

A.3.3.6 Combat System Ship Qualification Trial – Surface Warfare

Activity Name	Activity Description	
Life cycle Activities		
Combat System Ship Qualification Trial (CSSQT) – Surface Warfare (SUW)	Tests shipboard sensors capabilities to detect and track surface targets, relay the data to the gun weapon system, and engage targets.	
Long Description	Surface warfare events are gun weapons system tests conducted in a clear environment to demonstrate shipboard and remote (e.g., helicopter) sensors capabilities to detect and track surface targets, relay the data to the gun weapon system, and engage targets. The event qualified the ship's surface warfare gun capability to receive track data from the sensors, filter it, calculate ballistics, recommend aimpoint corrections (spots), generate gun orders, select ammunition properly for targets at differing ranges, and deliver surface direct fire on the surface targets.	
Information Typical to the Event	**Platform:** Surface combatant, amphibious warfare ship **Systems:** Gun weapons system, missile systems **Ordnance/Munitions:** Large-caliber projectiles (e.g., 155 mm, 5 inch) (non-explosive and explosive), medium-caliber projectiles (non-explosive), missiles (non-explosive) **Targets:** Mobile surface targets (e.g., High-Speed Maneuvering Surface Target), towed surface targets (e.g., Low Cost Modular Target) **Duration:** 1 week	**Location:** VACAPES JAX Key West
Potential Impact Concerns *(Information regarding de-construct categories and stressors)*	**Acoustic:** In-air explosives, weapons firing noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive practice munitions, projectile fragments), vessel strike, in-water device strike **Entanglement:** None **Ingestion:** Medium-caliber projectiles, fragments	
Detailed Military Expended Materials Information	• Up to 300 large-caliber gun rounds/event • 1 surface-to-surface missile/event • 2,000 medium-caliber rounds • Munition fragments	
Assumptions used for Analysis	Explosive large-caliber rounds are air-burst.	

A.3.3.7 Combat System Ship Qualification Trial – Undersea Warfare

Activity Name	Activity Description	
Life cycle Activities		
Combat System Ship Qualification Trial (CSSQT) – Undersea Warfare (USW)	Tests ships ability to track and engage undersea targets.	
Long Description	Undersea warfare events are comprised of a series of tracking and firing exercises. The events ensure the operability of the undersea warfare suite and its interface with the Light Airborne Multi-Purpose System helicopter. Approximately 1 week of in-port training precedes exercises on an instrumented underwater range, where ship's force becomes familiar with operation and maintenance of the Undersea Warfare system. Personnel then demonstrate the capability to establish the datalink between the helicopter and ship's undersea warfare system.	
Information Typical to the Event	**Platform:** Surface combatant, rotary-wing aircraft **Systems:** Surface ship sonars, underwater communication systems, sonobuoys **Ordnance/Munitions:** Non-explosive torpedoes **Targets:** Motorized autonomous targets (e.g., Expendable Mobile Anti-Submarine Warfare Training Target) **Duration:** 1 week	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF2), high-frequency sonar (e.g., HF4), helicopter-deployed dipping sonar (e.g., MF4), active sonobuoys (e.g., MF5), torpedo sonar (e.g., TORP1), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only) **Entanglement:** Parachutes **Ingestion:** Parachutes	
Detailed Military Expended Materials Information	• Lightweight torpedo launch accessories (nose cap, suspension bands, air stabilizer, sway brace pad, arming wire, fahnstock clip, parachute) • Sonobuoys – 83 per event • Expendable targets	
Assumptions Used for Analysis	Five targets per event All sonobuoys have parachutes unless otherwise noted. Lightweight torpedoes only; no guidance wires Sonobuoys: 8 DICASS + 75 DIFAR/event	

A.3.4 NAVAL SEA SYSTEM COMMAND RANGE ACTIVITIES NAVAL SURFACE WARFARE CENTER, PANAMA CITY DIVISION TESTING RANGE

A.3.4.1 Air Operations

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Air Operations	Various aircraft operations in support of other test activities.	
Long Description	Helicopters support the majority of testing activities at Naval Surface Warfare Center, Panama City Division Testing Range. Aircraft ensure that test areas are clear of other air and surface vessels prior to testing and perform post-test surveys following the completion of a test event. Air operations also involve the towing, delivery, and recovery of real and mock operational systems such as mines, rockets, and mine countermeasure systems. Any active acoustic stressors will be analyzed under separate activities. Aircraft are also involved in high-explosive firing exercise, gun firing is included under a separate activity, projectile firing. Naval Surface Warfare Center, Panama City Division Testing Range activities are identified as hours of operations per year rather than duration of each individual event.	
Information Typical to the Event	**Platform:** Fixed-wing aircraft, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1,116 hours/year	**Location:** NSWC PCD
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 Materials Information	None	
Assumptions Used for Analysis		

A.3.4.2 Surface Operations

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Surface Operations	Surface vessel operations for deployment and recovery of mine warfare systems and testing of communication and propulsion systems.	
Long Description	Surface vessels are often used to tow mine warfare systems for testing. Surface crafts are also used to deploy and recover mock mine warfare systems to assess the effectiveness of surface and airborne mine countermeasures systems and other test systems. Developmental and operational testing of communications and propulsion systems on surface vessels are also conducted within the Study Area. Naval Surface Warfare Center, Panama City Division Testing Range activities are identified as hours of operations per year rather than duration of each individual event.	
Information Typical to the Event	**Platform:** Surface combatant, support craft/other **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 7,443 hours/year	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.4.3 Subsurface Operations

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Subsurface Operations	Subsurface operations include testing of underwater vehicles, items placed on the ocean floor, and diving activities.	
Long Description	Subsurface operations include a variety of underwater vehicles, robotic or autonomous systems, and items placed on the sea floor. Diving activities and special operations activities also occur. Other subsurface operations involve manned and unmanned underwater vehicles. All subsurface vehicles are retrieved after use, while most objects (e.g., non-explosive mines) remain for a period of time to be used as testing fixtures. Naval Surface Warfare Center, Panama City Division Testing Range activities are identified as hours of operations and items expended per year rather than duration of each individual event.	
Information Typical to the Event	**Platform:** Submarine, unmanned underwater vehicles, support craft/other **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1,620 hours/year	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, seafloor device strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Items (e.g., non-explosive mines) placed on seafloor will be retrieved after a certain amount of time. 966 items per year	
Assumptions Used for Analysis		

A.3.4.4 Sonar Operations

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Sonar Operations	Sonar systems testing determines their capability to detect, localize, and characterize mine-like objects.	
Long Description	Sonar operations involve the testing of various sonar systems in the ocean and laboratory environment to analyze the systems' capability to detect, locate, and characterize mine-like objects under various environmental conditions. Testing activities include sonar operations in the mid- and high-frequency ranges. Low-frequency sonar is not proposed to be used during activities. Naval Surface Warfare Center, Panama City Division Testing Range activities are identified as hours of operations per year rather than duration of each individual event.	
Information Typical to the Event	**Platform:** Surface combatant, support craft/other **Systems:** Mid-frequency sonar, high-frequency sonar **Ordnance/Munitions:** None **Targets:** None **Duration:** 1,080 hours/year	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1K, MF2K), high-frequency sonar (e.g., HF4, HF5, SAS2), acoustic modem (M3); very high-frequency sonar (e.g., SAS3), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.4.5 Electromagnetic Operations

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Electromagnetic Operations	Electromagnetic operations test an array of magnetic sensors used in mine countermeasure operations.	
Long Description	Electromagnetic operations tests an array of magnetic sensors used in mine countermeasures operations. Aircraft and surface vessels deploy sensors in the territorial and non-territorial waters of the Study Area. Multiple sweeps are then conducted over specified test areas containing tethered and buried mock mines in an effort to demonstrate the systems' effectiveness to influence or trigger magnetic targets. Naval Surface Warfare Center, Panama City Division Testing Range activities are identified as hours of operations per year rather than duration of each individual event.	
Information Typical to the Event	**Platform:** Surface combatant, support craft/other, aircraft **Systems:** Electromagnetic system (e.g., Organic Airborne and Surface Influence Sweeps) **Ordnance/Munitions**: None **Targets**: None **Duration:** 735 hours/year	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, aircraft noise **Energy:** Electromagnetic device **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.4.6 Laser Operations

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Laser Operations	Laser systems are tested to determine effectiveness as a tool to identify mine like objects.	
Long Description	Laser systems emit a narrow, high-frequency beam, and are often utilized to map underwater habitat and bottom contours. Testing is used to determine this technology's effectiveness as a tool to identify mine-like objects. Systems employed by the Navy include light imaging detection and ranging, laser line scan, and directional systems. These operations occur both below and above the water surface. Naval Surface Warfare Center, Panama City Division Testing Range activities are identified as hours of operations per year rather than duration of each individual event.	
Information Typical to the Event	**Platform:** None **Systems:** Lasers (including light imaging detection and ranging, laser line scan, and directional systems) **Ordnance/Munitions**: None **Targets:** None **Duration:** 1,053 hours/year	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** In-air low energy laser **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.3.4.7 Ordnance Operations

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Ordnance Operations	Airborne, surface, organic (readily available units in place), and shallow water mine countermeasure systems testing using explosive ordnance.	
Long Description	High-explosive testing is necessary to analyze the effectiveness of naval airborne, surface, organic (readily available units in place), and shallow water mine countermeasure systems. Testing involving detonation of explosives is only conducted after a system has successfully completed non-explosive testing and an adequate amount of data has been collected to support the decision for high-explosive testing. Depending on the test scenario, high-explosive testing may occur from the surf zone to the outer perimeter of the Study Area. Some testing activities may also require the use of line charges or projectile firing.	
Information Typical to the Event	**Platform:** Surface combatant, rotary-wing aircraft, support craft/other **Systems:** None **Ordnance/Munitions:** 51 detonations of 1–10 lb. net explosive weight Three detonations of 11–75 lb. net explosive weight 16 detonations of 76–600 lb. net explosive weight Three line charges **Targets:** None **Duration:** 1 day	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E5, E14), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, military expended materials strike (fragments), aircraft strike (birds only) **Entanglement:** None **Ingestion:** Fragments	
Detailed Military Expended Materials Information	Fragments	
Assumptions Used for Analysis	73 items/year	

A.3.4.8 Projectile Firing

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Projectile Firing	Airborne and surface crews defend against surface targets with small-, medium-, and large-caliber guns.	
Long Description	Projectile firing includes small-, medium-, and large-caliber projectiles. Projectiles associated with these rounds are mainly armor-piercing projectiles. All projectile firing occurs over non-territorial waters.	
Information Typical to the Event	**Platform:** Surface combatant, support craft/other **Systems:** None **Ordnance/Munitions:** 6,000 small-caliber, 4,572 medium-caliber, and 300 large-caliber rounds (non-explosive) **Targets:** Non-explosive mines **Duration:** 1 day	**Location:** NSWC PCD (past 12 nm)
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Weapons firing noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, military expended material strike (projectiles) **Entanglement:** None **Ingestion:** Small-caliber projectiles, medium-caliber projectiles, casing	
Detailed Military Expended Materials Information	Small-, medium-, and large-caliber projectiles, casings	
Assumptions Used for Analysis	10,872 items/year All projectile firing takes place outside of territorial waters. Some mine shapes could be deployed for a specific event, and then retrieved afterwards. However, some mine shapes are left in place so that multiple events could use the same shapes without needing to redeploy.	

A.3.4.9 Unmanned Underwater Vehicle Demonstrations

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Unmanned Underwater Vehicle (UUV) Demonstration	Testing and demonstrations of multiple unmanned underwater vehicles and associated acoustic, optical, and magnetic systems.	
Long Description	Includes tests and demonstrations of unmanned underwater vehicles in detecting and classifying mine-like or other buried objects. Vehicles would employ both passive and active acoustic systems. Many vehicles are employed over a 3-week event.	
Information Typical to the Event	**Platform:** Unmanned underwater vehicles, support craft/other **Systems:** Sonar systems (low, mid-, and high-frequency) **Ordnance/Munitions:** None **Targets:** Non-explosive mines and mine-like objects **Duration:** 3 weeks	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF5), mid-frequency sonar (e.g., MF9), high-frequency sonar (e.g., HF5, HF6, HF7, FLS2, SAS2), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, seafloor device strike (bottom crawling unmanned underwater vehicles) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Active acoustic use would not be continuous throughout the duration of the activity. Multiple vehicles operate simultaneously in one or multiple areas.	

A.3.4.10 Mine Detection and Classification Testing

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Mine Detection and Classification Testing	Air, surface, and subsurface vessels detect and classify mines and mine-like objects.	
Long Description	Mine detection and classification systems require testing to evaluate the capability of generating underwater magnetic and acoustic signature fields as well as sonar systems that can detect and classify a wide range of threat mines at tactically significant water depths, ranging from the surf zone to deep water. In order to develop better and safer methods of minesweeping, the Navy is currently testing new systems to detect, locate, and identify mines including a laser airborne mine detection system that uses laser illumination coupled with sensitive electro-optic receivers to find mines in the upper part of the water column. This type of equipment is currently designed for operation from a manned helicopter; however, the next generation of such equipment is expected to operate from unmanned aerial systems.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft, unmanned aerial system, support craft/other, unmanned underwater vehicles, submarines **Systems:** Mine detection and classification systems **Ordnance/Munitions:** None **Targets:** Floating, moored, or bottom mounted non-explosive mines or mine simulation systems. **Duration:** Up to 10 days, with up to 12 hours of acoustic activity each day	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1K), high-frequency sonar (e.g., HF1, HF4, SAS2), vessel noise, aircraft noise **Energy:** In-air low energy laser **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Some mine shapes could be deployed for a specific event, and then retrieved afterwards. However, some mine shapes are left in place so that multiple events could use the same shapes without needing to redeploy. The in-air low energy laser stressor was used in analysis of potential impacts on human resources.	

A.3.4.11 Mine Countermeasure/Neutralization Testing

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Mine Countermeasure / Neutralization Testing	Air, surface, and subsurface vessels neutralize threat mines and mine-like objects.	
Long Description	Mine countermeasure/neutralization testing is required to ensure systems can effectively neutralize threat mines that would otherwise restrict passage through an area. Countermeasure systems are deployed from surface ships and helicopters to neutralize mines a number of ways: cutting mooring cables of buoyant mines, producing acoustic energy that fires acoustic-influence mines, producing electrical energy to replicate the magnetic signatures of surface ships in order to detonate threat mines, detonation of mines using remotely-operated vehicles such as the Archerfish Common Neutralizer, and using explosive charges or supercavitating projectiles to destroy threat mines.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft, surface combatants, remotely operated vehicles **Systems:** Mid- and high-frequency sources, electrical energy generation, explosive neutralizers **Ordnance/Munitions:** Explosive charges or supercavitating projectiles (small and medium projectiles-non-explosive) **Targets:** Non-explosive mines **Duration:** 1–10 days, with intermittent use of countermeasure/neutralization systems during this period	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E4), vessel noise, aircraft noise **Energy:** Electromagnetic systems **Physical Disturbance and Strike:** Aircraft strike (birds only), vessel strike, in-water device strike, military expended material strike **Entanglement:** None **Ingestion:** Fragments; small-caliber projectiles; medium-caliber projectiles	
Detailed Military Expended Materials Information	Target fragments, charge fragments; small- and medium-caliber projectiles	
Assumptions Used for Analysis		

A.3.4.12 Stationary Source Testing

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Stationary Source Testing	Stationary equipment (including swimmer defense systems) is tested to determine functionality.	
Long Description	Stationary source testing is performed from: a fixed site, suspended over the side of a boat, moored to the bottom, suspended in the water column, or on the surface. Examples of semi-stationary equipment include moored hydrophones (i.e., devices to listen to underwater sound), line arrays (i.e., multiple hydrophones) deployed on the ocean bottom, acoustic countermeasures, a moored oceanographic sensor that moves vertically through the water column, and sonobuoys (i.e., expendable sonar systems). Some units produce sound in the water (e.g., acoustic countermeasures), while others only listen (e.g., passive sonobuoys, which are vector sensors that measure particle motion). Some tests could require deployment in an area that provides opportunistic data collection (e.g., placing a hydrophone near a shipping lane to collect shipping noise data), or with specific geographic or oceanographic requirements. In addition, 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 sonars. 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:** Acoustic countermeasures, high-frequency sonar, airguns, surface loudhailers **Ordnance/Munitions:** None **Targets:** None **Duration:** From 20 minutes to multiple days for stationary source testing 14 days, with intermittent periods of use for each system during this time, for swimmer defense	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF4), mid-frequency sonar (e.g., MF8), high-frequency sonar (e.g., SD1), very high-frequency sonar (e.g., SD2), airgun (e.g., AG), vessel noise **Energy:** None **Physical Disturbance and Strike:** Seafloor device strike (swimmer defense tripod), vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Acoustics will not be used continuously throughout the event.	

A.3.4.13 Special Warfare Testing

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Special Warfare Testing	Special warfare includes testing of submersibles capable of inserting and extracting personnel and payloads into denied areas from strategic distances.	
Long Description	Special warfare includes testing of submersibles capable of inserting and extracting personnel and payloads into denied areas from strategic distances. Testing could include the use of special operations forces deployed from submerged submarines while at sea.	
Information Typical to the Event	**Platform:** Submarines **Systems:** Acoustic communications **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 5 days, with intermittent periods of active acoustics	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Acoustic communications (e.g., MF9) **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.4.14 Unmanned Underwater Vehicle Testing

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Unmanned Underwater Vehicle (UUV) Testing	Unmanned Underwater Vehicles are deployed to evaluate hydrodynamic parameters, to full mission, multiple vehicle functionality assessments.	
Long Description	Unmanned underwater vehicle testing ranges from simple, single-vehicle tests to evaluate hydrodynamic parameters, to full mission, multiple vehicle functionality assessments. Most unmanned underwater vehicle operations include a launch, run, and recovery sequence of events. Unmanned underwater vehicles include modular, multi-mission platforms and anti-submarine warfare targets. Unmanned underwater vehicles may be launched from aircraft, surface craft, submarines, or land. Once launched, the vehicles are either towed or self-propelled to the test area. Unmanned underwater vehicles may also deploy and recover remote sensors and acoustically communicate with them.	
Information Typical to the Event	**Platform:** Unmanned underwater vehicle, support craft/other **Systems:** High-frequency sonar, very high-frequency sonar **Ordnance/Munitions:** None **Targets:** Bottom and moored non-explosive mines **Duration:** For unmanned underwater vehicles with traditional propulsion, typically up to 40 hours. Some propulsion systems (e.g., gliders) could operate continuously for multiple months.	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF5), mid-frequency sonar (e.g., MF9), high-frequency sonar (e.g., HF5, HF6, HF7, FLS2, SAS2), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, seafloor device strike (bottom-crawling unmanned underwater vehicles) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Some mine shapes could be deployed for a specific event, and then retrieved afterwards. However, some mine shapes are left in place so that multiple events could use the same shapes without needing to redeploy.	

A.3.4.15 Ordnance Testing – Line Charge Testing

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Ordnance Testing – Line Charge Testing	Surface vessels deploy line charges to test the capability to safely clear an area for expeditionary forces.	
Long Description	Line charges are tested to verify the capability to safely clear surf zone areas for sea-based expeditionary operations. Naval Surface Warfare Center, Panama City Division Testing Range performs testing on various surf zone clearing systems that use either line charges or explosive arrays to neutralize mine threats. This is a systems development test and only assesses the in-water components of testing. Line charges consist of a 107 m (350 ft.) detonation cord with explosives lined from one end to the other end in a series of 2 kg (5 lb.) increments.	
Information Typical to the Event	**Platform:** Support craft/other **Systems:** None **Ordnance/Munitions:** Line charges **Targets:** None **Duration:** 1 day	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E14), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** Charge fragments	
Detailed Military Expended Materials Information	Charge fragments	
Assumptions Used for Analysis		

A.3.4.16 Ordnance Testing – Gun Testing – Small-Caliber

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Ordnance Testing – Gun Testing –Small-Caliber	Airborne and surface crews defend against surface targets with small-caliber guns	
Long Description	Small-caliber guns are fired from airborne and surface crews.	
Information Typical to the Event	**Platform:** Surface combatants, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** Small-caliber projectiles (non-explosive) **Targets:** None **Duration:** 1 day	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended materials strike (non-explosive projectiles), vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Small-caliber projectiles, casings	
Detailed Military Expended Materials Information	• Small-caliber projectiles, casings • 1,000 rounds per event	
Assumptions Used for Analysis	1,000 rounds per event	

A.3.4.17 Ordnance Testing – Gun Testing – Medium-Caliber

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Ordnance Testing – Gun Testing – Medium-Caliber	Airborne and surface crews defend against surface targets with medium-caliber guns	
Long Description	Medium-caliber guns are fired from airborne and surface crews.	
Information Typical to the Event	**Platform:** Surface combatant, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** Medium-caliber projectiles (non-explosive) **Targets:** None **Duration:** 1 day	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Weapons firing noise, vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, aircraft strike (birds only), military expended material strike (non-explosive projectiles) **Entanglement:** None **Ingestion:** Medium-caliber projectiles, casings	
Detailed Military Expended Materials Information	• Medium-caliber projectiles, casings • 50 rounds per event	
Assumptions Used for Analysis	50 rounds per event	

A.3.4.18 Ordnance Testing – Gun Testing – Large-Caliber

Activity Name	Activity Description	
Naval Surface Warfare Center, Panama City Division Testing Range (NSWC PCD)		
Ordnance Testing – Gun Testing – Large-Caliber	Airborne and surface crews defend against surface targets with large-caliber guns	
Long Description	Large-caliber guns are fired from airborne and surface crews.	
Information Typical to the Event	**Platform:** Surface combatant, rotary-wing aircraft **Systems:** None **Ordnance/Munitions:** Large-caliber projectiles (explosive and non-explosive) **Targets:** None **Duration:** 1 day	**Location:** NSWC PCD
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Weapons firing noise, underwater explosives (e.g., E5), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive projectiles), vessel strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** Fragments	
Detailed Military Expended Materials Information	Large-caliber projectiles, casings, fragments	
Assumptions Used for Analysis	10 rounds per event.	

A.3.5 NAVAL UNDERSEA WARFARE CENTER DIVISION, NEWPORT TESTING RANGE

A.3.5.1 Launcher Testing

Activity Name	Activity Description	
Naval Undersea Warfare Center Division, Newport Testing Range (NUWCDIVNPT)		
Launcher Testing	Launcher systems are tested to evaluate performance.	
Long Description	Testing is conducted to evaluate the performance of current or future launchers, which are used to deploy objects (e.g., torpedoes, decoys, countermeasures, sensors, and unmanned underwater vehicles). These tests may be performed from a fixed location or a mobile platform. The objects deployed may be operational equipment or mock equipment that is instrumented to evaluate the performance of the launcher system. Various methods may be employed to launch test items. The test items are recovered after the test and are usually equipped with an acoustic locator to aid in their recovery.	
Information Typical to the Event	**Platform:** Support craft/other, support craft/other-specialized high speed **Systems:** Launcher systems **Ordnance/Munitions:** None **Targets:** None **Duration:** 12 hours, with multiple launches conducted during this time	**Location:** Narragansett Bay and surrounding waters NUWCDIVNPT
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike **Entanglement:** None **Ingestion:** Military expended materials other than ordnance	
Detailed Military Expended Materials Information	Small metal or plastic items	
Assumptions Used for Analysis	Instrumented operational equipment or mock equipment used will be recovered.	

A.3.5.2 Torpedo Testing

Activity Name	Activity Description	
Naval Undersea Warfare Center Division, Newport Testing Range (NUWCDIVNPT)		
Torpedo Testing	Non-explosive torpedoes are launched to record operational data. All torpedoes are recovered.	
Long Description	Testing of torpedoes consists of a pre-test, launch, run, and recovery sequence of events in Narragansett Bay and surrounding waters. Test launches may be from a permanent launch platform, or from surface or underwater vehicles. After launch, the torpedo typically follows a pre-programmed scenario to reach points of specific depth and location, and data are recorded for post-run performance evaluation. Test torpedoes are outfitted with special transponders that can locate the units at the end of their runs. Occasionally, there may be a test that involves acoustics. Recovery operations are typically conducted from ships that are specifically crewed and outfitted for torpedo recovery.	
Information Typical to the Event	**Platform:** Surface combatant, support craft/other **Systems:** None **Ordnance/Munitions:** Torpedoes (non-explosive) **Targets:** None **Duration:** 1–12 hours	**Location:** Narragansett Bay and surrounding waters Narragansett Bay and Rhode Island Sound Restricted Areas
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Torpedo sonar (e.g., TORP1, TORP2), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike (torpedo) **Entanglement:** Guidance wire **Ingestion:** None	
Detailed Military Expended Materials Information	Heavyweight torpedo accessories (guidance wire, flex hose)	
Assumptions Used for Analysis	All torpedoes will be recovered. One torpedo per event	

A.3.5.3 Towed Equipment Testing

Activity Name	Activity Description	
Naval Undersea Warfare Center Division, Newport Testing Range (NUWCDIVNPT)		
Towed Equipment Testing	Surface vessel or unmanned surface vehicles deploys equipment to determine functionality of towed systems.	
Long Description	Testing is conducted on equipment to evaluate hydrodynamic characteristics and control of a tow body, to test fully functional items, or to test a particular aspect of a system utilizing a mock-up of a functional item. A typical test operation for towed equipment testing involves a deployment, use, and recover scenario that requires range or commercial craft support. This equipment may be deployed from and towed by range craft, or unmanned surface vehicles. Equipment may be acoustically active or produce radio-frequency transmissions.	
Information Typical to the Event	**Platform:** Support craft/other, unmanned surface vehicle **Systems:** Towed device, low-, mid-, and high-frequency sonars **Ordnance/Munitions:** None **Targets:** None **Duration:** Typically 2–8 hours	**Location:** Narragansett Bay and surrounding waters NUWCDIVNPT
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF4), mid-frequency sonar (e.g., MF9), high-frequency sonar (e.g., SAS1), vessel noise **Energy:** None **Physical Disturbance and Strike:** In-water device strike (towed devices), vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.5.4 Unmanned Underwater Vehicle Testing

Activity Name	Activity Description	
Naval Undersea Warfare Center Division, Newport Testing Range (NUWCDIVNPT)		
Unmanned Underwater Vehicle (UUV) Testing	Unmanned underwater vehicles are deployed to evaluate hydrodynamic parameters, to full mission, multiple vehicle functionality assessments.	
Long Description	Unmanned underwater vehicle testing ranges from simple, single-vehicle tests to evaluate hydrodynamic parameters, to full mission, multiple vehicle functionality assessments. Most unmanned underwater vehicle operations include a launch, run, and recovery sequence of events. Unmanned underwater vehicles include modular, multi-mission platforms and anti-submarine warfare targets. Unmanned underwater vehicles may be launched from aircraft, surface craft, submarines, or land. Once launched, the vehicles are either towed or self-propelled to the test area. Unmanned underwater vehicles may also deploy and recover remote sensors and acoustically communicate with them.	
Information Typical to the Event	**Platform:** Unmanned underwater vehicle, support craft/other **Systems:** Low-, mid-, and high- frequency sonars **Ordnance/Munitions:** None **Targets:** None **Duration:** For unmanned underwater vehicles with traditional propulsion, typically up to 40 hours. Some propulsion systems (e.g., gliders) could operate continuously for multiple months.	**Location:** Narragansett Bay and surrounding waters NUWCDIVNPT
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF5), high-frequency sonar (e.g., HF6, HF7, SAS2). mid-frequency sonar (MF10), vessel noise **Energy:** None **Physical Disturbance and Strike:** In-water device strike, vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.5.5 Unmanned Surface Vehicle Testing

Activity Name	Activity Description	
Naval Undersea Warfare Center Division, Newport Testing Range (NUWCDIVNPT)		
Unmanned Surface Vehicle (USV) Testing	Unmanned surface vehicles are deployed to verify the functionality of basic capabilities and complex tests that involve multiple participants and missions.	
Long Description	Unmanned surface vehicle testing includes simple tests to verify the functionality of basic capabilities and complex tests that involve multiple participants and missions. Unmanned surface vehicles are generally remote-controlled, semi-autonomous, modular, multi-mission platforms. Unmanned surface vehicles include rigid hull inflatable boats, cooperative autonomous research platform (e.g., an autonomous kayak), and remote-controlled jet skis.	
Information Typical to the Event	**Platform:** Unmanned surface vehicle, support craft/other **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–12 hours	**Location:** Narragansett Bay and surrounding waters NUWCDIVNPT
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** In-water device strike, vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.5.6 Unmanned Aerial System Testing

Activity Name	Activity Description	
Naval Undersea Warfare Center Division, Newport Testing Range (NUWCDIVNPT)		
Unmanned Aerial System (UAS) Testing	Unmanned aerial systems are launched to test the capability to extend the communications range of unmanned underwater vehicles, unmanned surface vehicles, and submarines.	
Long Description	Unmanned aerial system testing is a possibility for future testing operations. Unmanned aerial systems are reusable, uncrewed vehicles capable of controlled, sustained, level flight. Anticipated scenarios of unmanned aerial system testing include both unmanned aerial system launcher testing and using unmanned aerial systems to extend the communications range of unmanned underwater vehicles, unmanned surface vehicles, and submarines. To test unmanned aerial system launcher systems, a subsurface capsule release may be conducted within the Narragansett Bay restricted area. In the event of an extended communications test, an aerostat (helium filled balloon) may be tethered to either a stationary buoy or an unmanned surface vehicle to test the extended range of communications.	
Information Typical to the Event	**Platform:** Unmanned aerial system, support craft/other **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 1–12 hours	**Location:** NUWCDIVNPT
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Aircraft strike (birds only), vessel strike, in-water device strike (unmanned aerial system launch) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.5.7 Semi-Stationary Equipment Testing

Activity Name	Activity Description	
Naval Undersea Warfare Center Division, Newport Testing Range (NUWCDIVNPT)		
Semi-Stationary Equipment Testing	Semi-stationary equipment (e.g., hydrophones) is deployed to determine functionality.	
Long Description	Semi-stationary equipment testing is performed from: a fixed site, suspended over the side of a boat, moored to the bottom, suspended in the water column, or on the surface. Examples of semi-stationary equipment include moored hydrophones (i.e., devices to listen to underwater sound), line arrays (i.e., multiple hydrophones) deployed on the ocean bottom, acoustic countermeasures, a moored oceanographic sensor that moves vertically through the water column, and sonobuoys (i.e., expendable sonar systems). Some units produce sound in the water (e.g., acoustic countermeasures), while others only listen (e.g., passive sonobuoys, which are vector sensors that measure particle motion). Some tests could require deployment in an area that provides opportunistic data collection (e.g., placing a hydrophone near a shipping lane to collect shipping noise data), or with specific geographic or oceanographic requirements.	
Information Typical to the Event	**Platform:** Support craft/other **Systems:** Acoustic countermeasures **Ordnance/Munitions:** None **Targets:** None **Duration:** From 20 minutes to multiple days	**Location:** Narragansett Bay and surrounding waters NUWCDIVNPT
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF4, LF5), mid-frequency sonar (e.g., MF9, MF10), high-frequency sonar (e.g., HF5, HF6), countermeasures (ASW3, ASW4), vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.5.8 Unmanned Underwater Vehicle Demonstrations

Activity Name	Activity Description	
Naval Undersea Warfare Center Division, Newport Testing Range (NUWCDIVNPT)		
Unmanned Underwater Vehicle (UUV) Demonstrations	Testing and demonstrations of multiple unmanned underwater vehicles and associated acoustic, optical, and magnetic systems.	
Long Description	Includes tests and demonstrations of autonomous vehicles in detecting and classifying mine-like or other buried objects. Vehicles would employ both passive and active acoustic systems. Many vehicles are employed over a two-week event.	
Information Typical to the Event	**Platform:** Unmanned underwater vehicles, support craft/other **Systems:** Unmanned underwater vehicle sonar systems **Ordnance/Munitions:** None **Targets:** Non-explosive mines and mine-like objects **Duration:** 2 weeks	**Location:** Narragansett Bay and surrounding waters NUWCDIVNPT
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF5), mid-frequency sonar (e.g., MF9), high-frequency sonar (e.g., HF5, HF6, HF7, FLS2, SAS2), vessel noise **Energy:** None **Physical Disturbance and Strike:** In-water device strike, vessel strike, seafloor device strike (bottom crawling unmanned underwater vehicles) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Active acoustic use would not be continuous throughout the duration of the activity. Multiple vehicles operate simultaneously in one or multiple areas. Mine shapes used as targets are in place from previous activities and are not deployed as part of this activity.	

A.3.5.9 Pierside Integrated Swimmer Defense

Activity Name	Activity Description	
Naval Undersea Warfare Center Division, Newport Testing Range (NUWCDIVNPT)		
Pierside Integrated Swimmer Defense Testing	Swimmer defense testing ensures that systems can effectively detect, characterize, verify, and defend against 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 sonars. 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:** High-frequency sonar, airguns, surface loudhailers **Ordnance/Munitions:** None **Targets:** None **Duration:** 14 days	**Location:** NUWCDIVNPT Pierside: Newport, Rhode Island
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), airgun (e.g., AG), vessel noise, airborne noise **Energy:** None **Physical Disturbance and Strike:** Seafloor device strike (swimmer defense tripod) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.6 SOUTH FLORIDA OCEAN MEASUREMENT FACILITY TESTING RANGE

A.3.6.1 Signature Analysis Operations

Signature Analysis operations include electromagnetic, acoustic, optical, and radar signature measurements, recording, and post-run analyses of data of Navy surface and subsurface vessels. These activities include electromagnetic signature detection of submarines, acoustic and magnetic signature detection of unmanned underwater vehicles and surface ships, radar, and optical detection of surface ships.

Activity Name	Activity Description	
South Florida Ocean Measurement Facility Testing Range (SFOMF)		
Signature Analysis (SA) Activities	Surface ship and submarine testing of electromagnetic, acoustic, optical, and radar signature measurements.	
Long Description	Signature analysis activities include electromagnetic, acoustic, optical, and radar signature measurements, recording, and post-run analyses of data of Navy surface and subsurface vessels. These activities include electromagnetic signature detection of submarines, acoustic and magnetic signature detection of unmanned underwater vehicles and surface ships, radar, and optical detection of surface ships.	
Information Typical to the Event	**Platform:** Surface combatant, amphibious warfare ship, submarines, unmanned underwater vehicles **Systems:** Ship and submarine sonars, underwater communications, **Ordnance/Munitions:** None **Targets:** None **Duration:** Periodically over multiple days	**Location:** SFOMF
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF4), mid-frequency sonar (e.g., MF9), high-frequency sonar (e.g., HF1, HF6), acoustic modem (M3); sonobuoys (ASW2); vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.6.2 Mine Research, Development, Test, and Evaluation Activities

Activity Name	Activity Description	
South Florida Ocean Measurement Facility Testing Range (SFOMF)		
Mine Testing	Air, surface, and sub-surface systems detect, counter, and neutralize ocean-deployed mines and mine-like objects.	
Long Description	Mine testing activities require the placement of underwater temporary minefields (non-explosive). Mine testing encompasses subsurface sensor installation and retrieval; bottom mounted sub-surface targets (mine-like objects and target shapes) and sensor deployment and recovery; and air, surface, and subsurface sensor (acoustic and magnetic) array calibration. Mine testing activities include air, surface, and sub-surface systems which are used to detect, counter, and neutralize ocean-deployed mine-like objects. Sensor and target deployment and recovery may be performed utilizing small, large, and autonomous surface vessels; sub-surface autonomous undersea vehicles, unmanned undersea vehicles, and submarines (self-propelled, towed, and autonomous); and aircraft.	
Information Typical to the Event	**Platform:** Unmanned surface vehicles, unmanned undersea vehicles, submarines, fixed-wing aircraft, surface combatants, support craft/other **Systems:** Mine countermeasure systems **Ordnance/Munitions:** None **Targets:** Floating/moored/bottom non-explosive mines or passive mine simulation systems **Duration:** 5 days	**Location:** SFOMF
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mine countermeasure systems (e.g., HF4), aircraft noise, vessel noise **Energy:** Electromagnetic **Physical Disturbance and Strike:** In-water device strike, aircraft strike (birds only), seafloor device strike (non-explosive mine shape), vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Placement of temporary minefields (these will be removed after the test is finished)	

A.3.6.3 Surface Testing Activities

Activity Name	Activity Description	
South Florida Ocean Measurement Facility Testing Range (SFOMF)		
Surface Testing Activities	Various surface vessels, moored equipment, and materials are tested to evaluate performance in the marine environment.	
Long Description	Various surface activities utilizing the marine environment for testing and evaluation. Sample projects include buoy deployments, vessel entanglement systems, materials testing, and renewable energy devices. Other surface operations involve manned and unmanned surface vehicles. Miscellaneous types of equipment are deployed, including temperature, humidity, magnetic, acoustic, optical and air quality instrumentation to measure, record and analyze system effectiveness, dependability, operational parameters and durability. Surface operations utilize a variety of vessels for deployment of test equipment and for the monitoring of the air, surface, subsurface.	
Information Typical to the Event	**Platform:** Unmanned surface vehicles, support craft/other **Systems:** Unmanned vehicle sonar systems **Ordnance/Munitions:** None **Targets:** None **Duration:** 1 day to multiple months	**Location:** SFOMF
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise, low-frequency sonar (e.g., LF5), mid-frequency sonar (e.g., MF9), high-frequency sonar (e.g., FLS2, HF5, HF6, HF7, SAS2), **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.6.4 Subsurface Testing Activities

Activity Name	Activity Description	
South Florida Ocean Measurement Facility Testing Range (SFOMF)		
Subsurface Testing Activities	Various underwater, bottom crawling, robotic, vehicles utilized in underwater search, recovery, installation, and scanning activities.	
Long Description	Subsurface activities include a variety of underwater vehicles, robotic or autonomous systems, and items placed on the sea floor. Diving activities and special operations training also occur. Other subsurface activities involve manned and unmanned underwater vehicles. All subsurface vehicles are retrieved after use, while most objects (e.g., non-explosive mines) remain for a period of time to be used as testing fixtures.	
Information Typical to the Event	**Platform:** Manned and unmanned underwater vehicles, support craft/other **Systems:** None **Ordnance/Munitions:** None **Targets:** Mine shapes (non-explosive) **Duration:** 1 day	**Location:** SFOMF
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, seafloor device strike (non-explosive mine shapes) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Mines and other objects may be placed on the bottom where they may remain for a period of time. They will eventually be retrieved.	

A.3.6.5 Unmanned Underwater Vehicle Demonstrations

Activity Name	Activity Description	
South Florida Ocean Measurement Facility Testing Range (SFOMF)		
Unmanned Underwater Vehicle (UUV) Demonstrations	Testing and demonstrations of multiple unmanned underwater vehicles and associated acoustic, optical, and magnetic systems.	
Long Description	Includes tests and demonstrations of unmanned vehicles in detecting and classifying mine-like or other buried objects. Vehicles would employ both passive and active acoustic systems. Many vehicles are employed over a two-week event.	
Information Typical to the Event	**Platform:** Unmanned underwater vehicles, support craft/other **Systems:** Unmanned underwater vehicle sonar systems **Ordnance/Munitions:** None **Targets:** Non-explosive mines and mine-like objects **Duration:** 2 weeks	**Location:** SFOMF
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Low-frequency sonar (e.g., LF5), mid-frequency sonar (e.g., MF9), high-frequency sonar (e.g., HF5, HF6, HF7, FLS2, SAS2), vessel noise **Energy:** None **Physical Disturbance and Strike:** In-water device strike, vessel strike, seafloor device strike (non-explosive mine shapes, bottom crawling unmanned underwater vehicles) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Use of active acoustics would not be continuous throughout the duration of the activity. Multiple vehicles operate simultaneously in one or multiple areas.	

A.3.7 ADDITIONAL ACTIVITIES AT LOCATIONS OUTSIDE OF NAVAL SEA SYSTEMS COMMAND RANGES – ANTI-SURFACE WARFARE / ANTI-SUBMARINE WARFARE TESTING

A.3.7.1 Missile Testing

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW) / Anti-Submarine Warfare (ASW) Testing		
Missile Testing	Missile testing includes various missiles fired from submarines and surface combatants.	
Long Description	Missile testing includes various missiles (e.g., standard missiles, Water Piercing Missile Launch) fired from submarines and surface combatants.	
Information Typical to the Event	**Platform:** Surface combatant, submarines **Systems:** None **Ordnance/Munitions:** Missiles (e.g., anti-surface, strike) – (non-explosive) **Targets:** Unmanned surface vehicles, drones **Duration:** 1–2 hours	**Location:** VACAPES AFTT Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Weapons firing noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive practice munitions), vessel strike, in-water device strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	One surface-to-surface missile/event	
Assumptions Used for Analysis	All targets will be recovered.	

A.3.7.2 Kinetic Energy Weapon Testing

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW) / Anti-Submarine Warfare (ASW) Testing		
Kinetic Energy Weapon Testing	A kinetic energy weapon uses stored energy released in a burst to accelerate a non-explosive projectile.	
Long Description	A kinetic energy weapon uses stored energy released in a burst to accelerate a non-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) **Targets:** Recoverable or expendable floating target **Duration:** 1 day	**Location:** VACAPES AFTT Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Weapons firing noise, vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive projectile), vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	• 40 large-caliber projectile per event • One event with 5,000 large-caliber projectiles • Expendable target – 1 target per event	
Assumptions Used for Analysis	Assume one target per event One event with 5,000 projectiles would occur only once before 2019.	

A.3.7.3 Electronic Warfare Testing

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW) / Anti-Submarine Warfare (ASW) Testing		
Electronic Warfare Testing	Testing will include radiation of military and commercial radar and communication systems (or simulators).	
Long Description	Testing will include radiation of military and commercial radar and communication systems (or simulators). No subsurface transmission would occur during this testing.	
Information Typical to the Event	**Platform:** Submarines **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 3 hours per day over a 7-day period	**Location:** Norfolk, Virginia Groton, Connecticut Northeast
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.7.4 Torpedo (Non-Explosive) Testing

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW) / Anti-Submarine Warfare (ASW) Testing		
Torpedo (Non-explosive) Testing	Air, surface, or submarine crews employ non-explosive torpedoes against submarines or surface vessels.	
Long Description	Aerial, surface, and subsurface assets fire exercise torpedoes against surface or subsurface targets. Torpedo testing evaluates the performance and the effectiveness of hardware and software upgrades of heavyweight or lightweight torpedoes. Event duration is dependent on number of torpedoes fired. Events can last up to 2 weeks and use 40 torpedoes. Typically, no more than eight torpedoes are fired per day during daylight hours.	
Information Typical to the Event	**Platform:** Submarines, surface combatant, fixed-wing aircraft, rotary-wing aircraft, support craft/other **Systems:** Surface ship and submarine sonars, sonobuoys, dipping sonars **Ordnance/Munitions:** Lightweight torpedoes, heavyweight torpedoes **Targets:** Submarines, surface ships, motorized autonomous targets (e.g., Expendable Mobile Anti-Submarine Warfare Training Target), stationary artificial targets (e.g., Fleet Training Target) **Duration:** Up to 2 weeks	**Location:** Northeast VACAPES JAX Gulf of Mexico** Boston Area Complex: Cape Cod TORPEX boxes
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (e.g., HF1), mid-frequency sonar (e.g., MF1, MF3), acoustic modem (M3); helicopter-deployed sonar (e.g., MF4), active sonobuoy (e.g., MF5), torpedo sonar (e.g., TORP1, TORP2), acoustic countermeasure (e.g., ASW3, ASW4), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only), military expended material strike **Entanglement:** Parachutes (sonobuoy and torpedo), guidance wire **Ingestion:** Parachutes (sonobuoy and torpedo), torpedo launch accessories	

Detailed Military Expended Materials Information	• Sonobuoys – 384 sonobuoys per year
	• Expendable targets – one target per event
	• Acoustic countermeasures – 356 countermeasures per year
	• Torpedo launch accessories
	  ◦ Lightweight torpedo launch accessories – 136 torpedoes per year (Alternative 2)
	  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 – 492 torpedoes per year (Alternative 2)
	  o Guidance wire, flex hose	

Assumptions Used for Analysis	**Gulf of Mexico refers to the body of water. All torpedoes are recovered. Assume all lightweight torpedo launch accessories have all listed material. All sonobuoys have a parachute unless otherwise noted.	

A.3.7.5 Torpedo (Explosive) Testing

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW) / Anti-Submarine Warfare (ASW) Testing		
Torpedo (Explosive) Testing	Air, surface, or submarine crews employ explosive torpedoes against 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 ft. below the water's surface. Event duration is 1 to 2 days during daylight hours. Only one heavyweight torpedo test could occur in one day; two heavyweight torpedo tests could occur on consecutive days. Two lightweight torpedo tests could occur in a single day.	
Information Typical to the Event	**Platform:** Submarine, surface combatant, 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	**Location*:** Other AFTT Areas: Sinking Exercise Box AFTT Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E8, E11), torpedo sonar (TORP1, TORP2), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only), military expended material strike **Entanglement:** Parachutes (sonobuoy and torpedo), guidance wire **Ingestion:** Target and torpedo fragments, parachutes (sonobuoy and torpedo	

Detailed Military Expended Materials Information	• Eight high-explosive torpedoes per year
	• Torpedo launch accessories
	  ◦ Lightweight torpedo launch accessories – 12 torpedoes per year (Alternatives 1 and 2)
	  ◦ Nose cap, suspension bands, air stabilizer, sway brace pad, arming wire, fahnstock clip, wing kit, rocket booster, parachute, lead weights
	  ◦ Expended material is dependent upon torpedo fired and firing platform.
	  ◦ Heavyweight torpedo launch accessories – 16 torpedoes per year (Alternatives 1 and 2)
	  ◦ Guidance wire, flex hose	

Assumptions Used for Analysis	*The specific areas are where activities typically occur. They can occur throughout the full area listed in Table 2.8-3 of Chapter 2 (Description of Proposed Action and Alternatives). All sonobuoys have parachutes unless otherwise noted. 210 passive sonobuoys per event	

A.3.7.6 Countermeasure Testing

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW) / Anti-Submarine Warfare (ASW) Testing		
Countermeasure Testing	Towed sonar arrays and anti-torpedo torpedo defense systems are employed to detect 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 (e.g., NIXIE), torpedo warning systems, and countermeasure anti-torpedo subsystems. Some countermeasure scenarios would employ non-explosive 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. Event duration is up to 10 days with a maximum of 40 torpedoes fired (up to 10 shots occurring per day).	
Information Typical to the Event	**Platform:** Surface combatant, aircraft carrier, submarine, fixed-wing aircraft **Systems:** Countermeasure systems **Ordnance/Munitions:** Lightweight torpedoes (non-explosive) **Targets:** Torpedo test vehicle **Duration:** From 4 hours to 10 days, depending on the countermeasure being tested. For example, NIXIE pierside testing occurs in 4 hours, whereas countermeasure anti-torpedo subsystems durations are 10 days with a maximum of 40 anti-torpedo torpedoes fired (up to 10 shots per day).	**Location:** AFTT Study Area Northeast: Boston Area Complex – Cape Cod TORPEX boxes VACAPES GOMEX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1), high-frequency sonar (e.g., HF5), acoustic countermeasure (e.g., ASW3), 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:** Parachute (torpedo) **Ingestion:** Parachute (torpedo)	
Detailed Military Expended Materials Information	Lightweight torpedo launch accessories (nose covers, parachutes, ram plates)	
Assumptions Used for Analysis		

A.3.7.7 Pierside Sonar Testing

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW) / Anti-Submarine Warfare (ASW) Testing		
Pierside Sonar Testing	Pierside testing to ensure systems are fully functional in a controlled pierside environment prior to at-sea test activities.	
Long Description	Ships and submarines would activate mid- and high-frequency tactical sonars, underwater communications systems, and navigational devices to ensure they are fully functional prior to at-sea test events. Event duration is 2 weeks with active sonar used intermittently over 2 days during the total event duration.	
Information Typical to the Event	**Platform:** Submarine, surface combatant **Systems:** Mid- and high-frequency sonars, underwater communications systems, countermeasure systems **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 2 weeks	**Location:** Portsmouth, New Hampshire Groton, Connecticut Norfolk, Virginia Kings Bay, Georgia Mayport, Florida Port Canaveral, Florida
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF1, MF3), high-frequency sonar (e.g., HF1, HF3), acoustic countermeasure (e.g., ASW3) **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Event duration is 2 weeks with active sonar used intermittently over 2 days during the total event duration.	

A.3.7.8 At-Sea Sonar Testing

Activity Name	Activity Description	
Anti-Surface Warfare (ASUW) / Anti-Submarine Warfare (ASW) Testing		
At-sea Sonar Testing	At-sea testing to ensure systems are fully functional in an open ocean environment.	
Long Description	At-sea sonar testing is required to calibrate sonar systems while the ship 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, submarine **Systems:** Tactical sonar **Ordnance/Munitions:** None **Targets:** None **Duration:** From 4 hours to 11 days	**Location:** AFTT Study Area VACAPES Northeast JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF3), high-frequency sonar (e.g., HF1), acoustic countermeasure (e.g., ASW4), acoustic modem (e.g., M3); vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, military expended material strike (acoustic countermeasures) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	Acoustic countermeasures – 10 per event	
Assumptions Used for Analysis	Active sonar use is intermittent throughout the duration of the event.	

A.3.8 MINE WARFARE TESTING

A.3.8.1 Mine Detection and Classification Testing

Activity Name	Activity Description	
Mine Warfare (MIW) Testing		
Mine Detection and Classification	Air, surface, and subsurface vessels detect and classify mines and mine-like objects.	
Long Description	Mine detection and classification systems require testing to evaluate the capability of generating underwater magnetic and acoustic signature fields capable of sweeping a wide range of threat mines at tactically significant water depths, ranging from the surf zone to deep water. In order to develop better and safer methods of minesweeping, the Navy is currently testing new systems to detect, locate, and identify mines including a laser airborne mine detection system that uses laser illumination coupled with sensitive electro-optic receivers to find mines in the upper part of the water column. This type of equipment is currently designed for operation from a manned helicopter; however, the next generation of such equipment is expected to operate from unmanned aerial systems.	
Information Typical to the Event	**Platform:** Rotary-wing aircraft, unmanned aerial systems, surface combatant, amphibious warfare ship, remotely operated vehicles **Systems:** Mine detection and classification systems **Ordnance/Munitions:** None **Targets:** Floating/moored/bottom non-explosive mines or passive mine simulation systems **Duration:** Up to 10 days	**Location:** VACAPES JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (e.g., HF4), vessel noise, aircraft noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Laser systems also used during testing.	

A.3.8.2 Mine Countermeasure/Neutralization Testing

Activity Name	Activity Description	
Mine Warfare (MIW) Testing		
Mine Countermeasure / Neutralization Testing	Air, surface, and subsurface vessels neutralize threat mines that would otherwise restrict passage through an area.	
Long Description	Mine countermeasure/neutralization testing is required to ensure systems can effectively neutralize threat mines that would otherwise restrict passage through an area. Countermeasure systems are deployed from surface ships and helicopters to neutralize mines a number of ways: cutting mooring cables of buoyant mines, producing medium- to high-frequency acoustic energy that fires acoustic-influence mines, producing electrical energy to replicate the magnetic signatures of surface ships in order to detonate threat mines, detonation of mines using remotely-operated vehicles such as the Archerfish Common Neutralizer, and using explosive charges or supercavitating projectiles to destroy threat mines.	
Information Typical to the Event	**Platform:** Surface combatant, amphibious warfare ship, rotary-wing aircraft, remotely operated vehicles **Systems:** Mine neutralization systems **Ordnance/Munitions:** Explosive mines **Targets:** Floating/moored/bottom non-explosive and explosive mines and mine simulation systems, high-explosive mines **Duration:** 1–10 days	**Location:** VACAPES Gulf of Mexico**
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (e.g., HF4), acoustic modem (M3); underwater explosives (e.g., E4, E8), vessel noise, aircraft noise **Energy:** Electromagnetic minesweeping systems **Physical Disturbance and Strike:** Vessel strike, in-water device strike, aircraft strike (birds only) **Entanglement:** Fiber-optic cable **Ingestion:** Target fragments	
Detailed Military Expended Materials Information	Target fragments, fiber-optic cable	
Assumptions Used for Analysis	**Gulf of Mexico refers to the body of water. **Other Sensors:** Mine countermeasure systems (e.g., AN/AWS-2 Rapid Airborne Mine Clearance System, AN/ALQ-220 Organic Airborne and Surface Influence Sweep)	

A.3.9 SHIPBOARD PROTECTION SYSTEMS AND SWIMMER DEFENSE TESTING

A.3.9.1 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 sonars. 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:** High-frequency sonar, airguns, surface loudhailers **Ordnance/Munitions:** None **Targets:** None **Duration:** 14 days	**Location:** Joint Expeditionary Base Little Creek, Virginia Beach, Virginia
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), airgun (e.g., AG), vessel noise **Energy:** None **Physical Disturbance and Strike:** Seafloor device strike (swimmer defense tripod), vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.9.2 Shipboard Protection Systems Testing

Activity Name	Activity Description	
Shipboard Protection Systems and Swimmer Defense Testing		
Shipboard Protection Systems Testing	Various systems are used to protect surface combatants from various threats.	
Long Description	Surface ships engage small boat threats through the use of spotlights and loudhailers (pierside) but can also include the use of .50 caliber guns (at sea).	
Information Typical to the Event	**Platform:** Surface combatant **Systems:** None **Ordnance/Munitions:** Small-caliber projectiles (e.g., .50 caliber) (non-explosive) **Targets:** Floating target, rigid-hull inflatable boat **Duration:** 10 days	**Location:** VACAPES Norfolk, Virginia
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Military expended material strike (non-explosive projectiles), vessel strike **Entanglement:** None **Ingestion:** Small-caliber projectiles, casings	
Detailed Military Expended Materials Information	• Casings, projectiles • Target fragments	
Assumptions Used for Analysis		

A.3.9.3 Chemical/Biological Simulant Testing

Activity Name	Activity Description	
Shipboard Protection Systems and Swimmer Defense Testing		
Chemical/Biological Simulant Testing	Chemical/biological agent simulants are deployed against surface ships.	
Long Description	Chemical or biological agent simulants are deployed against surface ships to verify the integrity of the ship's defense system including installed detection, protection, and decontamination systems. Methods of simulant delivery include aerial dispersal and hand-held spray.	
Information Typical to the Event	**Platform:** Surface combatant, fixed-wing aircraft **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 3 days	**Location:** VACAPES Northeast JAX Cherry Point
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 Materials Information	None	
Assumptions Used for Analysis	Examples of chemical simulants: glacial acetic acid, triethyl phosphate Examples of biological simulants: spore-forming bacteria, ovalbumin	

A.3.10 UNMANNED VEHICLE TESTING

A.3.10.1 Underwater Deployed Unmanned Aerial System Testing

Activity Name	Activity Description	
Unmanned Vehicle Testing		
Underwater Deployed Unmanned Aerial System Testing	Submarines launch unmanned aerial systems while submerged.	
Long Description	During testing, a negatively buoyant capsule is deployed underwater and descends to a programmed depth. The capsule then drops a weight, inflates a flotation collar, rises to the surface, and launches an unmanned aerial system. Personnel use radio frequency communications to control and communicate with the unmanned aerial system during its flight.	
Information Typical to the Event	**Platform:** Submarine **Systems:** Unmanned aerial systems **Ordnance/Munitions:** None **Targets:** None **Duration:** 8 hours (4 hours per day over 2 days)	**Location:** VACAPES Northeast
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** Vessel strike, in-water device strike (unmanned aerial system launch), aircraft strike (birds only) **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	• Expandable capsule (with flotation collar) • Ballast weights	
Assumptions Used for Analysis		

A.3.10.2 Unmanned Vehicle Development and Payload Testing

Activity Name	Activity Description	
Unmanned Vehicle Testing		
Unmanned Vehicle Development and Payload Testing	Vehicle development involves the production and upgrade of new unmanned platforms on which to attach various payloads used for different purposes.	
Long Description	Vehicle development involves the production and upgrade of new unmanned platforms on which to attach various payloads used for different purposes. Platforms can include unmanned underwater vehicles, unmanned surface vehicles, and unmanned aerial systems. Payload testing assesses various systems that can be incorporated onto unmanned platforms for mine warfare, bottom mapping, and other missions. Tests range from basic remote control and autonomous navigation tests to deployment and activation of onboard systems which may include hydrodynamic instruments, launchers, and recovery capabilities. These vehicles are capable of expanding the communication and surveillance capabilities of submarines, surface vessels, and terrestrial commands Event duration for unmanned vehicles with traditional propulsion typically lasts up to 40 hours. Some propulsion systems (e.g., gliders) could operate continuously for multiple months.	
Information Typical to the Event	**Platform:** Unmanned vehicles (underwater, surface, and aerial), support craft/other **Systems:** Unmanned vehicle sonars **Ordnance/Munitions:** None **Targets:** None **Duration:** Typically up to 40 hours, although some could continue for multiple months	**Location:** Northeast VACAPES Navy Cherry Point JAX Gulf of Mexico**
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Mid-frequency sonar (e.g., MF9), high-frequency sonar (e.g., SAS2), vessel noise **Energy:** None **Physical Disturbance and Strike:** In-water device strike, seafloor device (bottom crawling vehicles), vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	** Gulf of Mexico refers to the body of water.	

A.3.11 OTHER TESTING

A.3.11.1 Special Warfare

Activity Name	Activity Description	
Other Testing		
Special Warfare	Special warfare includes testing of submersibles capable of inserting and extracting personnel and payloads into denied areas from strategic distances.	
Long Description	Special warfare includes testing of submersibles capable of inserting and extracting personnel and payloads into denied areas from strategic distances. Testing could include the use of special operations forces deployed from submerged submarines while at sea.	
Information Typical to the Event	**Platform:** Surface craft/other, submarines **Systems:** Submarine sonars, Doppler sonar, underwater communications **Ordnance/Munitions:** None **Targets:** None **Duration:** Up to 30 days	**Location:** Key West
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** High-frequency sonar (e.g., HF1), underwater communications (e.g., MF9), acoustic modem (M3); vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis	Test will not occur constantly throughout duration	

A.3.11.2 Radio Frequency Communications Testing

Activity Name	Activity Description	
Other Testing		
Radio Frequency Communications Testing	Testing of towed or floating buoys for communications through radio-frequencies.	
Long Description	Testing associated with radio frequency communications could occur from towed antennas from surface vessels, from single-transmit buoys released from submarines, or tethered buoys from submarines for two-way communication. Communication would occur from sea to shore or shore to sea.	
Information Typical to the Event	**Platform:** Surface combatant, submarines, support craft/other **Systems:** Towed antennas, single-transmit buoy **Ordnance/Munitions:** None **Targets:** None **Duration:** 3 days (4 hours per day for 3 days)	**Location:** Northeast
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Vessel noise **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.11.3 Hydrodynamic Testing

Activity Name	Activity Description	
Other Testing		
Hydrodynamic Testing	Submarines maneuver in the submerged operating environment.	
Long Description	Hydrodynamic testing is required to validate the control and maneuverability of a submarine in the submerged operating environment.	
Information Typical to the Event	**Platform:** Submarine **Systems:** None **Ordnance/Munitions:** None **Targets:** None **Duration:** 10 days	**Location:** AFTT Study Area
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** None **Energy:** None **Physical Disturbance and Strike:** Vessel strike **Entanglement:** None **Ingestion:** None	
Detailed Military Expended Materials Information	None	
Assumptions Used for Analysis		

A.3.11.4 At-Sea Explosives Testing

Activity Name	Activity Description	
Other Testing		
At-Sea Explosives Testing	Explosives are detonated at sea.	
Long Description	Explosives of various weights could be tested to determine the feasibility of use for different events. Up to 10 charges per event (up to 100 lb. net explosive weight) could be detonated to determine the shock/pressure generated, which could be used for various scenarios at sea.	
Information Typical to the Event	**Platform:** None **Systems:** None **Ordnance/Munitions:** Subscale charges **Targets:** None **Duration:** 3 days, with multiple detonations per event	**Location:** Gulf of Mexico** JAX
Potential Impact Concerns *(Information regarding deconstruct categories and stressors)*	**Acoustic:** Underwater explosives (e.g., E5) **Energy:** None **Physical Disturbance and Strike:** None **Entanglement:** None **Ingestion:** Fragments	
Detailed Military Expended Materials Information	Charge fragments	
Assumptions Used for Analysis	**Gulf of Mexico refers to the body of water.	

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APPENDIX B

FEDERAL REGISTER NOTICES

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APPENDIX B FEDERAL REGISTER NOTICES

Appendix B contains the following:

1. Notice of Intent to Prepare an Environmental Impact Statement/Overseas Environmental Impact Statement for Navy Atlantic Fleet Training and Testing (75 Federal Register [FR] 135)

2. Notice of Availability of the Draft Environmental Impact Statement/Overseas Environmental Impact Statement for Navy Atlantic Fleet Training and Testing Atlantic Fleet Training and Testing Activities, To Support and Conduct Current, Emerging, and Future Training and Testing Activities along the Eastern Coast of the U.S. and Gulf of Mexico (77 FR 92)

3. Notice of Public Meetings for the Draft Environmental Impact Statement/Overseas Environmental Impact Statement for Navy Atlantic Fleet Training and Testing (77 FR 92)

4. Amended Notice of Availability of the Draft Environmental Impact Statement/Overseas Environmental Impact Statement for Navy Atlantic Fleet Training and Testing Atlantic Fleet Training and Testing Activities, To Support and Conduct Current, Emerging, and Future Training and Testing Activities along the Eastern Coast of the U.S. and Gulf of Mexico (77 FR 97) [*Reflects corrected close to the comment period*]

5. Proposed Rule for Takes of Marine Mammals Incidental to Specified Activities: U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area (78 FR 21)

Federal Register / Vol. 75, No. 135 / Thursday, July 15, 2010 / Notices 41163

92132, or Meghan Byrne, Naval Facilities Engineering Command, Pacific. Attention: HSTT EIS/OEIS, 258 Makalapa Dr, Ste 100, Building 258, Floor 3, Room 258C210, Pearl Harbor, HI 96860–3134.

SUPPLEMENTARY INFORMATION: The DON's proposed action is to conduct training and testing activities that include the use of active sonar and explosives within the at-sea portions of existing DON training range complexes around the Hawaiian Islands and off the coast of Southern California (known as the HSTT study area). While the majority of these training and testing activities take place in operating and warning areas and/or on training and testing ranges, some training activities, such as sonar maintenance and gunnery exercises, are conducted concurrent with normal transits and may occur outside of DON operating and warning areas.

The HSTT study area combines the at-sea portions of the following range complexes: Hawaii Range Complex, Southern California Range Complex, and Silver Strand Training Complex. The existing western boundary of the Hawaii Range Complex is being expanded 60 miles to the west to the International Dateline. The HSTT study area also includes the transit route between Hawaii and Southern California as well as DON and commercial piers at Pearl Harbor, HI and San Diego, CA where sonar may be tested.

The proposed action is to conduct military training and testing activities in the HSTT study area. The purpose of the proposed action is to achieve and maintain Fleet Readiness to meet the requirements of Title 10 of the U.S. Code, which requires DON to "maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas." The proposed action would also allow DON to attain compliance with applicable environmental authorizations, consultations, and other associated environmental requirements, including those associated with new platforms and weapons systems, for example, the Low Frequency Anti-Submarine Warfare capability associated with the Littoral Combat Ship.

The alternatives that will be analyzed in the HSTT EIS and OEIS meet the purpose and need of the proposed action by providing the level of training that meets the requirements of Title 10, thereby ensuring that Sailors and Marines are properly prepared for operational success. Similarly, the level of RDT&E proposed for the HSTT study area is necessary to ensure that Sailors and Marines deployed overseas have the latest proven military equipment. Accordingly, the alternatives to be addressed in the HSTT EIS and OEIS are:

1. No Action—The No Action Alternative continues baseline training and testing activities and force structure requirements as defined by existing DON environmental planning documents. This documentation includes the Records of Decision for the Hawaii and Southern California range complexes and the Preferred Alternative for the Silver Strand Training Complex Draft EIS and OEIS.

2. Alternative 1—This alternative consists of the No Action alternative, plus expansion of the overall study area boundaries, and updates and/or adjustments to locations and tempo of training and testing activities. This alternative also includes changes to training and testing requirements necessary to accommodate force structure changes, and the development and introduction of new vessels, aircraft, and weapons systems.

3. Alternative 2—Alternative 2 consists of Alternative 1 with an increased tempo of training and testing activities. This alternative also allows for additional range enhancements and infrastructure requirements.

Resource areas that will be addressed because of the potential effects from the proposed action include, but are not limited to: Ocean and biological resources (including marine mammals and threatened and endangered species); air quality; airborne soundscape; cultural resources; transportation; regional economy; recreation; and public health and safety.

The scoping process will be used to identify community concerns and local issues to be addressed in the EIS and OEIS. Federal agencies, state agencies, local agencies, Native American Indian Tribes and Nations, the public, and interested persons are encouraged to provide comments to the DON to identify specific issues or topics of environmental concern that the commenter believes the DON should consider. All comments provided orally or in writing at the scoping meetings, will receive the same consideration during EIS and OEIS preparation. Written comments must be postmarked no later than September 14, 2010, and should be mailed to: Naval Facilities Engineering Command, Southwest, 2730 McKean Street, Building 291, San Diego, CA 92136–5198, Attention: Mr. Kent Randall—HSTT EIS/OEIS.

Dated: July 9, 2010.

D.J. Werner

Lieutenant Commander, Office of the Judge Advocate General, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2010–17234 Filed 7–14–10; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Prepare an Environmental Impact Statement and Overseas Environmental Impact Statement for Navy Atlantic Fleet Training and Testing and To Announce Public Scoping Meetings

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: Pursuant to section 102 of the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality Regulations (40 Code of Federal Regulations [CFR] Parts 1500–1508), and Executive Order 12114, the Department of the Navy (DON) announces its intent to prepare an Environmental Impact Statement (EIS) and Overseas EIS (OEIS) to evaluate the potential environmental effects associated with military readiness training and research, development, testing, and evaluation (RDT&E) activities (hereinafter referred to as "training and testing" activities) conducted within the Atlantic Fleet Training and Testing (AFTT) study area. The AFTT study area includes the western North Atlantic Ocean along the east coast of North America (including the area where the Undersea Warfare Training Range will be used), the Chesapeake Bay, and the Gulf of Mexico. Also included are select Navy pierside locations and channels. The AFTT study area does not include the Arctic. This EIS and OEIS is being prepared to renew and combine current regulatory permits and authorizations; address current training and testing not covered under existing permits and authorizations; and to obtain those permits and authorizations necessary to support force structure changes and emerging and future training and testing requirements.

The DON will invite the National Marine Fisheries Service to be a cooperating agency in preparation of this EIS and OEIS.

DATES AND ADDRESSES: Five public scoping meetings will be held between 4 p.m. and 8 p.m. on the following dates and at the following locations:

1. Monday, August 23, 2010, Hynes Convention Center, 900 Boylston Street, Boston, MA.

2. Wednesday, August 25, 2010, Virginia Beach Convention Center, 1000 19th Street, Virginia Beach, VA.

3. Thursday, August 26, 2010, Crystal Coast Civic Center, 3505 Arendell Street, Morehead City, NC.

4. Tuesday, August 31, 2010, Prime F. Osborn III Convention Center, 1000 Water Street, Jacksonville, FL.

5. Wednesday, September 1, 2010, Gulf Coast Community College, 5230 West Highway 98, Panama City, FL.

Each of the five scoping meetings will consist of an informal, open house session with informational stations staffed by DON representatives. Meeting details will be announced in local newspapers. Additional information concerning meeting times is available on the EIS and OEIS Web page located at: *http://www.AFTTEIS.com.*

FOR FURTHER INFORMATION CONTACT: Naval Facilities Engineering Command, Code EV22LL (AFTT EIS/OEIS Project Manager), 6506 Hampton Boulevard, Norfolk, VA 23508–1278, telephone number 757–322–4645.

SUPPLEMENTARY INFORMATION: The DON's proposed action is to conduct training and testing activities that include the use of active sonar and explosives within the at-sea portions of existing range complexes and on RDT&E ranges within the AFTT study area (including the area where the Undersea Warfare Training Range will be used). The boundary of the AFTT study area begins seaward from the mean high water line and moves east to the 45 degree west longitude line, generally following the 2nd Fleet area of responsibility (except for the Arctic). The AFTT study area covers approximately 2.6 million square nautical miles of ocean area, which includes Navy operating areas (sea space) and warning areas (airspace). While the majority of Navy training and many testing activities take place within operating and warning areas and/or on RDT&E ranges, some activities, such as sonar maintenance and gunnery exercises, are conducted concurrent with normal transits and occur outside of operating and warning areas.

The following DON training range complexes fall within the AFTT study area: Northeast Range Complex, Virginia Capes (VACAPES) Range Complex, Navy Cherry Point Range Complex, Jacksonville Range Complex, Key West Range Complex, and Gulf of Mexico (GOMEX) Range Complex. The DON RDT&E ranges in the AFTT study area include: Naval Undersea Warfare Center Newport, Newport, RI; Naval Surface Warfare Center (NSWC) Panama City Division, FL; and NSWC Carderock Division South Florida Test Facility, FL. The piers and channels in the AFTT study area are located at the following Navy ports, Naval Shipyards, and Navy contractor shipyards: Bath Iron Works, ME; Portsmouth Naval Shipyard, ME; Electric Boat and Naval Base Groton, CT; Northrop Grumman Shipbuilding—Newport News, VA; Norfolk Naval Base, VA; Norfolk Naval Shipyard, VA; Naval Amphibious Base Little Creek, VA; Naval Base Kings Bay, GA; Naval Base Mayport, FL; Port Canaveral, FL; Northrop Grumman Shipbuilding—Avondale, LA; Northrop Grumman Shipbuilding—Ingalls, MS; and, Halter Moss Point Shipyard, MS.

The proposed action is to conduct military training and testing activities in the AFTT study area. The purpose of the proposed action is to achieve and maintain Fleet Readiness to meet the requirements of Title 10 of the U.S. Code, which requires the DON to "maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas." The proposed action would also allow the DON to attain compliance with applicable environmental authorizations, consultations, and other associated environmental requirements, including those associated with new platforms and weapons systems, for example, the Low Frequency Anti-Submarine Warfare capability associated with the Littoral Combat Ship.

The alternatives that will be analyzed in the AFTT EIS and OEIS meet the purpose and need of the proposed action by providing the level of training that meets the requirements of Title 10, thereby ensuring that Sailors and Marines are properly prepared for operational success. Similarly, the level of RDT&E proposed for the AFTT study area is necessary to ensure that Sailors and Marines deployed overseas have the latest proven military equipment. Accordingly, the alternatives to be addressed in the AFTT EIS and OEIS are:

1. No Action—The No Action Alternative continues baseline training and testing activities and force structure requirements as defined by existing DON environmental planning documents. This documentation includes the Records of Decision for Atlantic Fleet Active Sonar Training (AFAST), VACAPES, Navy Cherry Point, Jacksonville, and NSWC Panama City Division, and the Preferred Alternative for the GOMEX Draft EIS and OEIS.

2. Alternative 1—This alternative consists of the No Action alternative, plus expansion of the overall study area boundaries, and updates and/or adjustments to locations and tempo of training and testing activities. This alternative also includes changes to training and testing requirements necessary to accommodate force structure changes, and the development and introduction of new vessels, aircraft, and weapons systems.

3. Alternative 2—Alternative 2 consists of Alternative 1 with an increased tempo of training and testing activities. This alternative also allows for additional range enhancements and infrastructure requirements.

Resource areas that will be addressed due to the potential effects from the proposed action include, but are not limited to: Ocean and biological resources (including marine mammals and threatened and endangered species); air quality; airborne soundscape; cultural resources; transportation; regional economy; recreation; and public health and safety.

The scoping process will be used to identify community concerns and local issues to be addressed in the EIS and OEIS. Federal agencies, state agencies, local agencies, Native American Indian Tribes and Nations, the public, and interested persons are encouraged to provide comments to the DON to identify specific issues or topics of environmental concern that the commenter believes the DON should consider. All comments provided orally or in writing at the scoping meetings will receive the same consideration during EIS and OEIS preparation. Written comments must be postmarked no later than September 14, 2010, and should be mailed to: Naval Facilities Engineering Command, Atlantic, Code: EV22LL (AFTT EIS/OEIS Project Manager), 6506 Hampton Boulevard, Norfolk, VA, 23508–1278.

Dated: July 9, 2010.

D.J. Werner,

Lieutenant Commander, Office of the Judge Advocate General, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2010–17237 Filed 7–14–10; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF EDUCATION

Submission for OMB Review; Comment Request

AGENCY: Department of Education.

SUMMARY: The Director, Information Collection Clearance Division,

waters, states are required to establish TMDLs according to a priority ranking.

EPA's Water Quality Planning and Management regulations include requirements related to the implementation of Section 303(d) of the CWA (40 CFR 130.7). The regulations require states to identify water-quality-limited waters still requiring TMDLs every two years. The lists of waters still needing TMDLs must also include priority rankings, identify the pollutants causing the impairment, and must identify the waters targeted for TMDL development during the next two years (40 CFR 130.7).

Consistent with EPA's regulations, Utah submitted to EPA its listing decisions under Section 303(d)(2) in correspondence dated March 31, 2011 and April 21, 2011. On February 10, 2012, EPA partially approved with further review pending for Kanab Creek and tributaries, Utah's 2008 and 2010 listings of waters and associated priority rankings. On April 11, 2012, EPA disapproved Utah's decision to not include Kanab Creek and tributaries, from state line to irrigation diversion at confluence with Reservoir Canyon on the 2008 and 2010 lists. EPA solicits public comment on the addition of these waters to the State's list, as required by 40 CFR 130.7(d)(2).

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

Dated: April 26, 2012.

Martin Hestmark,

Acting Assistant Regional Administrator, Office of Ecosystems Protection and Remediation.

[FR Doc. 2012–11428 Filed 5–10–12; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[ER–FRL–9002–9]

Environmental Impacts Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 564–7146 or *http://www.epa.gov/compliance/nepa/.*

Weekly receipt of Environmental Impact Statements
Filed 04/30/2012 Through 05/04/2012
Pursuant to 40 CFR 1506.9.

Notice

Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: *http://www.epa.gov/compliance/nepa/eisdata.html.*

Supplementary Information: EPA is seeking agencies to participate in its e-NEPA electronic EIS submission pilot. Participating agencies can fulfill all requirements for EIS filing, eliminating the need to submit paper copies to EPA Headquarters, by filing documents online and providing feedback on the process. To participate in the pilot, register at: *https://cdx.epa.gov.*

EIS No. 20120136, Final Supplement, APHIS, NY, Bird Hazard Reduction Program, John F. Kennedy International Airport, Updated Information on the Efficacy and Impacts of the Gull Hazard Reduction Program and All Other Bird Hazard Management Activities, Queens County, NY, Review Period Ends: 06/13/2012, Contact: Martin S. Lowney 518–477–4837.

EIS No. 20120137, Draft EIS, USFS, 00, Mountain Pine Beetle Response Project, Implementing Multiple Resource Management Activities, Black Hills National Forest, Custer, Fall River, Lawrence, Meade, and Pennington Counties, SD and Crook and Weston Counties, WY, Comment Period Ends: 06/25/2012, Contact: Katie Van Alstyne 605–343–1567.

EIS No. 20120138, Draft EIS, USACE, FL, Tarmac King Road Limestone Mine, Construction, Issuance of Permit, Levy County, FL, Comment Period Ends: 07/11/2012, Contact: Edward Sarfert 850–439–9533.

EIS No. 20120139, Draft EIS, NPS, GA, Fort Pulaski National Monument General Management Plan and Wilderness Study, Implementation, Chatham County, GA, Comment Period Ends: 07/09/2012, Contact: David Libman 404–507–5701.

EIS No. 20120140, Final EIS, USAF, OH, Wright-Patterson Air Force Base (WPAFB) Project, Reconfigure and Relocate Facilities and Base Perimeter Fence Relocation in Area A, Fairborn, OH, Review Period Ends: 06/11/2012, Contact: Estella Holmes 937–522–3522.

EIS No. 20120141, Final EIS, USFS, CO, Beaver Creek Mountain Improvements Project, Special Use Permit, White River National Forest, Eagle County, CO, Review Period Ends: 06/11/2012, Contact: Don Dressler 970–827–5157.

EIS No. 20120142, Draft EIS, USN, 00, Atlantic Fleet Training and Testing Activities, To Support and Conduct Current, Emerging, and Future Training and Testing Activities along the Eastern Coast of the U.S. and Gulf of Mexico, Comment Period Ends: 06/25/2012, Contact: Jene Nissen 757–836–5221.

EIS No. 20120143, Draft EIS, USN, 00, Hawaii-Southern California Training and Testing Activities, To Support and Conduct Current, Emerging, and Future Training and Testing Activities off Southern California and around the Hawaiian Islands, CA, HI, Comment Period Ends: 06/25/2012, Contact: Alex Stone 619–545–8128.

EIS No. 20120144, Draft EIS, USAF, CA, F–15 Aircraft Conversion, 144th Fighter Wing, California National Guard, To Convert the Unit from the F–16 Fighting Falcon Aircraft and Operations to the F–15 Eagle Aircraft and Operations at Fresno-Yosemite International Airport, Fresno County, CA, Comment Period Ends: 06/25/2012, Contact: Robert Dogan 240–612–8859.

EIS No. 20120145, Draft EIS, BR, CA, Water Transfer Program for the San Joaquin River Exchange Contractors Water Authority, 2014–2038, To Execute Agreements for Water Transfers/or Exchanges, San Joaquin Valley, Fresno, Madera, Merced, and Stanislaus Counties, CA, Comment Period Ends: 07/03/2012, Contact: Bradley Hubbard 916–978–5204.

Dated: May 8, 2012.

Cliff Rader,

Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 2012–11467 Filed 5–10–12; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

Information Collection Being Reviewed by the Federal Communications Commission

AGENCY: Federal Communications Commission.

ACTION: Notice and request for comments.

SUMMARY: As part of its continuing effort to reduce paperwork burden and as required by the Paperwork Reduction Act (PRA) of 1995 (44 U.S.C. 3501–3520), the Federal Communications Commission invites the general public and other Federal agencies to take this opportunity to comment on the following information collection(s). Comments are requested concerning: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimate; (c) ways to enhance the quality, utility, and clarity of the information collected; (d) ways to

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transferred to the National Defense University. All associated records are covered under SORN DNDU 01 (September 21, 2010, 75 FR 57458). Therefore, the system of records notice can be deleted.

A0351c IRMC

IRMC Course Evaluation System (December 18, 2001, 66 FR 65180).

REASON:

The IRMC Course Evaluation System has now transferred to the National Defense University. All associated records are covered under SORN DNDU 01 (September 21, 2010, 75 FR 57458). Therefore, the system of records notice can be deleted.

[FR Doc. 2012–11420 Filed 5–10–12; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Public Meetings for the Draft Environmental Impact Statement/ Overseas Environmental Impact Statement for Navy Atlantic Fleet Training and Testing

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: Pursuant to section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969 and regulations implemented by the Council on Environmental Quality (40 Code of Federal Regulations parts 1500–1508), and Presidential Executive Order (EO) 12114, the Department of the Navy (DoN) has prepared and filed with the U.S. Environmental Protection Agency a Draft Environmental Impact Statement (EIS)/Overseas EIS (OEIS). The Draft EIS/OEIS evaluates the potential environmental effects associated with military readiness training and research, development, test and evaluation activities (training and testing) conducted within the Atlantic Fleet Training and Testing (AFTT) Study Area. The National Marine Fisheries Service (NMFS) is a cooperating agency for the EIS/OEIS.

The Study Area is in the western Atlantic Ocean and encompasses the waters off the east coast of North America and the Gulf of Mexico. The Study Area covers approximately 2.6 million square nautical miles of ocean area, and includes designated DoN operating areas and special use airspace. The following DoN testing ranges and range complexes fall within the Study Area: Northeast Range Complexes; Naval Undersea Warfare Center Division, Newport Testing Range; Virginia Capes Range Complex; Navy Cherry Point Range Complex; Jacksonville Range Complex; South Florida Ocean Measurement Facility Testing Range; Undersea Warfare Training Range; Key West Range Complex; Naval Surface Warfare Center, Panama City Division Testing Range; and Gulf of Mexico Range Complex. The Study Area only includes the at-sea components of these range complexes and testing ranges, with the exception of the Narragansett Bay, lower Chesapeake Bay, St. Andrew Bay. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area as indicated on the map. The remaining inland waters and land-based portions of the range complexes are not a part of the Study Area and will be or already have been addressed under separate environmental planning documentation.

With the filing of the Draft EIS/OEIS, the DoN is initiating a 60-day public comment period beginning on May 11, 2012 and ending on July 10, 2012. During this period, the DoN will conduct five public meetings to receive oral and written comments on the Draft EIS/OEIS. This notice announces the dates and locations of the public meetings and provides supplementary information about the environmental planning effort.

DATES AND ADDRESSES: Public information and comment meetings will be held at each of the locations listed below between 4:00 p.m. and 8:00 p.m. The meetings will provide individuals with information on the Draft EIS/OEIS in an open house format. DoN and NMFS representatives at informational poster stations will be available during the public meetings to clarify information related to the Draft EIS/OEIS.

The public meetings will be held between 4 p.m. and 8 p.m. on the following dates and at the following locations:

1. May 30, 2012 (Wednesday) at Hotel Providence, 139 Mathewson Street, Providence, RI;

2. June 5, 2012 (Tuesday) at Prime F. Osborn III Convention Center, 1000 Water Street, Jacksonville, FL;

3. June 6, 2012 (Wednesday) Hilton Garden Inn Panama City, 1101 North Highway 231, Panama City, FL;

4. June 11, 2012 (Monday) at Virginia Beach Convention Center, 1000 19th Street, Virginia Beach, VA;

5. June 12, 2012 (Tuesday) at Hampton Inn and Suites Swansboro, 215 Old Hammock Road, Swansboro, NC.

Federal, State and local agencies and officials, and interested groups and individuals are encouraged to provide comments in person at any of the public meetings or in writing anytime during the public comment period. At the public meetings, attendees will be able to submit comments orally using a voice recorder or in writing. Equal weight will be given to oral and written statements. Comments may also be submitted via the U.S. Postal Service to Naval Facilities Engineering Command Atlantic, Attn Code EV22 (AFTT EIS Project Managers), 6506 Hampton Boulevard, Norfolk, VA 23508–1278 or electronically via the project Web site (*http://www.AFTTEIS.com*). All statements, oral or written, submitted during the public review period will become part of the public record on the Draft EIS/OEIS and will be responded to in the Final EIS/OEIS. All written comments must be post marked or received by July 10, 2012, to ensure they become part of the official record.

FOR FURTHER INFORMATION CONTACT: Naval Facilities Engineering Command Atlantic, Attn Code EV22 (AFTT EIS Project Managers), 6506 Hampton Boulevard, Norfolk, VA 23508–1278.

SUPPLEMENTARY INFORMATION: A Notice of Intent (NOI) to prepare this DEIS/OEIS was published in the **Federal Register** on July 15, 2010, (75 FR 41163).

The DoN's Proposed Action is to conduct training and testing activities—which may include the use of active sonar and explosives—primarily within existing range complexes and testing ranges along the east coast of the United States, the Gulf of Mexico, Navy pierside locations, port transit channels, and the lower Chesapeake Bay. The purpose of the Proposed Action is to conduct training and testing activities to ensure that the DoN meets its mission to maintain, train, and equip combat-ready U.S. naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. This Draft EIS/OEIS will also support the renewal of federal regulatory permits and authorizations for current training and testing activities and to propose future training and testing activities requiring environmental analysis.

The Draft EIS/OEIS evaluates the potential environmental impacts of three alternatives, including the No Action Alternative and two action alternatives. The No Action Alternative continues baseline training and testing activities, as defined by existing DoN environmental planning documents.

Alternatives 1 and 2 analyze adjustments to Study Area boundaries and the location, type, and level of training and testing activities necessary to support current and planned DoN training and testing requirements through 2019. The analysis addresses force structure changes, including those resulting from the development, testing, and ultimate introduction of new vessels, aircraft and weapons systems into the fleet.

No significant adverse impacts are identified for any resource area in any geographic location within the Study Area that cannot be mitigated. Additionally, due to the exposure of marine mammals to underwater sound, NMFS has received an application from DoN for a Marine Mammal Protection Act Letter of Authorization and governing regulations to authorize incidental take of marine mammals that may result from the implementation of the activities analyzed in the Draft EIS/OEIS. In accordance with Section 7 of the Endangered Species Act, the DoN is consulting with NMFS and U.S. Fish and Wildlife Service, as appropriate, for potential impacts to federally listed species. In accordance with the Magnuson-Stevens Fishery Conservation and Management Act, the DoN is consulting with NMFS on federally managed species and their essential fish habitat. The DoN will initiate consultation under the National Historic Preservation Act regarding impacts to historic properties, and will comply with other applicable laws and regulations.

The Draft EIS/OEIS was distributed to Federal, State, and local agencies, elected officials, and other interested individuals and organizations. Copies of the Draft EIS/OEIS are available for public review at the following libraries:

1. Anne Arundel County Public Library, Annapolis Area Branch, 1410 West Street, Annapolis, MD 21401.
2. Bay County Public Library, 898 West 11th Street, Panama City, FL 32401.
3. Ben May Main Library, 701 Government Street, Mobile, AL 36602.
4. Boston Public Library, Central Library, 700 Boylston Street, Boston, MA 02116.
5. Camden County Public Library, 1410 Highway 40 E, Kingsland, GA 31548.
6. Carteret County Public Library, 1702 Live Oak Street, Suite 100, Beaufort, NC 28516.
7. Charleston County Public Library, Main Library, 68 Calhoun Street, Charleston, SC 29401.
8. Corpus Christi Public Library, La Retama Library, 805 Comanche, Corpus Christi, TX 78401.
9. East Bank Regional Library, 4747 West Napoleon Avenue, Metairie, LA 70001.
10. Hatteras Library, 57709 Highway 12, Hatteras, NC 27943.
11. Havelock-Craven County Public Library, 301 Cunningham Boulevard, Havelock, NC 28532.
12. Houston Public Library, 500 McKinney Street, Houston, TX 77002.
13. Jacksonville Public Library, Main Library, 303 North Laura Street, Jacksonville, FL 32202.
14. Kill Devil Hills Branch Library, Main Library, 400 Mustian Street, Kill Devil Hills, NC 27948.
15. Meridian-Lauderdale County Public Library, 2517 7th Street, Meridian, MS 39301.
16. New Hanover County Public Library, 201 Chestnut Street, Wilmington, NC 28401.
17. New Orleans Public Library, Main Library, 219 Loyola Avenue, New Orleans, LA 70112.
18. Mary D. Pretlow Anchor Branch Library, 111 West Ocean View Avenue, Norfolk, VA 23503.
19. Onslow County Public Library, 58 Doris Avenue East, Jacksonville, NC 28540.
20. Portland Public Library, 5 Monument Square, Portland, ME 04101.
21. Providence Public Library, 150 Empire Street, Providence, RI 02903.
22. Public Library of New London, 63 Huntington Street, New London, CT 06320.
23. Southmost Branch Library, 4320 Southmost Boulevard, Brownsville, TX 78521.
24. Walton County Coastal Branch Library, 437 Greenway Trail, Santa Rosa Beach, FL 32459.
25. Webb Memorial Library and Civic Center, 812 Evans Street, Morehead City, NC 28557.
26. West Florida Public Library, Main Library, 200 West Gregory Street, Pensacola, FL 32502.
27. West Florida Public Library, Southwest Branch, 12248 Gulf Beach Highway, Pensacola, FL 32507.
28. West Palm Beach Public Library, 411 Clematis Street, West Palm Beach, FL 33401.

Copies of the AFTT Draft EIS/OEIS are available for electronic viewing or download at *http://www.AFTTEIS.com*. A paper copy of the Executive Summary or a single compact disc of the Draft EIS/OEIS will be made available upon written request by contacting: Naval Facilities Engineering Command Atlantic, Attn Code EV22 (AFTT EIS Project Managers), 6506 Hampton Boulevard, Norfolk, VA 23508–1278.

Dated: May 4, 2012.

J.M. Beal,

Lieutenant Commander, Office of the Judge Advocate General, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2012–11410 Filed 5–10–12; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Public Meetings for the Draft Environmental Impact Statement/ Overseas Environmental Impact Statement for Navy Hawaii-Southern California Training and Testing

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: Pursuant to section 102(2)(c) of the National Environmental Policy Act of 1969, and regulations implemented by the Council on Environmental Quality regulations (40 Code of Federal Regulations parts 1500–1508), and Presidential Executive Order 12114, the Department of the Navy (DoN) has prepared and filed with the U.S. Environmental Protection Agency a Draft Environmental Impact Statement (EIS)/Overseas EIS (OEIS). The Draft EIS/OEIS evaluates the potential environmental effects associated with military readiness training and research, development, test and evaluation activities (training and testing) conducted within the Hawaii-Southern California Training and Testing (HSTT) Study Area. The National Marine Fisheries Service (NMFS) is a Cooperating Agency for the EIS/OEIS.

The HSTT Study Area is comprised of established operating and warning areas across the north-central Pacific Ocean, from Southern California west to Hawaii and the International Date Line. The Study Area combines the at-sea portions of the Hawaii Range Complex; the Southern California Range Complex; the Silver Strand Training Complex; transit corridors on the high seas that are not part of the range complexes where training and sonar testing may occur during vessel transit between the Hawaii Range Complex and the Southern California Range Complex; and Navy pierside locations where sonar maintenance and testing activities occurs. The HSTT Study Area includes only the at-sea components of the range complexes and testing ranges. The land-based portions of the range complexes are not a part of the Study Area and will be or already have been addressed under separate DoN environmental planning documentation.

sections of TSCA that EPA may provide Student Services contractors access to these CBI materials on a need-to-know basis only. All access to TSCA CBI under this contract will take place at EPA Headquarters in accordance with EPA's *TSCA CBI Protection Manual.*

Access to TSCA data, including CBI, will continue until August 30, 2014. If the contracts are extended, this access will also continue for the duration of the extended contracts without further notice.

The Student Services contractors personnel will be required to sign nondisclosure agreements and will be briefed on appropriate security procedures before they are permitted access to TSCA CBI.

List of Subjects

Environmental protection, Confidential business information.

Dated: May 5, 2012.

Mario Caraballo,

Acting Director, Information Management Division, Office of Pollution Prevention and Toxics.

[FR Doc. 2012–11973 Filed 5–17–12; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[ER–FRL–9003–1]

Environmental Impacts Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 564–7146 or *http://www.epa.gov/compliance/nepa/.*

Weekly receipt of Environmental Impact Statements filed 05/07/2012 through 05/11/2012.

Pursuant to 40 CFR 1506.9.

Notice

Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: *http://www.epa.gov/compliance/nepa/eisdata.html.*

SUPPLEMENTARY INFORMATION: EPA is seeking agencies to participate in its e-NEPA electronic EIS submission pilot. Participating agencies can fulfill all requirements for EIS filing, eliminating the need to submit paper copies to EPA Headquarters, by filing documents online and providing feedback on the process. To participate in the pilot, register at: *https://cdx.epa.gov.*

EIS No. 20120146, Final EIS, USFS, OR, Jackson Vegetation Management Project, Implementation, Paulina Ranger District, Ochoco National Forest, Crook and Wheeler Counties, OR, Review Period Ends: 06/18/2012, Contact: Jeff Marszal 541–416–6500.

EIS No. 20120147, Final Supplement, USFS, OR, Cobbler II Timber Sale and Fuels Reduction Project, Updated Information to Revise and Clarify Aspects of the Analyses Presented in the FEIS of October 2010, Proposing Vegetation and Fuels Management to Improve Health and Vigor Upland Forest Stands and Reduce Hazardous and Ladder Fuels, Walla Walla Ranger District, Umatilla National Forest, Wallowa and Union Counties, OR, Review Period Ends: 06/18/2012, Contact: Kimpton Cooper 509–522–6290.

EIS No. 20120148, Draft EIS, USFS, NM, La Jara Mesa Mine Project, Development, Operation and Mine Reclamation up to 20 Years, Approval, Mt. Taylor Ranger District, Cibola National Forest, Cibola County, NM, Comment Period Ends: 07/16/2012, Contact: Keith Baker 505–346–3820.

EIS No. 20120149, Draft Supplement, FTA, CA, Capitol Expressway Corridor Project, To Construct an Extension of the Capitol Light Rail System from Alum Rock Station to the Eastridge Transit Center, Santa Clara Valley Transportation Authority, City of San Jose, Santa Clara County, CA, Comment Period Ends: 07/03/2012, Contact: Eric Eidlin 415–744–2502.

EIS No. 20120150, Draft EIS, FHWA, CA, Interchange 5/State Route 56 Interchange Project, Connection between southbound I–5 to eastbound SR–56 and northbound SR 56 to northbound I–5, San Diego County, CA, Comment Period Ends: 07/02/2012, Contact: Manuel E. Sanchez 619–699–7336.

EIS No. 20120151, Final EIS, USFS, MT, Sparring Bulls Project, Proposes Timber Harvest, Non-commercial Fuels Reduction, Prescribed Burning, and Watershed Improvement Activities, Three Rivers Ranger District, Kootenai National Forest, Lincoln County, MT, Review Period Ends: 06/18/2012, Contact: Leslie McDougall 406–295–4693.

EIS No. 20120152, Draft EIS, FHWA, CA, San Diego Freeway (I–405) Improvement Project, between State Route 73 and Interstate 605, USACE Section 404 Permit, Orange and Los Angeles Counties, CA, Comment Period Ends: 07/02/2012, Contact: Tay Dam 213–605–2013.

EIS No. 20120153, Draft EIS, NOAA, 00, Southeastern U.S. Shrimp Fisheries, To Reduce Incidental Bycatch and Mortality of Sea Turtles, Tidally Influenced Waters and Substrates of the Gulf of Mexico and South Atlantic and its Estuaries of LA, MS, AL, and NC and extending out to the limit of the U.S. Exclusive Economic Zone, Comment Period Ends: 07/02/2012, Contact: Michael Barnette 727–824–5312.

EIS No. 20120154, Final EIS, USFWS, MT, Charles M. Russell National Wildlife Refuge and UL Bend National Wildlife Refuge prehensive Conservation Plan, To Provide Alternatives and Identify Consequences, Fergus, Petroleum, Garfield, McCone, Valley, and Phillips Counties, MT, Review Period Ends: 06/18/2012, Contact: Laurie Shannon 303–236–4317.

EIS No. 20120155, Final EIS, USFS, NC, Uwharrie National Forest, Proposed Land and Resource Management Resource Plan, Implementation, Montgomery, Randolph and Davidson Counties, NC, Review Period Ends: 06/18/2012, Contact: Ruth Berner 828–257–4862.

EIS No. 20120156, Draft Supplement EIS, USFS, AK, Bell Island Geothermal Leases, To Update Analysis in the Programmatic EIS to Address Roadless Concerns, Consideration for Lease Approval, Ketchikan-Misty Fiords Ranger District, Tongass National Forest, Ketchikan Gateway Borough, AK, Comment Period Ends: 07/02/2012, Contact: Sarah Samuelson 907–789–6274.

Amended Notices

EIS No. 20120073, Draft EIS, USACE, CA, Isabella Lake Dam Safety Modification Project, To Remediate Seismic, Seepage, and Hydrologic Deficiencies in the Main Dam, Spillway and Auxiliary Dam, Kern County, CA, Comment Period Ends: 05/22/2012, Contact: Tyler M. Stalker 916–557–5107.

Revision to FR Notice Published 03/23/2012; Extending Comment Period from 05/07/12 to 05/22/2012.

EIS No. 20120130, Final EIS, USFS, CA, Algoma Vegetation Management Project, Proposing to Protect and Promote Conditions of Late-Successional Forest Ecosystem on 4,666 Acres, Shasta-Trinity National Forest, Siskiyou County, CA, Review Period Ends: 06/11/2012, Contact: Emelia Barnum 530–926–9600.

Revision to FR Notice Published 05/04/2012; Correction to Title.

EIS No. 20120142, Draft EIS, USN, 00, Atlantic Fleet Training and Testing Activities, To Support and Conduct

Current, Emerging, and Future Training and Testing Activities along the Eastern Coast of the U.S. and Gulf of Mexico, Comment Period Ends: 07/10/2012, Contact: Jene Nissen 757–836–5221.

Revision to FR Notice Published 05/11/2012; Extending Comment Period from 06/25/12 to 07/10/2012.

EIS No. 20120143, Draft EIS, USN, 00, Hawaii-Southern California Training and Testing Activities, To Support and Conduct Current, Emerging and Future Training and Testing Activities off Southern California and around the Hawaiian Islands, CA, HI, Comment Period Ends: 07/10/2012, Contact: Alex Stone 619–545–8128.

Revision to FR Notice Published 05/11/2012; Extending Comment Period from 06/25/12 to 07/10/2012.

Dated: May 15, 2012.

Cliff Rader,

Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 2012–12112 Filed 5–17–12; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OPP–2012–0003; FRL–9348–6]

SFIREG Full Committee; Notice of Public Meeting

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The Association of American Pesticide Control Officials (AAPCO)/State FIFRA Issues Research and Evaluation Group (SFIREG), Full Committee will hold a 2-day meeting, beginning on June 18, 2012 and ending June 19, 2012. This notice announces the location and times for the meeting and sets forth the tentative agenda topics.

DATES: The meeting will be held on Monday, June 18, 2012 from 8:30 a.m. to 5:00 p.m. and 8:30 a.m. to 12 noon on Tuesday June 19, 2012.

To request accommodation of a disability, please contact the person listed under **FOR FURTHER INFORMATON CONTACT**, preferably at least 10 days prior to the meeting, to give EPA as much time as possible to process your request.

ADDRESSES: The meeting will be held at EPA. One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA, 22202, 1st Floor South Conference Room.

FOR FURTHER INFORMATION CONTACT: Ron Kendall, Field External Affairs Division, Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave. NW., Washington, DC 20460–0001; telephone number: (703) 305–5561; fax number: (703) 305–1850; email address: *kendall.ron@epa.gov.* or Grier Stayton, SFIREG Executive Secretary, P.O. Box 466, Milford, DE 19963; telephone number (302) 422–8152; fax (302) 422–2435; email address: *stayton.grier@aapco-sfireg@comcast.net.*

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this action apply to me?

You may be potentially affected by this action if you are interested in pesticide regulation issues affecting States and any discussion between EPA and SFIREG on FIFRA field implementation issues related to human health, environmental exposure to pesticides, and insight into EPA's decision-making process. You are invited and encouraged to attend the meetings and participate as appropriate. Potentially affected entities may include, but are not limited to:

Those persons who are or may be required to conduct testing of chemical substances under the Federal Food, Drug and Cosmetics Act (FFDCA), or the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and those who sell, distribute or use pesticides, as well as any Non Government Organization.

This listing is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. Other types of entities not listed in this unit could also be affected. The North American Industrial Classification System (NAICS) codes have been provided to assist you and others in determining whether this action might apply to certain entities. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed under **FOR FURTHER INFORMATION CONTACT.**

B. How can I get copies of this document and other related information?

EPA has established a docket for this action under docket ID number EPA–HQ–OPP–2012–0003. Publicly available docket materials are available either in the electronic docket at *http://www.regulations.gov,* or, if only available in hard copy, at the Office of Pesticide Programs (OPP) Regulatory Public Docket in Rm. S–4400, One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA. The hours of operation of this Docket Facility are from 8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The Docket Facility telephone number is (703) 305–5805.

II. Tentative Agenda Topics

1. Office of Pesticide Programs update
2. Office of Compliance and Enforcement update
3. Responses to SFIREG Bed Bug and Endangered Species Act Consultation letters
4. Pollinator Protection issues
5. Methomyl fly bait restricted use classification
6. Pyrethroid Label Changes
7. Regional issues/responses to pre-SFIREG questionnaire
8. Report on "State Regulator in Residence" program—issues and opportunities
9. Tribal certification policy implementation—Issues and information exchange
10. Performance Measures Development
11. Imprelis update/discussion on "down stream" effects of pesticides outside control of applicator (e.g. hot compost, treated irrigation water)
12. Interactions of EPA Regions and State Lead Agencies on:
   a. Support for/involvement with
   b. Enforcement/compliance efforts
   c. Certification/training efforts
   d. Environmental programs
   e. Registration issues
13. Grant Negotiation Procedures
14. Distributor Label Enforcement coordination
15. Update on progress of referred cases

III. How can I request to participate in this meeting?

This meeting is open for the public to attend. You may attend the meeting without further notification.

List of Subjects Environmental protection.

Dated: May 5, 2012.

R. McNally,

Director, Field External Affairs Division, Office of Pesticide Programs.

[FR Doc. 2012–11971 Filed 5–17–12; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

[MB Docket No. 12–122; File No. CSR–8529–P; DA 12–739]

Game Show Network, LLC v. Cablevision Systems Corp.

AGENCY: Federal Communications Commission.

FEDERAL REGISTER

Vol. 78 Thursday,
No. 21 January 31, 2013

Part IV

Department of Commerce

National Oceanic and Atmospheric Administration

50 CFR Part 218

Takes of Marine Mammals Incidental to Specified Activities; U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area; Proposed Rule

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 218

[Docket No. 130109022–3022–01]

RIN 0648–BC53

Takes of Marine Mammals Incidental to Specified Activities; U.S. Navy Training and Testing Activities in the Atlantic Fleet Training and Testing Study Area

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of proposed rulemaking; request for comments and information.

SUMMARY: NMFS has received a request from the U.S. Navy (Navy) for authorization to take marine mammals incidental to the training and testing activities conducted in the Atlantic Fleet Training and Testing (AFTT) study area from January 2014 through January 2019. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue regulations and subsequent Letters of Authorization (LOAs) to the Navy to incidentally harass marine mammals.

DATES: Comments and information must be received no later than March 11, 2013.

ADDRESSES: You may submit comments, identified by 0648–BC53, by either of the following methods:

- Electronic submissions: submit all electronic public comments via the Federal eRulemaking Portal *http://www.regulations.gov*
- Hand delivery of mailing of paper, disk, or CD–ROM comments should be addressed to P. Michael Payne, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910–3225.

Instructions: All comments received are a part of the public record and will generally be posted to *http://www.regulations.gov* without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

NMFS will accept anonymous comments (enter N/A in the required fields if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Work, Excel, WordPerfect, or Adobe PDF file formats only.

FOR FURTHER INFORMATION CONTACT: Brian D. Hopper, Office of Protected Resources, NMFS, (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Availability

A copy of the Navy's application may be obtained by visiting the internet at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm*. The Navy's Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS) for AFTT was made available to the public on May 11, 2012 (77 FR 27742). Documents cited in this notice may also be viewed, by appointment, during regular business hours, at the aforementioned address.

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such takings are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "* * * an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

The National Defense Authorization Act of 2004 (NDAA) (Pub. L. 108–136) removed the "small numbers" and "specified geographic region" limitations indicated above and amended the definition of "harassment" as applied to "military readiness activity" to read as follows (Section 3(18)(B) of the MMPA: "(i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild [Level A Harassment]; or (ii) any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered [Level B Harassment]."

Summary of Request

On April 13, 2012, NMFS received an application from the Navy requesting regulations and two LOAs for the take of 42 species of marine mammals incidental to Navy training and testing activities to be conducted in the AFTT Study Area over 5 years. The Navy submitted addendums on September 24, 2012 and December 21, 2012, and the application was considered complete. This proposed rule is based on the information contained in the revised LOA applications. The Navy is requesting regulations that would establish a process for authorizing take, via two separate 5-year LOAs, of marine mammals for training activities and for testing activities, each proposed to be conducted from 2014 through 2019. The Study Area includes several existing study areas, range complexes, and testing ranges (Atlantic Fleet Active Sonar Training (AFAST), Northeast, Virginia Capes (VACAPES), Cherry Point (CHPT), Jacksonville (JAX), Gulf of Mexico (GOMEX), Naval Surface Warfare Center, Panama City, Naval Undersea Warfare Center Newport, South Florida Ocean Measurement Facility (SFOMF), and Key West) plus pierside locations and areas on the high seas where maintenance, training, or testing may occur. The proposed activities are classified as military readiness activities. Marine mammals present in the Study Area may be exposed to sound from active sonar, underwater detonations, and/or pile driving and removal. In addition, incidental takes of marine mammals may occur from ship strikes. The Navy requests authorization to take individuals of 42 marine mammal species by Level B harassment and individuals of 32 marine mammal species by Level A harassment. In addition, the Navy requests authorization for take by serious injury or mortality individuals of 16 marine mammal species due to the use of explosives, and 11 total marine mammals (any species except North Atlantic right whale) over the course of the 5-year rule due to vessel strike.

The Navy's application and the AFTT DEIS/OEIS contain proposed acoustic criteria and thresholds that would, in some instances, represent changes from what NMFS has used to evaluate the

Navy's proposed activities for past incidental take authorizations. The revised thresholds are based on evaluations of recent scientific studies; a detailed explanation of how they were derived is provided in the AFTT DEIS/OEIS Criteria and Thresholds Technical Report. NMFS is currently updating and revising all of its acoustic criteria and thresholds. Until that process is complete, NMFS will continue its long-standing practice of considering specific modifications to the acoustic criteria and thresholds currently employed for incidental take authorizations only after providing the public with an opportunity for review and comment. NMFS is requesting comments on all aspects of the proposed rule, and specifically requests comment on the proposed acoustic criteria and thresholds.

Background of Request

The Navy's mission is to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. Section 5062 of Title 10 of the United States Code directs the Chief of Naval Operations to train all military forces for combat. The Chief of Naval Operations meets that directive, in part, by conducting at-sea training exercises and ensuring naval forces have access to ranges, operating areas (OPAREAs) and airspace where they can develop and maintain skills for wartime missions and conduct research, development, testing, and evaluation (RDT&E) of naval systems.

The Navy proposes to continue conducting training and testing activities within the AFTT Study Area, which have been ongoing since the 1940s. Recently, most of these activities were analyzed in six separate EISs completed between 2009 and 2011; the Atlantic Fleet Active Sonar Training (AFAST) EIS/OEIS (U.S. Department of the Navy, 2009a), the Virginia Capes Range Complex (VACAPES) EIS/OEIS (U.S. Department of the Navy, 2009b), the Navy Cherry Point Range Complex (CHPT) EIS/OEIS (U.S. Department of the Navy, 2009c), the Jacksonville Range Complex (JAX) EIS/OEIS (U.S. Department of the Navy, 2009d), the Panama City (PCD) EIS/OEIS (U.S. Department of the Navy, 2009e), and the Gulf of Mexico (GOMEX) EIS/OEIS (U.S. Department of the Navy, 2011). These documents, among others, and their associated MMPA regulations and authorizations, describe the baseline of training and testing activities currently conducted in the Study Area. The tempo and types of training and testing activities have fluctuated due to changing requirements; new technologies; the dynamic nature of international events; advances in warfighting doctrine and procedures; and changes in basing locations for ships, aircraft, and personnel. Such developments influence the frequency, duration, intensity, and location of required training and testing. The Navy's request covers training and testing activities that would occur for a 5-year period following the expiration of the current MMPA authorizations for AFAST, VACAPES, CHPT, JAX, and GOMEX. The Navy has also prepared a DEIS/OEIS analyzing the effects on the human environment of implementing their preferred alternative (among others).

The quantified results of the marine mammal acoustic effects analysis presented in the Navy's LOA application differ from the quantified results presented in the AFTT DEIS/OEIS. The differences are due to three main factors: (1) Changes to tempo or location of certain training and testing activities; (2) refinement to the modeling inputs for training and testing; and (3) additional post-model analysis of acoustic effects to include animal avoidance of repeated sound sources, avoidance of areas of activity before use of a sound source or explosive by sensitive species, and implementation of mitigation. The additional post-model analysis of acoustic effects was performed to clarify potential misunderstandings of the numbers presented as modeling results in the AFTT DEIS/OEIS. Some comments indicated that the readers believed the acoustic effects to marine mammals presented in the DEIS/OEIS were representative of the actual expected effects, although the AFTT DEIS/OEIS did not account for animal avoidance of an area prior to commencing sound-producing activities, animal avoidance of repeated explosive noise exposures, and the protections due to standard Navy mitigations. The net result of these changes is an overall decrease in takes in the Mortality and Level A takes within the LOA application compared with the DEIS, a net reduction in Level B takes for training, and a net increase in Level B takes for testing. The Navy has advised NMFS that all comments received on the proposed rule that address: (1) Changes to the tempo or location of certain proposed activities; (2) refinement to the modeling inputs for training and testing; and (3) additional post-model analysis of acoustic effects and implementation of mitigation, will be reviewed and addressed by the Navy in its FEIS/OEIS for AFTT.

Description of the Specified Activity

The Navy requests authorization to take marine mammals incidental to conducting training and testing activities. The Navy has determined that non-impulsive sources (e.g. sonar), underwater detonations, pile driving and removal, and vessel strikes are the stressors most likely to result in impacts on marine mammals that could rise to the level of harassment. Detailed descriptions of these activities are provided in the Navy's Draft Environmental Impact Statement (DEIS) and LOA application (*http://www.nmfs.noaa.gov/pr/permits/incidental.htm*) and summarized here.

Overview of Training Activities

The Navy routinely trains in the AFTT Study Area in preparation for national defense missions. Training activities are categorized into eight functional warfare areas (anti-air warfare; amphibious warfare; strike warfare; anti-surface warfare; anti-submarine warfare; electronic warfare; mine warfare; and naval special warfare). The Navy determined that stressors used in the following warfare areas are most likely to result in impacts on marine mammals:

- Amphibious warfare (underwater detonations, pile driving and removal)
- Anti-surface warfare (underwater detonations)
- Anti-submarine warfare (active sonar, underwater detonations)
- Mine warfare (active sonar, underwater detonations)
- Naval special warfare (underwater detonations)

The Navy's activities in anti-air warfare, strike warfare, and electronic warfare do not produce stressors that could result in harassment of marine mammals. Therefore, these activities are not discussed further.

Amphibious Warfare

The mission of amphibious warfare is to project military power from the sea to the shore through the use of naval firepower and Marine Corps landing forces. The Navy uses amphibious warfare to attack a threat located on land by a military force embarked on ships. Amphibious warfare training ranges from individual, crew, and small unit events to large task force exercises. Individual and crew training include amphibious vehicles and naval gunfire support training for shore assaults, boat raids, airfield or port seizures, and reconnaissance. Large-scale amphibious exercises involve ship-to-shore

maneuver, naval fire support, such as shore bombardment, and air strike and close air support training. However, the Navy only analyzed those portions of amphibious warfare training that occur at sea, in particular, underwater detonations associated with naval gunfire support training. The Navy conducts other amphibious warfare support activities that could potentially impact marine mammals (such as pile driving and removal) in the near shore region from the beach to about 914 m from shore.

Anti-Surface Warfare

The mission of anti-surface warfare is to defend against enemy ships or boats. When conducting anti-surface warfare, aircraft use cannons, air-launched cruise missiles, or other precision munitions (guided and unguided); ships use naval guns, and surface-to-surface missiles; and submarines use torpedoes or submarine-launched, anti-ship cruise missiles. Anti-surface warfare training includes surface-to-surface gunnery and missile exercises, air-to-surface gunnery and missile exercises, and submarine missile or exercise torpedo launch events.

Anti-Submarine Warfare

The mission of anti-submarine warfare is to locate, neutralize, and defeat hostile submarine threats to surface forces. Anti-submarine warfare is based on the principle of a layered defense of surveillance and attack aircraft, ships, and submarines all searching for hostile submarines. These forces operate together or independently to gain early warning and detection, and to localize, track, target, and attack hostile submarine threats. Anti-submarine warfare training addresses basic skills such as detection and classification of submarines, distinguishing between sounds made by enemy submarines and those of friendly submarines, ships, and marine life. More advanced, integrated anti-submarine warfare training exercises are conducted in coordinated, at-sea training events involving submarines, ships, and aircraft. This training integrates the full spectrum of anti-submarine warfare from detecting and tracking a submarine to attacking a target using either exercise torpedoes or simulated weapons.

Mine Warfare

The mission of mine warfare is to detect, and avoid or neutralize mines to protect Navy ships and submarines and to maintain free access to ports and shipping lanes. Mine warfare also includes offensive mine laying to gain control or deny the enemy access to sea space. Naval mines can be laid by ships, submarines, or aircraft. Mine warfare training includes exercises in which ships, aircraft, submarines, underwater vehicles, or marine mammal detection systems search for mines. Certain personnel train to destroy or disable mines by attaching and detonating underwater explosives to simulated mines. Other neutralization techniques involve impacting the mine with a bullet-like projectile or intentionally triggering the mine to detonate.

Naval Special Warfare

The mission of naval special warfare is to conduct unconventional warfare, direct action, combat terrorism, special reconnaissance, information warfare, security assistance, counter-drug operations, and recovery of personnel from hostile situations. Naval special warfare operations are highly specialized and require continual and intense training. Naval special warfare units are required to utilize a combination of specialized training, equipment, and tactics, including insertion and extraction operations using parachutes, submerged vehicles, rubber boats, and helicopters; boat-to-shore and boat-to-boat gunnery; underwater demolition training; reconnaissance; and small arms training.

Overview of Testing Activities

The Navy researches, develops, tests, and evaluates new platforms, systems, and technologies. Testing activities may occur independently of or in conjunction with training activities. Many testing activities are conducted similarly to Navy training activities and are also categorized under one of the primary mission areas. Other testing activities are unique and are described within their specific testing categories. The Navy determined that stressors used during the following testing activities are most likely to result in impacts on marine mammals:

- Naval Air Systems Command (NAVAIR) Testing
- Anti-surface warfare testing (underwater detonations)
- Anti-submarine warfare testing (active sonar, underwater detonations)
- Mine warfare testing (active sonar, underwater detonations)
- Naval Sea Systems Command (NAVSEA) Testing
- New ship construction (active sonar, underwater detonations)
- Shock trials (underwater detonations)
- Life cycle activities (active sonar, underwater detonations)
- Range Activities (active sonar, underwater detonations)
- Anti-surface warfare/anti-submarine warfare testing (active sonar, underwater detonations)
- Mine warfare testing (active sonar, underwater detonations)
- Ship protection systems and swimmer defense testing (active sonar, airguns)
- Unmanned vehicle testing (active sonar)
- Other testing (active sonar)
- Office of Naval Research (ONR) and Naval Research Laboratory (NRL) Testing
- ONR/NRL Research, Development, Test & Evaluation (active sonar)

Other Navy testing activities that do not involve underwater non-impulse sources or impulse sources that could result in marine mammal harassment are not discussed further.

Naval Air Systems Command Testing (NAVAIR)

NAVAIR events include testing of new aircraft platforms, weapons, and systems before delivery to the fleet for training activities. NAVAIR also conducts lot acceptance testing of weapons and systems, such as sonobuoys. In general, NAVAIR conducts its testing activities the same way the fleet conducts its training activities. However, NAVAIR testing activities may occur in different locations than equivalent fleet training activities and testing of a particular system may differ slightly from the way the fleet trains with the same system.

Anti-Surface Warfare Testing

Anti-surface warfare testing includes air-to-surface gunnery, missile, and rocket exercises. Testing is required to ensure the equipment is fully functional for defense from surface threats. Testing may be conducted on new guns or gun rounds, missiles, rockets, and aircraft, and also in support of scientific research to assess new and emerging technologies. Testing events are often integrated into training activities and in most cases the systems are used in the same manner in which they are used for fleet training activities.

Anti-Submarine Warfare Testing

Anti-submarine warfare testing addresses basic skills such as detection and classification of submarines, distinguishing between sounds made by enemy submarines and those of friendly submarines, ships, and marine life. More advanced, integrated anti-submarine warfare testing is conducted in coordinated, at-sea training events involving submarines, ships, and

aircraft. This testing integrates the full spectrum of anti-submarine warfare from detecting and tracking a submarine to attacking a target using various torpedoes and weapons.

Mine Warfare Testing

Mine warfare testing includes activities in which aircraft detection systems are used to search for and record the location of mines for subsequent neutralization. Mine neutralization tests evaluate a system's effectiveness at intentionally detonating or otherwise disabling the mine. Different mine neutralization systems are designed to neutralize mines either at the sea surface or deployed deeper within the water column. All components of these systems are tested in the at-sea environment to ensure they meet mission requirements.

Naval Sea Systems Command Testing (NAVSEA)

NAVSEA testing activities are aligned with its mission of new ship construction, shock trials, life cycle activities, range activities, and other weapon systems development and testing.

New Ship Construction Activities

Ship construction activities include pierside testing of ship systems, tests to determine how the ship performs at-sea (sea trials), and developmental and operational test and evaluation programs for new technologies and systems. Pierside and at-sea testing of systems aboard a ship may include sonar, acoustic countermeasures, radars, and radio equipment. During sea trials, each new ship propulsion engine is operated at full power and subjected to high-speed runs and steering tests. At-sea test firing of shipboard weapon systems, including guns, torpedoes, and missiles, are also conducted.

Shock Trials

One ship of each new class (or major upgrade) of combat surface ships constructed for the Navy may undergo an at-sea shock trial. A shock trial is a series of underwater detonations that send a shock wave through the ship's hull to simulate near misses during combat. A shock trial allows the Navy to validate the shock hardness of the ship and assess the survivability of the hull and ship's systems in a combat environment as well as the capability of the ship to protect the crew.

Life Cycle Activities

Testing activities are conducted throughout the life of a Navy ship to verify performance and mission capabilities. Sonar system testing occurs pierside during maintenance, repair, and overhaul availabilities, and at sea immediately following most major overhaul periods. A Combat System Ship Qualification Trial is conducted for new ships and for ships that have undergone modification or overhaul of their combat systems.

Radar cross signature testing of surface ships is conducted on new vessels and periodically throughout a ship's life to measure how detectable the ship is by radar. Electromagnetic measurements of off-board electromagnetic signatures are also conducted for submarines, ships, and surface craft periodically.

Range Activities

NAVSEA's testing ranges are used to conduct principal testing, analysis, and assessment activities for ship and submarine platforms, including ordnance, mines, and machinery technology for surface combat systems. Naval Surface Warfare Center, Panama City Division Testing Range focuses on surface warfare tests that often involve mine countermeasures. Naval Undersea Warfare Center Division, Newport Testing Range focuses on the undersea aspects of warfare and is, therefore, structured to test systems such as torpedoes and unmanned underwater vehicles. The South Florida Ocean Measurement Facility Testing Range retains a unique capability that focuses on signature analysis operations and mine warfare testing events.

Other Weapon Systems Development and Testing

Numerous test activities and technical evaluations, in support of NAVSEA's systems development mission, often occur with fleet activities within the Study Area. Tests within this category include, but are not limited to, anti-surface, anti-submarine, and mine warfare, using torpedoes, sonobuoys, and mine detection and neutralization systems.

Office of Naval Research (ONR) and Naval Research Laboratory (NLR) Testing

As the Navy's Science and Technology provider, ONR and NRL provide technology solutions for Navy and Marine Corps needs. ONR's mission, 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, ONR 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 environments. ONR events include: Research, development, test and evaluation activities; surface processes acoustic communications experiments; shallow water acoustic propagation experiments; and long range acoustic propagation experiments.

Sonar, Ordnance, Targets, and Other Systems

The Navy uses a variety of sensors, platforms, weapons, and other devices to meet its mission. Training and testing with these systems may introduce acoustic (sound) energy into the environment. This section describes and organizes sonar systems, ordnance, munitions, targets, and other systems to facilitate understanding of the activities in which these systems are used. Underwater sound is described as one of two types for the purposes of the Navy's application: Impulsive and non-impulsive. Underwater detonations of explosives and other percussive events are impulsive sounds. Sonar and similar sound producing systems are categorized as non-impulsive sound sources.

Sonar and Other Non-Impulsive Sources

Modern sonar technology includes a variety of sonar sensor and processing systems. The simplest active sonar emits sound waves, or "pings," sent out in multiple directions and the sound waves then reflect off of the target object in multiple directions. The sonar source calculates the time it takes for the reflected sound waves to return; this calculation determines the distance to the target object. More sophisticated active sonar systems emit a ping and then rapidly scan or listen to the sound waves in a specific area. This provides both distance to the target and directional information. Even more advanced sonar systems use multiple receivers to listen to echoes from several directions simultaneously and provide efficient detection of both direction and distance. The Navy rarely uses active sonar continuously throughout activities. When sonar is in use, the pings occur at intervals, referred to as a duty cycle, and the signals themselves

are very short in duration. For example, sonar that emits a 1-second ping every 10 seconds has a 10 percent duty cycle. The Navy utilizes sonar systems and other acoustic sensors in support of a variety of mission requirements. Primary uses include the detection of, and defense against, submarines (anti-submarine warfare) and mines (mine warfare); safe navigation and effective communications; use of unmanned undersea vehicles; and oceanographic surveys.

Ordnance and Munitions

Most ordnance and munitions used during training and testing events fall into three basic categories: projectiles (such as gun rounds), missiles (including rockets), and bombs. Ordnance can be further defined by their net explosive weight, which considers the type and quantity of the explosive substance without the packaging, casings, bullets, etc. Net explosive weight (NEW) is the trinitrotoluene (TNT) equivalent of energetic material, which is the standard measure of strength of bombs and other explosives. For example, a 5-inch shell fired from a Navy gun is analyzed at about 9.5 pounds (lb) (4.3 kg) of NEW. The Navy also uses non-explosive ordnance in place of high explosive ordnance in many training and testing events. Non-explosive ordnance munitions look and perform similarly to high explosive ordnance, but lack the main explosive charge.

Defense Countermeasures

Naval forces depend on effective defensive countermeasures to protect themselves against missile and torpedo attack. Defensive countermeasures are devices designed to confuse, distract, and confound precision guided munitions. Defensive countermeasures analyzed in this LOA application include acoustic countermeasures, which are used by surface ships and submarines to defend against torpedo attack. Acoustic countermeasures are either released from ships and submarines, or towed at a distance behind the ship.

Mine Warfare Systems

The Navy divides mine warfare systems into two categories: Mine detection and mine neutralization. Mine detection systems are used to locate, classify, and map suspected mines, on the surface, in the water column, or on the sea floor. The Navy analyzed the following mine detection systems for potential impacts on marine mammals:

- Towed or hull-mounted mine detection systems. These detection systems use acoustic and laser or video sensors to locate and classify suspect mines. Fixed and rotary wing platforms, ships, and unmanned vehicles are used for towed systems, which can rapidly assess large areas.
- Unmanned/remotely operated vehicles. These vehicles use acoustic and video or lasers to locate and classify mines and provide unique capabilities in nearshore littoral areas, surf zones, ports, and channels.

Mine Neutralization Systems

Mine neutralization systems disrupt, disable, or detonate mines to clear ports and shipping lanes, as well as littoral, surf, and beach areas in support of naval amphibious operations. The Navy analyzed the following mine neutralization systems for potential impacts to marine mammals:

- Towed influence mine sweep systems. These systems use towed equipment that mimic a particular ship's magnetic and acoustic signature triggering the mine and causing it to explode.
- Unmanned/remotely operated mine neutralization systems. Surface ships and helicopters operate these systems, which place explosive charges near or directly against mines to destroy the mine.
- Airborne projectile-based mine clearance systems. These systems neutralize mines by firing a small or medium-caliber non-explosive, supercavitating projectile from a hovering helicopter.
- Diver emplaced explosive charges. Operating from small craft, divers put explosive charges near or on mines to destroy the mine or disrupt its ability to function.

Classification of Non-Impulsive and Impulsive Sources Analyzed

In order to better organize and facilitate the analysis of about 300 sources of underwater non-impulsive sound or impulsive energy, the Navy developed a series of source classifications, or source bins. This method of analysis provides the following benefits:

- Allows for new sources to be covered under existing authorizations, as long as those sources fall within the parameters of a "bin;"
- Simplifies the data collection and reporting requirements anticipated under the MMPA;
- Ensures a conservative approach to all impact analysis because all sources in a single bin are modeled as the most powerful source (e.g., lowest frequency, highest source level, longest duty cycle, or largest net explosive weight within that bin);
- Allows analysis to be conducted more efficiently, without compromising the results;
- Provides a framework to support the reallocation of source usage (hours/explosives) between different source bins, as long as the total number of marine mammal takes remain within the overall analyzed and authorized limits. This flexibility is required to support evolving Navy training and testing requirements, which are linked to real world events.

A description of each source classification is provided in Tables 1–3. Non-impulsive sources are grouped into bins based on the frequency, source level when warranted, and how the source would be used. Impulsive bins are based on the net explosive weight of the munitions or explosive devices. The following factors further describe how non-impulsive sources are divided:

- Frequency of the non-impulsive source:
  - Low-frequency sources operate below 1 kilohertz (kHz)
  - Mid-frequency sources operate at and above 1 kHz, up to and including 10 kHz
  - High-frequency sources operate above 10 kHz, up to and including 100 kHz
  - Very high-frequency sources operate above 100 kHz, but below 200 kHz
- Source level of the non-impulsive source:
  - Greater than 160 decibels (dB), but less than 180 dB
  - Equal to 180 dB and up to 200 dB
  - Greater than 200 dB

How a sensor is used determines how the sensor's acoustic emissions are analyzed. Factors to consider include pulse length (time source is "on"); beam pattern (whether sound is emitted as a narrow, focused beam, or, as with most explosives, in all directions); and duty cycle (how often a transmission occurs in a given time period during an event).

There are also non-impulsive sources with characteristics that are not anticipated to result in takes of marine mammals. These sources have low source levels, narrow beam widths, downward directed transmission, short pulse lengths, frequencies beyond known hearing ranges of marine mammals, or some combination of these factors. These sources were not modeled by the Navy, but are qualitatively analyzed in Table 1–5 of the LOA application and Table 2.3.3 of the AFTT Draft EIS/OEIS.

TABLE 1—EXPLOSIVE (IMPULSIVE) TRAINING AND TESTING SOURCE CLASSES ANALYZED

Source class	Representative munitions	Net Explosive weight (lbs)
E1	Medium-caliber projectiles	0.1–0.25
E2	Medium-caliber projectiles	0.26–0.5
E3	Large-caliber projectiles	>0.5–2.5
E4	Improved Extended Echo Ranging Sonobuoy	>2.5–5.0
E5	5 in. projectiles	>5–10
E6	15 lb. shaped charge	>10–20
E7	40 lb. demo block/shaped charge	>20–60
E8	250 lb. bomb	>60–100
E9	500 lb. bomb	>100–250
E10	1,000 lb. bomb	>250–500
E11	650 lb. mine	>500–650
E12	2,000 lb. bomb	>650–1,000
E13	1,200 lb. HBX charge	>1,000–1,740
E14	2,500 lb HBX charge	>1,740–3,625
E15	5,000 lb HBX charge	>3,625–7,250

TABLE 2—ACTIVE ACOUSTIC (NON-IMPULSIVE) SOURCE CLASSES ANALYZED

Source class category	Source class	Description
Low-Frequency (LF): Sources that produce low-frequency (less than 1 kHz) signals.	LF3	Low-frequency sources greater than 200 dB.
	LF4	Low-frequency sources equal to 180 dB and up to 200 dB.
	LF5	Low-frequency sources greater than 160 dB, but less than 180 dB.
Mid-Frequency (MF): Tactical and non-tactical sources that produce mid-frequency (1 to 10 kHz) signals.	MF1	Hull-mounted surface ship sonar (e.g., AN/SQS-53C and AN/SQS–60).
	MF1K	Kingfisher mode associated with MF1 sonar.
	MF2	Hull-mounted surface ship sonar (e.g., AN/SQS–56).
	MF2K	Kingfisher mode associated with MF2 sonar.
	MF3	Hull-mounted submarine sonar (e.g., AN/BQQ–10).
	MF4	Helicopter-deployed dipping sonar (e.g., AN/AQS–22 and AN/AQS–13).
	MF5	Active acoustic sonobuoys (e.g., DICASS).
	MF6	Active sound underwater signal devices (e.g., MK–84).
	MF8	Active sources (greater than 200 dB) not otherwise binned.
	MF9	Active sources (equal to 180 dB and up to 200 dB) not otherwise binned.
	MF10	Active sources (greater than 160 dB, but less than 180 dB) not otherwise binned.
	MF11	Hull-mounted surface ship sonar with an active duty cycle greater than 80%.
	MF12	Towed array surface ship sonar with an active duty cycle greater than 80%
High-Frequency (HF): Tactical and non-tactical sources that produce high-frequency (greater than 10 kHz but less than 180 kHz) signals.	HF1	Hull-mounted submarine sonar (e.g., AN/BQQ–10).
	HF2	High-Frequency Marine Mammal Monitoring System.
	HF3	Other hull-mounted submarine sonar (classified).
	HF4	Mine detection and classification sonar (e.g., Airborne Towed Minehunting Sonar System).
	HF5	Active sources (greater than 200 dB) not otherwise binned.
	HF6	Active sources (equal to 180 dB and up to 200 dB) not otherwise binned.
	HF7	Active sources (greater than 160 dB, but less than 180 dB) not otherwise binned.
	HF8	Hull-mounted surface ship sonar (e.g., AN/SQS-61).
Anti-Submarine Warfare (ASW): Tactical sources such as active sonobuoys and acoustic countermeasures systems used during the conduct of anti-submarine warfare training and testing activities.	ASW1	Mid-frequency Deep Water Active Distributed System (DWADS).
	ASW2	Mid-frequency Multistatic Active Coherent sonobuoy (e.g., AN/SSQ–125)—Sources that are analyzed by item.
	ASW2	Mid-frequency Multistatic Active Coherent sonobuoy (e.g., AN/SSQ–125)—Sources that are analyzed by hours.
	ASW3	Mid-frequency towed active acoustic countermeasure systems (e.g., AN/SLQ–25).
	ASW4	Mid-frequency expendable active acoustic device countermeasures (e.g., MK–3).

TABLE 2—ACTIVE ACOUSTIC (NON-IMPULSIVE) SOURCE CLASSES ANALYZED—Continued

Source class category	Source class	Description
Torpedoes (TORP): Source classes associated with the active acoustic signals produced by torpedoes.	TORP1	Lightweight torpedo (e.g., MK–46, MK–54, or Anti-Torpedo Torpedo).
	TORP2	Heavyweight torpedo (e.g., MK–48).
Doppler Sonars (DS): Sonars that use the Doppler effect to aid in navigation or collect oceanographic information.	DS1	Low-frequency Doppler sonar (e.g., Webb Tomography Source).
Forward Looking Sonar (FLS): Forward or upward looking object avoidance sonars.	FLS2–FLS3	High-frequency sources with short pulse lengths, narrow beam widths, and focused beam patterns used for navigation and safety of ships.
Acoustic Modems (M): Systems used to transmit data acoustically through the water.	M3	Mid-frequency acoustic modems (greater than 190 dB).
Swimmer Detection Sonars (SD): Systems used to detect divers and submerged swimmers.	SD1–SD2	High-frequency sources with short pulse lengths, used for detection of swimmers and other objects for the purposes of port security.
Synthetic Aperture Sonars (SAS): Sonars in which active acoustic signals are post-processed to form high-resolution images of the seafloor.	SAS1	MF SAS systems.
	SAS2	HF SAS systems.
	SAS3	VHF SAS systems.

TABLE 3—EXPLOSIVE SOURCE CLASSES ANALYZED FOR NON-ANNUAL TRAINING AND TESTING ACTIVITIES

Source class	Representative munitions	Net explosive weight [1] (lbs)
E1	Medium-caliber projectiles	0.1–0.25
E2	Medium-caliber projectiles	0.26–0.5
E4	Improved Extended Echo Ranging Sonobuoy	2.6–5
E16	10,000 lb. HBX charge	7,251–14,500
E17	40,000 lb. HBX charge	14,501–58,000

TABLE 4—ACTIVE ACOUSTIC (NON-IMPULSIVE) SOURCES ANALYZED FOR NON-ANNUAL TRAINING AND TESTING

Source class category	Source class	Description
Low-Frequency (LF): Sources that produce low-frequency (less than 1 kHz) signals.	LF5	Low-frequency sources greater than 160 dB, but less than 180 dB.
Mid-Frequency (MF): Tactical and non-tactical sources that produce mid-frequency (1 to 10 kHz) signals.	MF9	Active sources (equal to 180 dB and up to 200 dB) not otherwise binned.
High-Frequency (HF): Tactical and non-tactical sources that produce high-frequency (greater than 10 kHz but less than 180 kHz) signals.	HF4	Mine detection and classification sonar (e.g., AN/AQS–20).
	HF5	Active sources (greater than 200 dB) not otherwise binned.
	HF6	Active sources (equal to 180 dB and up to 200 dB) not otherwise binned.
	HF7	Active sources (greater than 160 dB, but less than 180 dB) not otherwise binned.
Forward Looking Sonar (FLS): Forward or upward looking object avoidance sonars.	FLS2–FLS3	High-frequency sources with short pulse lengths, narrow beam widths, and focused beam patterns used for navigation and safety of ships.
Sonars (SAS): Sonars in which active acoustic signals are post-processed to form high-resolution images of the seafloor.	SAS2	HF SAS systems.

Proposed Action

The Navy proposes to continue conducting training and testing activities within the AFTT Study Area. The Navy has been conducting similar military readiness training and testing activities in the AFTT Study Area since the 1940s. Recently, these activities were analyzed in separate EISs completed between 2009 and 2011. These documents, among others, and their associated MMPA regulations and authorizations, describe the baseline of training and testing activities currently conducted in the AFTT Study Area.

To meet all future training and testing requirements, the Navy has prepared the AFTT DEIS/OEIS to analyze changes to these activities due to fluctuations in the tempo and types of training and testing activities due to changing requirements; the introduction of new technologies; the dynamic nature of

international events; advances in warfighting doctrine and procedures; and changes in basing locations for ships, aircraft, and personnel (force structure changes). Such developments have influenced the frequency, duration, intensity, and location of required training and testing. In addition, the Study Area has expanded beyond the areas included in previous NMFS authorizations. The expansion of the Study Area does not represent an increase in areas where the Navy will train and test, but is merely an expansion of the area to be included in the proposed incidental take authorization.

Training

The Navy proposes to conduct training activities in the AFTT Study Area as described in Table 5 of this proposed rule. Detailed information about each proposed activity (stressor, training event, description, sound source, duration, and geographic location) can be found in Appendix A of the AFTT DEIS/OEIS. The Navy's proposed action is an adjustment to existing baseline training activities to accommodate the following:

- Force structure changes including the relocation of ships, aircraft, and personnel to meet Navy needs. As forces are moved within the existing Navy structure, training needs will necessarily change as the location of forces change.
- Development and introduction of new ships, aircraft, and new weapons systems;
- Current training activities that were not addressed in previous documents.

TABLE 5—TRAINING ACTIVITIES WITHIN THE STUDY AREA

Stressor	Training event	Description	Source class	Number of events per year
Anti-Submarine Warfare (ASW)				
Non-Impulsive	Tracking Exercise/Torpedo Exercise—Submarine (TRACKEX/TORPEX—Sub).	Submarine crews search, track, and detect submarines. Exercise torpedoes may be used during this event.	ASW4; MF3; HF1; TORP2.	102
Non-Impulsive	Tracking Exercise/Torpedo Exercise—Surface (TRACKEX/TORPEX—Surface).	Surface ship crews search, track and detect submarines. Exercise torpedoes may be used during this event.	ASW1,3,4; MF1,2,3,4,5,11,12; HF1; TORP1.	764
Non-Impulsive	Tracking Exercise/Torpedo Exercise—Helicopter (TRACKEX/TORPEX—Helo).	Helicopter crews search, detect and track submarines. Recoverable air launched torpedoes may be employed against submarine targets.	ASW4; MF4,5; TORP1.	432
Non-Impulsive	Tracking Exercise/Torpedo Exercise—Maritime Patrol Aircraft (TRACKEX/TORPEX—MPA).	Maritime patrol aircraft crews search, detect, and track submarines. Recoverable air launched torpedoes may be employed against submarine targets.	MF5; TORP1	752
Non-Impulsive	Tracking Exercise—Maritime Patrol Aircraft Extended Echo Ranging Sonobuoy (TRACKEX—MPA sonobuoy).	Maritime patrol aircraft crews search, detect, and track submarines with extended echo ranging sonobuoys. Recoverable air launched torpedoes may be employed against submarine targets.	ASW2	160
Non-Impulsive	Anti-Submarine Warfare Tactical Development Exercise.	Multiple ships, aircraft and submarines coordinate their efforts to search, detect and track submarines with the use of all sensors. Anti-Submarine Warfare Tactical Development Exercise is a dedicated ASW event.	ASW3,4; HF1; MF1,2,3,4,5.	4
Non-Impulsive	Integrated Anti-Submarine Warfare Course (IAC).	Multiple ships, aircraft, and submarines coordinate the use of their sensors, including sonobuoys, to search, detect and track threat submarines. IAC is an intermediate level training event and can occur in conjunction with other major exercises.	ASW 3,4; HF1; MF1,2,3,4,5.	5
Non-Impulsive	Group Sail	Multiple ships and helicopters integrate the use of sensors, including sonobuoys, to search, detect and track a threat submarine. Group sails are not dedicated ASW events and involve multiple warfare areas.	ASW 2,3; HF1; MF1,2,3,4,5.	20
Non-Impulsive	ASW for Composite Training Unit Exercise (COMPTUEX).	Anti-Submarine Warfare activities conducted during a COMPTUEX.	ASW 2,3,4; HF1; MF1,2,3,4,5,12.	5
Non-Impulsive	ASW for Joint Task Force Exercise (JTFEX)/Sustainment Exercise (SUSTAINEX).	Anti-Submarine Warfare activities conducted during a JTFEX/SUSTAINEX.	ASW2,3,4; HF1; MF1,2,3,4,5,12.	4
Mine Warfare (MIW)				
Non-Impulsive	Mine Countermeasures Exercise (MCM)—Ship Sonar.	Littoral combat ship crews detect and avoid mines while navigating restricted areas or channels using active sonar.	HF4	116
Non-Impulsive	Mine Countermeasures—Mine Detection.	Ship crews and helicopter aircrews detect mines using towed and laser mine detection systems (e.g., AN/AQS–20, ALMDS).	HF4	2,538

TABLE 5—TRAINING ACTIVITIES WITHIN THE STUDY AREA—Continued

Stressor	Training event	Description	Source class	Number of events per year
Non-Impulsive	Coordinated Unit Level Helicopter Airborne Mine Countermeasure Exercises.	Helicopters aircrew members train as a squadron in the use of airborne mine countermeasures, such as towed mine detection and neutralization systems.	HF4	8
Non-Impulsive	Civilian Port Defense	Maritime security operations for military and civilian ports and harbors. Marine mammal systems may be used during the exercise.	HF4	1 event every other year.
Other Training Activities				
Non-Impulsive	Submarine Navigational (SUBNAV).	Submarine crews locate underwater objects and ships while transiting in and out of port.	HF1; MF3	282
Non-Impulsive	Submarine Navigation Under Ice Certification.	Submarine crews train to operate under ice. During training and certification other submarines and ships simulate ice.	HF1	24
Non-Impulsive	Surface Ship Object Detection	Surface ship crews locate underwater objects that may impede transit in and out of port.	MF1K; MF2K	144
Non-Impulsive	Surface Ship Sonar Maintenance.	Pierside and at-sea maintenance of sonar systems.	MF1,2	824
Non-Impulsive	Submarine Sonar Maintenance	Pierside and at-sea maintenance of sonar systems.	MF3	220
Amphibious Warfare (AMW)				
Impulsive	Naval Surface Fire Support Exercise—At Sea (FIREX [At Sea]).	Surface ship crews use large-caliber guns to support forces ashore; however, the land target is simulated at sea. Rounds impact the water and are scored by passive acoustic hydrophones located at or near the target area.	E5	50
Anti-Surface Warfare (ASUW)				
Impulsive	Maritime Security Operations (MSO)—Anti-swimmer Grenades.	Helicopter and surface ship crews conduct a suite of Maritime Security Operations (e.g., Visit, Board, Search, and Seizure; Maritime Interdiction Operations; Force Protection; and Anti-Piracy Operation).	E2	12
Impulsive	Gunnery Exercise (Surface-to-Surface) (Ship)—Medium-Caliber (GUNEX [S–S]—Ship).	Ship crews engage surface targets with ship's medium-caliber guns.	E1; E2	827
Impulsive	Gunnery Exercise (Surface-to-Surface) (Ship)—Large-Caliber (GUNEX [S–S]—Ship).	Ship crews engage surface targets with ship's large-caliber guns.	E3; E5	294
Impulsive	Gunnery Exercise (Surface-to-Surface) (Boat) (GUNEX [S–S]—Boat).	Small boat crews engage surface targets with small and medium-caliber guns.	E1; E2	434
Impulsive	Missile Exercise (Surface-to-Surface) (MISSILEX [S–S]).	Surface ship crews defend against threat missiles and other surface ships with missiles.	E10	20
Impulsive	Gunnery Exercise (Air-to-Surface) (GUNEX [A–S]).	Fixed-wing and helicopter aircrews, including embarked personnel, use small and medium-caliber guns to engage surface targets.	E1; E2	715
Impulsive	Missile Exercise (Air-to-Surface)—Rocket (MISSILEX [A–S]).	Fixed-wing and helicopter aircrews fire both precision-guided missiles and unguided rockets against surface targets.	E5	210
Impulsive	Missile Exercise (Air-to-Surface) (MISSILEX [A–S]).	Fixed-wing and helicopter aircrews fire both precision-guided missiles and unguided rockets against surface targets.	E6; E8	248
Impulsive	Bombing Exercise (Air-to-Surface) (BOMBEX [A–S]).	Fixed-wing aircrews deliver bombs against surface targets.	E8; E9; E10; E12	930
Impulsive	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.	E3; E5; E8; E9; E10;E11;E12.	1

TABLE 5—TRAINING ACTIVITIES WITHIN THE STUDY AREA—Continued

Stressor	Training event	Description	Source class	Number of events per year
Anti-Submarine Warfare (ASW)				
Impulsive	Tracking Exercise—Maritime Patrol Aircraft Extended Echo Ranging Sonobuoy (TRACKEX—MPA sonobuoy).	Maritime patrol aircraft crews search, detect, and track submarines with extended echo ranging sonobuoys. Recoverable air launched torpedoes may be employed against submarine targets..	E4	160
Impulsive	Group Sail	Multiple ships and helicopters integrate the use of sensors, including sonobuoys, to search, detect and track a threat submarine. Group sails are not dedicated ASW events and involve multiple warfare areas.	E4	20
Impulsive	ASW for Composite Training Unit Exercise (COMPTUEX).	Anti-Submarine Warfare activities conducted during a COMPTUEX.	E4	4
Impulsive	ASW for Joint Task Force Exercise (JTFEX)/Sustainment Exercise (SUSTAINEX).	Anti-Submarine Warfare activities conducted during a JTFEX/SUSTAINEX.	E4	4
Mine Warfare (MIW)				
Impulsive	Explosive Ordnance Disposal (EOD)/Mine Neutralization.	Personnel disable threat mines. Explosive charges may be used.	E1; E4; E5; E6; E7; E8.	618
Impulsive	Mine Countermeasures—Mine Neutralization—Remotely Operated Vehicles.	Ship crews and helicopter aircrews disable mines using remotely operated underwater vehicles.	E4	508
Impulsive	Civilian Port Defense	Maritime security operations for military and civilian ports and harbors. Marine mammal systems may be used during the exercise.	E2; E4	1 event every other year.
Pile Driving and Pile Removal				
Impulsive	Elevated Causeway System (ELCAS).	A temporary pier is constructed off the beach. Supporting pilings are driven into the sand and then later removed. The Elevated Causeway System is a portion of a larger activity Joint Logistics Over the Shore (JLOTS) which is covered under separate documentation. Construction would involve intermittent impact pile driving of 24-inch, uncapped, steel pipe piles over approximately 2 weeks. Crews work 24 hours a day and can drive approximately 8 piles in that period. Each pile takes about 10 minutes to drive. When training events that use the elevated causeway system are complete, the piles would be removed using vibratory methods over approximately 6 days. Crews can remove about 14 piles per 24-hour period, each taking about 6 minutes to remove.		1

Testing

The Navy's proposed testing activities are described in Tables 6 and 7. Detailed information about each proposed activity (stressor, testing event, description, sound source, duration, and geographic location) can be found in Appendix A of the AFTT DEIS/OEIS. NMFS used the detailed information in Appendix A of the AFTT DEIS/OEIS to analyze the potential impacts on marine mammals; however, the Navy's proposed action is summarized in the Tables based on the type of sound source.

TABLE 6—NAVAL AIR SYSTEMS COMMAND TESTING ACTIVITIES WITHIN THE STUDY AREA

Stressor	Testing event	Description	Source class	Number of events per year
Anti-Submarine Warfare (ASW)				
Non-Impulsive	Anti-Submarine Warfare Torpedo Test.	This event is similar to the training event Torpedo Exercise. The 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.	TORP1	242
Non-Impulsive	Kilo Dip	A kilo dip is the operational term used to describe a functional check of a helicopter deployed dipping sonar system. The sonar system is briefly activated to ensure all systems are functional. A kilo dip is simply a precursor to more comprehensive testing.	MF4	43
Non-Impulsive	Sonobuoy Lot Acceptance Test	Sonobuoys are deployed from surface vessels and aircraft to verity the integrity and performance of a lot, or group, of sonobuoys in advance of delivery to the Fleet for operational use.	ASW2; MF5,6	39
Non-Impulsive	ASW Tracking Test—Helicopter	This event is similar to the training event anti-submarine warfare Tracking Exercise—Helicopter. The test evaluates the sensors and systems used to detect and track submarines and to ensure that helicopter systems used to deploy the tracking systems perform to specifications.	MF4,5	428
Non-Impulsive	ASW Tracking Test—Maritime Patrol Aircraft.	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.	ASW2; MF5,6	75
Mine Warfare (MIW)				
Non-Impulsive	Airborne Towed Minehunting Sonar System Test.	Tests of the Airborne Towed Minehunting Sonar System to evaluate the search capabilities of this towed, mine hunting, detection, and classification system. The sonar on the Airborne Towed Minehunting Sonar System identifies mine-like objects in the deeper parts of the water column.	HF4	155
Anti-Surface Warfare (ASUW)				
Impulsive	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 weapons system or as part of another systems integration test.	E6; E10	239
Impulsive	Air to Surface Gunnery Test	This event is similar to the training event Gunnery Exercise Air to Surface. Strike fighter and helicopter aircrews evaluate new or enhanced aircraft guns against surface maritime targets to test that the gun, gun ammunition, or associated systems meet required specifications or to train aircrew in the operation of a new or enhanced weapons system.	E1	165
Impulsive	Rocket Test	Rocket testing evaluates the integration, accuracy, performance, and safe separation of laser-guided and unguided 2.75-in rockets fired from a hovering or forward flying helicopter or from a fixed wing strike aircraft.	E5	332

TABLE 6—NAVAL AIR SYSTEMS COMMAND TESTING ACTIVITIES WITHIN THE STUDY AREA—Continued

Stressor	Testing event	Description	Source class	Number of events per year
Anti-Submarine Warfare (ASW)				
Impulsive	Sonobuoy Lot Acceptance Test	Sonobuoys are deployed from surface vessels and aircraft to verify the integrity and performance of a lot, or group, of sonobuoys in advance of delivery to the Fleet for operational use.	E3; E4	39
Impulsive	ASW Tracking Test—Helicopter	This event is similar to the training event anti-submarine warfare Tracking Exercise—Helicopter. The test evaluates the sensors and systems used to detect and track submarines and to ensure that helicopter systems used to deploy the tracking systems perform to specifications.	E3	428
Impulsive	ASW Tracking Test—Maritime Patrol Aircraft.	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.	E3; E4	75
Mine Warfare (MIW)				
Impulsive	Airborne Mine Neutralization System Test.	Airborne mine neutralization tests evaluate the system's ability to detect and destroy mines. The Airborne Mine Neutralization System Test uses up to four unmanned underwater vehicles equipped with HF sonar, video cameras, and explosive neutralizers.	E4; E11	165
Impulsive	Airborne Projectile-based Mine Clearance System.	An MH–60S helicopter uses a laser-based detection system to search for mines and to fix mine locations for neutralization with an airborne projectile-based mine clearance system. The system neutralizes mines by firing a small or medium-caliber inert, supercavitating projectile from a hovering helicopter.	E11	237
Impulsive	Airborne Towed Minesweeping Test.	Tests of the Airborne Towed Minesweeping System would be conducted by a MH–60S helicopter to evaluate the functionality of the system and the MH–60S at sea. The system is towed from a forward flying helicopter and works by emitting an electromagnetic field and mechanically generated underwater sound to simulate the presence of a ship. The sound and electromagnetic signature cause nearby mines to explode.	E11	72

TABLE 7—NAVAL SEA SYSTEMS COMMAND TESTING ACTIVITIES WITHIN THE STUDY AREA

Stressor	Testing event	Description	Source class	Number of events per year
New Ship Construction				
Non-Impulsive	Surface Combatant Sea Trials—Pierside Sonar Testing.	Tests ship's sonar systems pierside to ensure proper operation.	MF1,9,10; MF1K	12.
Non-Impulsive	Surface Combatant Sea Trials—Anti-Submarine Warfare Testing.	Ships demonstrate capability of countermeasure systems and underwater surveillance and communications systems.	ASW3; MF 1,9,10; MF1K	10.
Non-Impulsive	Submarine Sea Trials—Pierside Sonar Testing.	Tests ship's sonar systems pierside to ensure proper operation.	M3; HF1; MF3,10	6
Non-Impulsive	Submarine Sea Trials—Anti-Submarine Warfare Testing.	Submarines demonstrate capability of underwater surveillance and communications systems.	M3; HF1; MF3,10	12.

TABLE 7—NAVAL SEA SYSTEMS COMMAND TESTING ACTIVITIES WITHIN THE STUDY AREA—Continued

Stressor	Testing event	Description	Source class	Number of events per year
Non-Impulsive	Anti-submarine Warfare Mission Package Testing.	Ships and their supporting platforms (e.g., helicopters, unmanned aerial vehicles) detect, localize, and prosecute submarines.	ASW1,3; MF4,5,12; TORP1.	24.
Non-Impulsive	Mine Countermeasure Mission Package Testing.	Ships conduct mine countermeasure operations.	HF4	8.
		Life Cycle Activities		
Non-Impulsive	Surface Ship Sonar Testing/Maintenance.	Pierside and at-sea testing of ship systems occurs periodically following major maintenance periods and for routine maintenance.	ASW3; MF1, 9,10; MF1K	16.
Non-Impulsive	Submarine Sonar Testing/Maintenance.	Pierside and at-sea testing of submarine systems occurs periodically following major maintenance periods and for routine maintenance.	HF1,3; M3; MF3	28.
Non-Impulsive	Combat System Ship Qualification Trial (CSSQT)—In-port Maintenance Period.	All combat systems are tested to ensure they are functioning in a technically acceptable manner and are operationally ready to support at-sea CSSQT events.	MF1	12.
Non-Impulsive	Combat System Ship Qualification Trial (CSSQT)—Undersea Warfare (USW).	Tests ships ability to track and defend against undersea targets.	HF4; MF1,2,4,5; TORP1 ..	9.
		NAVSEA Range Activities		
		Naval Surface Warfare Center, Panama City Division (NSWC PCD)		
Non-Impulsive	Unmanned Underwater Vehicles Demonstration.	Testing and demonstrations of multiple Unmanned Underwater Vehicles and associated acoustic, optical, and magnetic systems.	HF5,6,7; LF5; FLS2; MF9; SAS2.	1 per 5 year period.
Non-Impulsive	Mine Detection and Classification Testing.	Air, surface, and subsurface vessels detect and classify mines and mine-like objects.	HF1,4; MF1K; SAS2	81.
Non-Impulsive	Stationary Source Testing	Stationary equipment (including swimmer defense systems) is deployed to determine functionality.	LF4; MF8; SD1,2	11.
Non-Impulsive	Special Warfare Testing ...	Testing of submersibles capable of inserting and extracting personnel and/or payloads into denied areas from strategic distances.	MF9	110.
Non-Impulsive	Unmanned Underwater Vehicle Testing.	Unmanned Underwater Vehicles are deployed to evaluate hydrodynamic parameters, to full mission, multiple vehicle functionality assessments.	FLS2; HF 5,6,7; LF5; MF9; SAS2.	88.
		Naval Undersea Warfare Center Division, Newport (NUWCDIVNPT)		
Non-Impulsive	Torpedo Testing	Non-explosive torpedoes are launched to record operational data. All torpedoes are recovered.	TORP1; TORP2	30.
Non-Impulsive	Towed Equipment Testing	Surface vessel or Unmanned Underwater Vehicle deploys equipment to determine functionality of towed systems.	LF4; MF9; SAS1	33.
Non-Impulsive	Unmanned Underwater Vehicle Testing.	Unmanned Underwater Vehicles are deployed to evaluate hydrodynamic parameters, to full mission, multiple vehicle functionality assessments.	HF6,7; LF5; MF10; SAS2	123.
Non-Impulsive	Semi-Stationary Equipment Testing.	Semi-stationary equipment (e.g., hydrophones) is deployed to determine functionality.	ASW3,4; HF 5,6; LF 4,5; MF9,10.	154.
Non-Impulsive	Unmanned Underwater Vehicle Demonstrations.	Testing and demonstrations of multiple Unmanned Underwater Vehicles and associated acoustic, optical, and magnetic systems.	FLS2; HF5,6,7; LF5; MF9; SAS2.	1 per 5 year period.

TABLE 7—NAVAL SEA SYSTEMS COMMAND TESTING ACTIVITIES WITHIN THE STUDY AREA—Continued

Stressor	Testing event	Description	Source class	Number of events per year
Non-Impulsive	Pierside Integrated Swimmer Defense Testing.	Swimmer defense testing ensures that systems can effectively detect, characterize, verify, and defend against swimmer/diver threats in harbor environments.	LF4; MF8; SD1	6.
South Florida Ocean Measurement Facility (SFOMF)				
Non-Impulsive	Signature Analysis Activities.	Testing of electromagnetic, acoustic, optical, and radar signature measurements of surface ship and submarine.	ASW2; HF1,6; LF4; M3; MF9.	18.
Non-Impulsive	Mine Testing	Air, surface, and sub-surface systems detect, counter, and neutralize ocean-deployed mines.	HF4	33.
Non-Impulsive	Surface Testing	Various surface vessels, moored equipment and materials are testing to evaluate performance in the marine environment.	FLS2; HF5,6,7; LF5; MF9; SAS2.	33.
Non-Impulsive	Unmanned Underwater Vehicles Demonstrations.	Testing and demonstrations of multiple Unmanned Underwater Vehicles and associated acoustic, optical, and magnetic systems.	FLS2; HF5,6,7; LF5; MF9; SAS2.	1 per 5 year period.
Additional Activities at Locations Outside of NAVSEA Ranges				
Anti-Surface Warfare (ASUW)/Anti-Submarine Warfare (ASW) Testing				
Non-Impulsive	Torpedo (Non-explosive) Testing.	Air, surface, or submarine crews employ inert torpedoes against submarines or surface vessels. All torpedoes are recovered.	ASW3,4; HF1; M3; MF1,3,4,5; TORP1,2.	26.
Non-Impulsive	Torpedo (Explosive) Testing.	Air, surface, or submarine crews employ explosive torpedoes against artificial targets or deactivated ships.	TORP1; TORP2	2.
Non-Impulsive	Countermeasure Testing ..	Towed sonar arrays and anti-torpedo torpedo systems are employed to detect and neutralize incoming weapons.	ASW3; HF5; TORP 1,2	3.
Non-Impulsive	Pierside Sonar Testing	Pierside testing to ensure systems are fully functional in a controlled pierside environment prior to at-sea test activities.	ASW3; HF1,3; M3; MF1,3	23.
Non-Impulsive	At-sea Sonar Testing	At-sea testing to ensure systems are fully functional in an open ocean environment.	ASW4; HF1; M3; MF3	15.
Mine Warfare (MIW) Testing				
Non-Impulsive	Mine Detection and Classification Testing.	Air, surface, and subsurface vessels detect and classify mines and mine-like objects.	HF4	66.
Non-Impulsive	Mine Countermeasure/ Neutralization Testing.	Air, surface, and subsurface vessels neutralize threat mines that would otherwise restrict passage through an area.	HF4; M3	14.
Shipboard Protection Systems and Swimmer Defense Testing				
Non-Impulsive	Pierside Integrated Swimmer Defense Testing.	Swimmer defense testing ensures that systems can effectively detect, characterize, verify, and defend against swimmer/diver threats in harbor environments.	LF4; MF8; SD1	3.
Unmanned Vehicle Testing				
Non-Impulsive	Unmanned Vehicle Development and Payload Testing.	Vehicle development involves the production and upgrade of new unmanned platforms on which to attach various payloads used for different purposes.	MF9; SAS2	111.

TABLE 7—NAVAL SEA SYSTEMS COMMAND TESTING ACTIVITIES WITHIN THE STUDY AREA—Continued

Stressor	Testing event	Description	Source class	Number of events per year
Other Testing Activities				
Non-Impulsive	Special Warfare Testing	Special warfare includes testing of submersibles capable of inserting and extracting personnel and/or payloads into denied areas from strategic distances.	HF1; M3; MF9	4.
Ship Construction and Maintenance				
New Ship Construction				
Impulsive	Aircraft Carrier Sea Trials—Gun Testing—Medium-Caliber.	Medium-caliber gun systems are tested using non-explosive and explosive rounds.	E1	410.
Impulsive	Surface Warfare Mission Package—Gun Testing-Medium Caliber.	Ships defense against surface targets with medium-caliber guns.	E1	5.
Impulsive	Surface Warfare Mission Package—Gun Testing-Large Caliber.	Ships defense against surface targets with large-caliber guns.	E3	5.
Impulsive	Surface Warfare Mission Package—Missile/Rocket Testing.	Ships defense against surface targets with medium range missiles or rockets.	E6	15.
Impulsive	Mine Countermeasure Mission Package Testing.	Ships conduct mine countermeasure operations..	E4	8.
Ship Shock Trials				
Impulsive	Aircraft Carrier Full Ship Shock Trial.	Explosives are detonated underwater against surface ships.	E17	1 per 5 year period.
Impulsive	DDG 1000 Zumwalt Class Destroyer Full Ship Shock Trial.	Explosives are detonated underwater against surface ships.	E16	1 per 5 year period.
Impulsive	Littoral Combat Ship Full Ship Shock Trial.	Explosives are detonated underwater against surface ships.	E16	2 per 5 year period.
NAVSEA Range Activities				
Naval Surface Warfare Center, Panama City Division (NSWC PCD)				
Impulsive	Mine Countermeasure/Neutralization Testing.	Air, surface, and subsurface vessels neutralize threat mines and mine-like objects.	E4	15.
Impulsive	Ordnance Testing	Airborne and surface crews defend against surface targets with small-, medium-, and large-caliber guns, as well as line charge testing.	E5; E14	37.
Additional Activities at Locations Outside of NAVSEA Ranges				
Anti-Surface Warfare (ASUW)/Anti-Submarine Warfare (ASW) Testing				
Impulsive	Torpedo (Explosive) Testing.	Air, surface, or submarine crews employ explosive torpedoes against artificial targets or deactivated ships.	E8; E11	2.
Mine Warfare (MIW) Testing				
Impulsive	Mine Countermeasure/Neutralization Testing.	Air, surface, and subsurface vessels neutralize threat mines that would otherwise restrict passage through an area.	E4; E8	14.
Other Testing Activities				
Impulsive	At-Sea Explosives Testing	Explosives are detonated at sea	E5	4.

Vessels

Vessels used as part of the proposed action include ships, submarines, Unmanned Undersea Vehicles (UUVs), and boats ranging in size from small, 16 ft (5 m) Rigid Hull Inflatable Boats to 1,092-ft (333 m) long aircraft carriers. Representative Navy vessel types, lengths, and speeds used in both training and testing activities are shown in Table 5 of this proposed rule. While these speeds are representative, some vessels operate outside of these speeds due to unique training, testing, or safety requirements for a given event. Examples include increased speeds needed for flight operations, full speed runs to test engineering equipment, time critical positioning needs, etc. Examples of decreased speeds include speeds less than 5 knots or completely stopped for launching small boats, certain tactical maneuvers, target launch or retrievals, UUVs, etc.

The number of Navy vessels in the Study Area varies based on training and testing schedules. These activities could be widely dispersed throughout the Study Area, but would be more concentrated near naval ports, piers, and range areas. Activities involving vessel movements occur intermittently and are variable in duration, ranging from a few hours up to 2 weeks. Navy vessel traffic would especially be concentrated near Naval Station Norfolk in Norfolk, VA and Naval Station Mayport in Jacksonville, FL. Surface and sub-surface vessel operations in the Study Area may result in marine mammal strikes.

TABLE 8—TYPICAL NAVY BOAT AND VESSEL TYPES WITH LENGTH GREATER THAN 18 METERS USED WITHIN THE AFTT STUDY AREA

Vessel Type (>18 m)	Example(s) (specifications in meters (m) for length, metric tons (mt) for mass, and knots for speed)	Typical operating speed (knots)
Aircraft Carrier	Aircraft Carrier (CVN) length: 333 m beam: 41 m draft: 12 m displacement: 81,284 mt max. speed: 30+ knots.	10 to 15.
Surface Combatants	Cruiser (CG) length: 173 m beam: 17 m draft: 10 m displacement: 9,754 mt max. speed: 30+ knots. Destroyer (DDG). length: 155 m beam: 18 m draft: 9 m displacement: 9,648 mt max. speed: 30+ knots. Frigate (FFG). length: 136 m beam: 14 m draft: 7 m displacement: 4,166 mt max. speed: 30+ knots. Littoral Combat Ship (LCS). length: 115 m beam: 18 m draft: 4 m displacement: 3,000 mt max. speed: 40+ knots.	10 to 15.
Amphibious Warfare Ships	Amphibious Assault Ship (LHA, LHD) length: 253 m beam: 32 m draft: 8 m displacement: 42,442 mt max. speed: 20+knots. Amphibious Transport Dock (LPD). length: 208 m beam: 32 m draft: 7 m displacement: 25,997 mt max. speed: 20+knots. Dock Landing Ship (LSD). length: 186 m beam: 26 m draft: 6 m displacement: 16,976 mt max. speed: 20+knots.	10 to 15.
Mine Warship Ship	Mine Countermeasures Ship (MCM) length: 68 m beam: 12 m draft: 4 m displacement: 1,333 max. speed: 14 knots.	5 to 8.
Submarines	Attack Submarine (SSN) length: 115 m beam: 12 m draft: 9 m displacement: 12,353 mt max. speed: 20+knots. Guided Missile Submarine (SSGN). length: 171 m beam: 13 m draft: 12 m displacement: 19,000 mt max. speed: 20+knots.	8 to 13.
Combat Logistics Force Ships	Fast Combat Support Ship (T–AOE) length: 230 m beam: 33 m draft: 12 m displacement: 49,583 max. speed: 25 knots. Dry Cargo/Ammunition Ship (T–AKE). length: 210 m beam: 32 m draft: 9 m displacement: 41,658 mt max speed: 20 knots. Fleet Replenishment Oilers (T–AO). length: 206 m beam: 30 m draft: 11 m displacement: 42,674 mt max. speed: 20 knots. Fleet Ocean Tugs (T–ATF). length: 69 m beam: 13 m draft: 5 m displacement: 2,297 max. speed: 14 knots.	8 to 12.
Support Craft/Other	Landing Craft, Utility (LCU) length: 41m beam: 9 m draft: 2 m displacement: 381 mt max. speed: 11 knots. Landing Craft, Mechanized (LCM). length: 23 m beam: 6 m draft: 1 m displacement: 107 mt max. speed: 11 knots.	3 to 5.

TABLE 8—TYPICAL NAVY BOAT AND VESSEL TYPES WITH LENGTH GREATER THAN 18 METERS USED WITHIN THE AFTT STUDY AREA—Continued

Vessel Type (>18 m)	Example(s) (specifications in meters (m) for length, metric tons (mt) for mass, and knots for speed)	Typical operating speed (knots)
Support Craft/Other Specialized High Speed.	MK V Special Operations Craft ..... length: 25 m beam: 5 m displacement: 52 mt max. speed: 50 knots	Variable.

Duration and Location

Training and testing activities would be conducted in the AFTT Study Area throughout the year from January 2014 to January 2019. The AFTT Study Area is in the western Atlantic Ocean and encompasses the east coast of North America and the Gulf of Mexico. The Study Area has expanded slightly beyond the areas included in previous Navy authorizations. However, this expansion is not an increase in the Navy's training and testing area, but merely an increase in the area to be analyzed under an incidental take authorization in support of the AFTT EIS/OEIS. The Study Area includes several existing study areas, range complexes, and testing ranges: The Atlantic Fleet Active Sonar Training (AFAST) Study Area; Northeast Range Complexes; Naval Undersea Warfare Center Division, Newport (NUWCDIVNPT) Testing Range; Virginia Capes (VACAPES) Range Complex; Cherry Point (CHPT) Range Complex; Jacksonville (JAX) Range Complex; Naval Surface Warfare Center (NSWC) Carderock Division, South Florida Ocean Measurement Facility (SFOMF) Testing Range; Key West Range Complex; Gulf of Mexico (GOMEX); and Naval Surface Warfare Center, Panama City Division (NSWC PCD) Testing Range. In addition, the Study Area includes Narragansett Bay, the lower Chesapeake Bay and St. Andrew Bay for training and testing activities. Ports included for Civilian Port Defense training events include Earle, New Jersey; Groton, Connecticut; Norfolk, Virginia; Morehead City, North Carolina; Wilmington, North Carolina; Kings Bay, Georgia; Mayport, Florida; Beaumont, Texas; and Corpus Christi, Texas.

The Study Area includes pierside locations where Navy surface ship and submarine sonar maintenance and testing occur. Pierside locations include channels and transit routes in ports and facilities associated with ports and shipyards. These locations in the AFTT Study Area are located at the following Navy ports and naval shipyards:

- Portsmouth Naval Shipyard, Kittery, Maine;
- Naval Submarine Base New London, Groton, Connecticut;
- Naval Station Norfolk, Norfolk, Virginia;
- Joint Expeditionary Base Little Creek—Fort Story, Virginia Beach, Virginia;
- Norfolk Naval Shipyard, Portsmouth, Virginia;
- Naval Submarine Base Kings Bay, Kings Bay, Georgia;
- Naval Station Mayport, Jacksonville, Florida; and
- Port Canaveral, Cape Canaveral, Florida.

Navy-contractor shipyards in the following cities are also in the Study Area:

- Bath, Maine;
- Groton, Connecticut;
- Newport News, Virginia; and
- Pascagoula, Mississippi.

More detailed information is provided in the Navy's LOA application (*http://www.nmfs.noaa.gov/pr/permits/incidental.htm*).

Description of Marine Mammals in the Area of the Specified Activities

There are 48 marine mammal species with possible or known occurrence in the AFTT Study Area, 45 of which are managed by NMFS. As indicated in Table 9, there are 39 cetacean species (8 mysticetes and 31 odontocetes) and six pinnipeds. Seven marine mammal species are listed under the Endangered Species Act: Bowhead whale, North Atlantic right whale, humpback whale, sei whale, fin whale, blue whale, and sperm whale.

TABLE 9—MARINE MAMMAL OCCURRENCE WITHIN THE AFTT STUDY AREA

Common name	Scientific name [1]	ESA/MMPA status [2]	Stock [3]	Stock abundance [3] best (CV)/min	Occurrence in study area [4]		
					Open ocean	Large marine ecosystems	Bays, rivers, and estuaries
Order Cetacea							
Suborder Mysticeti (baleen whales)							
Family Balaenidae (right whales)							
North Atlantic right whale.	Eubalaena glacialis.	Endangered, Strategic, Depleted.	Western North Atlantic.	361 (0)/361	Gulf Stream, Labrador Current.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Bowhead whale	Balaena mysticetus.	Endangered, Strategic, Depleted.	West Greenland ..	1,230 [5]/490–2,940	Labrador Current	Newfoundland-Labrador Shelf, West Greenland Shelf.	

TABLE 9—MARINE MAMMAL OCCURRENCE WITHIN THE AFTT STUDY AREA—Continued

Common name	Scientific name [1]	ESA/MMPA status [2]	Stock [3]	Stock abundance [3] best (CV)/min	Occurrence in study area [4]		
					Open ocean	Large marine ecosystems	Bays, rivers, and estuaries
Family Balaenopteridae (rorquals)							
Humpback whale	Megaptera novaeangliae.	Endangered, Strategic, Depleted.	Gulf of Maine	847 (0.55)/549	Gulf Stream, North Atlantic Gyre, Labrador Current.	Gulf of Mexico, Caribbean Sea, Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Minke whale	Balaenoptera acutorostrata.		Canadian east coast.	8,987 (0.32)/6,909	Gulf Stream, North Atlantic Gyre, Labrador Current.	Caribbean Sea, Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Bryde's whale	Balaenoptera brydei/edeni.		Gulf of Mexico Oceanic.	15 (1.98)/5	Gulf Stream, North Atlantic Gyre.	Gulf of Mexico, Caribbean Sea, Southeast U.S. Continental Shelf.	
Sei whale	Balaenoptera borealis.	Endangered, Strategic, Depleted.	Nova Scotia	386 (0.85)/208	Gulf Stream, North Atlantic Gyre, Labrador Current.	Gulf of Mexico, Caribbean Sea, Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Fin whale	Balaenoptera physalus.	Endangered, Strategic, Depleted.	Western North Atlantic.	3,985 (0.24)/3,269	Gulf Stream, North Atlantic Gyre, Labrador Current.	Caribbean Sea, Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Blue whale	Balaenoptera musculus.	Endangered, Strategic, Depleted.	Western North Atlantic.	NA/440 [6]	Gulf Stream, North Atlantic Gyre, Labrador Current.	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Suborder Odontoceti (toothed whales)							
Family Physeteridae (sperm whale)							
Sperm whale	Physeter macrocephalus.	Endangered, Strategic, Depleted.	North Atlantic	4,804 (0.38)/3,539	Gulf Stream, North Atlantic Gyre, Labrador Current.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
		Endangered, Strategic, Depleted.	Gulf of Mexico Oceanic.	1,665 (0.2)/1,409		Gulf of Mexico.	
		Endangered, Strategic, Depleted.	Puerto Rico and U.S. Virgin Islands.	unknown	North Atlantic Gyre.	Caribbean Sea.	

TABLE 9—MARINE MAMMAL OCCURRENCE WITHIN THE AFTT STUDY AREA—Continued

Common name	Scientific name [1]	ESA/MMPA status [2]	Stock [3]	Stock abundance [3] best (CV)/min	Occurrence in study area [4]		
					Open ocean	Large marine ecosystems	Bays, rivers, and estuaries
Family Kogiidae (sperm whales)							
Pygmy sperm whale.	Kogia breviceps ...	Strategic	Western North Atlantic.	395 (0.4)/285 [7]	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
			Gulf of Mexico Oceanic.	453(0.35)/340 [7]	.....	Gulf of Mexico, Caribbean Sea.	
Dwarf sperm whale	Kogia sima	.....	Western North Atlantic.	395 (0.4)/285 [7]	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf.	
			Gulf of Mexico Oceanic.	453(0.35)/340 [7]	.....	Gulf of Mexico, Caribbean Sea.	
Family Monodontidae (beluga whale and narwhal)							
Beluga whale	Delphinapterus leucas.	.....	NA8	NA [8]	.....	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Narwhal	Monodon monoceros.	.....	NA9	NA [9]	.....	Newfoundland-Labrador Shelf, West Greenland Shelf.	
Family Ziphiidae (beaked whales)							
Cuvier's beaked whale.	Ziphius cavirostris	.....	Western North Atlantic.	3,513 (0.63)/ 2,154 [10].	Gulf Stream, North Atlantic Gyre, Labrador Current.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
			Gulf of Mexico Oceanic.	65 (0.67)/39	.....	Gulf of Mexico, Caribbean Sea.	
True's beaked whale.	Mesoplodon mirus	.....	Western North Atlantic.	3,513 (0.63)/ 2,154 [10].	Gulf Stream, North Atlantic Gyre, Labrador Current.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Gervais' beaked whale.	Mesoplodon europaeus.	.....	Western North Atlantic.	3,513 (0.63)/ 2,154 [10].	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast United States Continental Shelf.	
			Gulf of Mexico Oceanic.	57 (1.4)/24 [11]	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	
Sowerby's beaked whale.	Mesoplodon bidens.	.....	Western North Atlantic.	3,513 (0.63)/ 2,154 [10].	Gulf Stream, North Atlantic Gyre.	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	

TABLE 9—MARINE MAMMAL OCCURRENCE WITHIN THE AFTT STUDY AREA—Continued

Common name	Scientific name [1]	ESA/MMPA status [2]	Stock [3]	Stock abundance [3] best (CV)/min	Occurrence in study area [4]		
					Open ocean	Large marine ecosystems	Bays, rivers, and estuaries
Blainville's beaked whale.	Mesoplodon densirostris.		Western North Atlantic.	3,513 (0.63)/2,154 [10].	Gulf Stream, North Atlantic Gyre, Labrador Current.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
			Gulf of Mexico Oceanic.	57 (1.4)/24 [11]		Gulf of Mexico, Caribbean Sea.	
Northern bottlenose whale.	Hyperoodon ampullatus.		Western North Atlantic.	Unknown	Gulf Stream, North Atlantic Gyre, Labrador Current.	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Family Delphinidae (dolphins)							
Rough-toothed dolphin.	Steno bredanensis.		Western North Atlantic.	Unknown	Gulf Stream, North Atlantic Gyre.	Caribbean Sea, Southeast U.S. Continental Shelf.	
			Gulf of Mexico (Outer continental shelf and Oceanic).	Unknown		Gulf of Mexico, Caribbean Sea.	
Bottlenose dolphin	Tursiops truncatus	Strategic, Depleted.	Western North Atlantic, offshore [12].	81,588 (0.17)/70,775.	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	
		Strategic, Depleted.	Western North Atlantic, coastal, northern migratory.	9,604 (0.36)/7,147		Southeast U.S. Continental Shelf.	Island Sound, Sandy Hook Bay, Lower Chesapeake Bay, James River, Elizabeth River.
		Strategic, Depleted.	Western North Atlantic, coastal, southern migratory.	12,482 (0.32)/9,591.		Southeast U.S. Continental Shelf.	Lower Chesapeake Bay, James River, Elizabeth River, Beaufort Inlet, Cape Fear River, Kings Bay, St. Johns River.
		Strategic, Depleted.	Western North Atlantic, coastal, South Carolina/Georgia.	7,738 (0.23)/6,399		Southeast U.S. Continental Shelf.	Kings Bay, St. Johns River.
		Strategic, Depleted.	Western North Atlantic, coastal, Northern Florida.	3,064 (0.24)/2,511		Southeast U.S. Continental Shelf.	Kings Bay, St. Johns River.
		Strategic	Western North Atlantic, coastal, Central Florida.	6,318 (0.26)/5,094		Southeast U.S. Continental Shelf.	Port Canaveral.
		Strategic	Northern North Carolina Estuarine System.	Unknown		Southeast U.S. Continental Shelf.	Beaufort Inlet, Cape Fear River.
		Strategic	Southern North Carolina Estuarine System.	2,454 (0.53)/1,614		Southeast U.S. Continental Shelf.	Beaufort Inlet, Cape Fear River.
		Strategic	Charleston Estuarine System.	Unknown		Southeast U.S. Continental Shelf.	
		Strategic	Northern Georgia/Southern South Carolina Estuarine System.	Unknown		Southeast U.S. Continental Shelf.	
		Strategic	Southern Georgia Estuarine System.	Unknown		Southeast U.S. Continental Shelf.	Kings Bay, St. Johns River.
		Strategic	Jacksonville Estuarine System.	Unknown		Southeast U.S. Continental Shelf.	Kings Bay, St. Johns River.

TABLE 9—MARINE MAMMAL OCCURRENCE WITHIN THE AFTT STUDY AREA—Continued

Common name	Scientific name [1]	ESA/MMPA status [2]	Stock [3]	Stock abundance [3] best (CV)/min	Occurrence in study area [4]		
					Open ocean	Large marine ecosystems	Bays, rivers, and estuaries
		Strategic	Indian River Lagoon Estuarine System.	Unknown		Southeast U.S. Continental Shelf.	Port Canaveral.
		Strategic	Biscayne Bay	Unknown		Southeast U.S. Continental Shelf.	
			Florida Bay	514 (0.17)/447		Gulf of Mexico.	
			Gulf of Mexico Continental Shelf.	Unknown		Gulf of Mexico.	
			Gulf of Mexico, eastern coastal.	7,702 (0.19)/6,551		Gulf of Mexico.	
			Gulf of Mexico, northern coastal.	2,473 (0.25)/2,004		Gulf of Mexico	St. Andrew Bay, Pascagoula River.
		Strategic	Gulf of Mexico, western coastal.	Unknown		Gulf of Mexico	Corpus Christi Bay, Galveston Bay.
			Gulf of Mexico Oceanic.	3,708 (0.42)/2,641		Gulf of Mexico.	
		Strategic	Gulf of Mexico bay, sound, and estuarine.	Unknown		Gulf of Mexico	St. Andrew Bay, Pascagoula River, Sabine Lake, Corpus Christi Bay, and Galveston Bay.
Pantropical spotted dolphin.	Stenella attenuata		Western North Atlantic.	4,439 (0.49)/3,010	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	
			Gulf of Mexico Oceanic.	34,067 (0.18)/29,311.		Gulf of Mexico, Caribbean Sea.	
Atlantic spotted dolphin.	Stenella frontalis		Western North Atlantic.	50,978 (0.42)/36,235.	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
			Gulf of Mexico (Continental shelf and Oceanic).	Unknown		Gulf of Mexico, Caribbean Sea.	
Spinner dolphin	Stenella longirostris.		Western North Atlantic.	Unknown	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf.	
			Gulf of Mexico Oceanic.	1,989 (0.48)/1,356		Gulf of Mexico, Caribbean Sea.	
Clymene dolphin	Stenella clymene		Western North Atlantic.	Unknown	Gulf Stream	Southeast U.S. Continental Shelf.	
			Gulf of Mexico Oceanic.	6,575 (0.36)/4,901		Gulf of Mexico, Caribbean Sea.	
Striped dolphin	Stenella coeruleoalba.		Western North Atlantic.	94,462 (0.4)/68,558.	Gulf Stream.		
			Gulf of Mexico Oceanic.	3,325 (0.48)/2,266		Gulf of Mexico, Caribbean Sea.	
Fraser's dolphin	Lagenodelphis hosei.		Western North Atlantic.	Unknown	North Atlantic Gyre.	Southeast U.S. Continental Shelf.	
			Gulf of Mexico Oceanic.	Unknown		Gulf of Mexico, Caribbean Sea.	
Risso's dolphin	Grampus griseus		Western North Atlantic.	20,479 (0.59)/12,920.	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
			Gulf of Mexico Oceanic.	1,589 (0.27)/1,271		Gulf of Mexico, Caribbean Sea.	

TABLE 9—MARINE MAMMAL OCCURRENCE WITHIN THE AFTT STUDY AREA—Continued

Common name	Scientific name [1]	ESA/MMPA status [2]	Stock [3]	Stock abundance [3] best (CV)/min	Occurrence in study area [4]		
					Open ocean	Large marine ecosystems	Bays, rivers, and estuaries
Atlantic white-sided dolphin.	Lagenorhynchus acutus.		Western North Atlantic.	63,368 (0.27)/50,883.	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
White-beaked dolphin.	Lagenorhynchus albirostris.		Western North Atlantic.	2,003 (0.94)/1,023	Labrador Current	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Long-beaked common dolphin.	Delphinus capensis.		NA [13]	Unknown [13]		Caribbean Sea 13.	
Short-beaked common dolphin.	Delphinus delphis		Western North Atlantic.	120,743 (0.23)/99,975.	Gulf Stream	Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Melon-headed whale.	Peponocephala electra.		Western North Atlantic.	Unknown	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf.	
			Gulf of Mexico Oceanic.	2,283 (0.76)/1,293		Gulf of Mexico, Caribbean Sea.	
Pygmy killer whale	Feresa attenuata		Western North Atlantic.	Unknown	Gulf Stream, North Atlantic Gyre.	Southeast U.S. Continental Shelf.	
			Gulf of Mexico Oceanic.	323 (0.6)/203		Gulf of Mexico, Caribbean Sea, Southeast U.S. Continental Shelf.	
False killer whale	Pseudorca crassidens.		Gulf of Mexico Oceanic.	777 (0.56)/501	Gulf Stream, North Atlantic Gyre.	Gulf of Mexico, Caribbean Sea, Southeast U.S. Continental Shelf.	
Killer whale	Orcinus orca		Western North Atlantic.	Unknown	Gulf Stream, North Atlantic Gyre, Labrador Current.	Southeast U.S. Continental Shelf, Northeast U.S. Continental shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
			Gulf of Mexico Oceanic.	49 (0.77)/28		Gulf of Mexico, Caribbean Sea.	
Long-finned pilot whale.	Globicephala melas.		Western North Atlantic.	12,619 (0.37)/9,333.	Gulf Stream	Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Short-finned pilot whale.	Globicephala macrorhynchus.		Western North Atlantic.	24,674 (0.45)/17,190.	Gulf Stream	Northeast U.S. Continental Shelf, Southeast U.S. Continental Shelf.	
			Gulf of Mexico Oceanic.	716 (0.34)/542		Gulf of Mexico, Caribbean Sea.	

TABLE 9—MARINE MAMMAL OCCURRENCE WITHIN THE AFTT STUDY AREA—Continued

Common name	Scientific name [1]	ESA/MMPA status [2]	Stock [3]	Stock abundance [3] best (CV)/min	Occurrence in study area [4]		
					Open ocean	Large marine ecosystems	Bays, rivers, and estuaries
Family Phocoenidae (porpoises)							
Harbor porpoise	Phocoena phocoena.		Gulf of Maine/Bay of Fundy.	89,054 (0.47)/60,970.		Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Piscataqua River, Thames River, Kennebec River.
Order Carnivora							
Suborder Pinnipedia							
Family Phocidae (true seals)							
Ringed seal	Pusa hispida	Proposed [15]	NA [14]	Unknown		Newfoundland-Labrador Shelf, West Greenland Shelf.	
Bearded seal	Erignathus barbatus.		NA [14]	Unknown		Scotian Shelf, Newfoundland-Labrador Shelf, West Greenland Shelf.	
Hooded seal	Cystophora cristata.		Western North Atlantic.	592,100/512,000		Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf, West Greenland Shelf.	Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Piscataqua River, Thames River, Kennebec River.
Harp seal	Pagophilus groenlandicus.		Western North Atlantic.	Unknown		Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	
Gray seal	Halichoerus grypus.		Western North Atlantic.	Unknown		Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Piscataqua River, Thames River, Kennebeck River.
Harbor seal	Phoca vitulina		Western North Atlantic.	Unknown [16]		Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Scotian Shelf, Newfoundland-Labrador Shelf.	Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Piscataqua River, Thames River, Kennebeck River.

[1] Taxonomy follows Perrin 2009.
[2] ESA listing status. All marine mammals are protected under MMPA. Populations or stocks for which the level of direct human-caused mortality exceeds the potential biological removal level, which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future, or is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA are considered "strategic" under MMPA.
[3] Best CV/Min is a statistic measurement used as an indicator of the accuracy of the estimate. Stock designations for the U.S. Exclusive Economic Zone and abundance estimates from 2010 Stock Assessment Report (Waring *et al.* 2010).
[4] Occurrence in the Study Area includes open ocean areas—Labrador Current, North Atlantic Gyre, and Gulf Stream, and coastal/shelf waters of seven Large Marine Ecosystems—Gulf of Mexico, Southeast U.S. Continental Shelf, Northeast U.S. Continental Shelf, Caribbean Sea, Scotian Shelf, Newfoundland-Labrador Shelf, West Greenland Shelf, and inland waters of—Kennebec River, Piscataqua River, Thames River, Narragansett Bay, Rhode Island Sound, Block Island Sound, Buzzards Bay, Vineyard Sound, Long Island Sound, Sandy Hook Bay, Lower Chesapeake Bay, James River, Elizabeth River, Beaufort Inlet, Cape Fear River, Kings Bay, St. Johns River, Port Canaveral, St. Andrew Bay, Pascagoula River, Sabine Lake, Corpus Christi Bay, and Galveston Bay.
[5] This species occurs in the Atlantic outside of the U.S. Exclusive Economic Zone; and therefore has no associated Stock Assessment Report. See the appropriate subsections below for details of populations that may be found within the Study Area. Abundance and 95 percent confidence interval are provided by the International Whaling Commission.
[6] Photo identification catalogue count of 440 recognizable blue whale individuals from the Gulf of St. Lawrence is considered to be a minimum population estimate for the western North Atlantic stock.
[7] Estimate may include both the pygmy and dwarf sperm whales.
[8] This species occurs in the Atlantic outside of the U.S. Exclusive Economic Zone; and therefore has no associated Stock Assessment Report. See the appropriate subsections below for details of populations that may be found within the Study Area.
[9] Narwhals in the Atlantic are not managed by NMFS and have no associated Stock Assessment Report.
[10] Estimate includes Cuvier's beaked whales and undifferentiated Mesoplodon species.
[11] Estimate includes Gervais' and Blainville's beaked whales.
[12] Estimate may include sightings of the coastal form.
[13] Long-beaked common dolphins are only known in the western Atlantic from a discrete population off the east coast of South America.
[14] This species occurs in the Atlantic outside of the U.S. Exclusive Economic Zone; and therefore has no associated Stock Assessment Report. See the appropriate subsections below for details of populations that may be found within the Study Area.
[15] Arctic sub-species of ringed seal has been proposed as threatened under the ESA (75 **Federal Register** [FR] 77476).
[16] 2010 Stock Assessment Report states that present data are insufficient to calculate a minimum population estimate for this stock, however, the 2009 Stock Assessment Report indicated the "best" population estimate was 99,340 (CV = .097) and minimum population estimate was 91,546.

NMFS has reviewed the information complied by the Navy on the abundance, behavior, status and distribution, and vocalizations of marine mammal species in the waters of the AFTT Study Area, which was derived from peer reviewed literature, the Navy Marine Resource Assessments, NMFS Stock Assessment Reports, and marine mammal surveys using acoustic or visual observations from aircraft or ships. NMFS considers this information to be the best available science with which we can conduct the analyses necessary to propose these regulations and future LOAs. This information may be viewed in the Navy's LOA application and the Navy's EIS for AFTT (*see* Availability). Additional information is available in the NMFS Stock Assessment Reports, which may be viewed at: *http://www.nmfs.noaa.gov/pr/sars/species.htm.*

Bowhead whales, beluga whales, and narwhal are considered rare in the AFTT Study Area. Bowhead whales inhabit only the arctic and subarctic regions, often close to the ice edge. The St. Lawrence estuary is at the southern limit of the beluga whales' distribution (Lesage and Kingsley, 1998). Beluga distribution does not include the Gulf of Mexico or the southeastern Atlantic coast and they are considered extralimital in the Northeast. Narwhals inhabit Arctic waters, but populations from the Hudson Strait and Davis Strait—at the northwest extreme of the Study Area—may extend into the AFTT Study Area, but the possibility of narwhal actually occurring is considered remote. Based on the rare occurrence of these species in the AFTT Study Area, the Navy and NMFS do not anticipate any take of bowhead whales, beluga whales, or narwhals; therefore, these species are not addressed further in this proposed rule.

Important Areas

NMFS identifies biologically important areas when considering an application to authorize the incidental take of marine mammals. The negligible impact finding necessary for the issuance of an MMPA authorization requires NMFS to consider areas where marine mammals are known to selectively breed or calve/pup. In addition, NMFS must prescribe regulations setting forth the permissible methods of taking and other means of effecting the least practicable adverse impact on marine mammals species or stocks by paying particular attention to rookeries, mating grounds, and other areas of similar significance. This section identifies and discusses known important reproductive and feeding areas within the AFTT Study Area.

Little is known about the breeding and calving behaviors of many of the marine mammals that occur within the AFTT Study Area. For rorquals (humpback whale, minke whale, Bryde's whale, sei whale, fin whale, and blue whale) and sperm whales, mating is generally thought to occur in tropical and sub-tropical waters between mid-winter and mid-summer in deep offshore waters. Delphinids (Melon-headed whale, killer whale, pygmy killer whale, false killer whale, pilot whale, common dolphin, Atlantic spotted dolphin, clymene dolphin, pantropical spotted dolphin, spinner dolphin, striped dolphin, rough-toothed dolphin, bottlenose dolphin, Risso's dolphin, Fraser's dolphin, Atlantic white-sided dolphin, white-beaked dolphin) may mate throughout their distribution during any time of year. For pinnipeds, mating and pupping typically occur in coastal waters near northeast rookeries. With one notable exception, no specific areas for breeding or calving/pupping have been identified in the AFTT Study Area for the species that occur there. However, under the Endangered Species Act (ESA), critical habitat has been designated for the North Atlantic right whale. Additional biologically important areas have been identified for humpback whales and sperm whales. Biologically important areas for all three species are discussed below.

North Atlantic Right Whale

Most North Atlantic right whale sightings follow a well-defined seasonal migratory pattern through several consistently utilized habitats (Winn *et al.,* 1986). It should be noted, however, that some individuals may be sighted in these habitats outside of the typical time of year and that migration routes are not well known (there may be a regular offshore component). The population migrates as two separate components, although some whales may remain in the feeding grounds throughout the winter (Winn *et al.,* 1986, Kenney *et al.,* 2001). Pregnant females and some juveniles migrate from the feeding grounds to the calving grounds off the southeastern United States in late fall to winter. The cow-calf pairs return northward in late winter to early spring. The majority of the right whale population leaves the feeding grounds for unknown habitats in the winter but returns to the feeding grounds coinciding with the return of the cow-calf pairs. Some individuals as well as cow-calf pairs can be seen through the fall and winter on the feeding grounds

with feeding being observed (e.g., Sardi *et al.,* 2005).

During the spring through early summer, North Atlantic right whales are found on feeding grounds off the northeastern United States and Canada. Individuals may be found in Cape Cod Bay in February through April (Winn *et al.,* 1986; Hamilton and Mayo, 1990) and in the Great South Channel east of Cape Cod in April through June (Winn *et al.,* 1986; Kenney *et al.,* 1995). Right whales are found throughout the remainder of summer and into fall (June through November) on two feeding grounds in Canadian waters (Gaskin, 1987 and 1991), with peak abundance in August, September, and early October. The majority of summer/fall sightings of mother/calf pairs occur east of Grand Manan Island (Bay of Fundy), although some pairs might move to other unknown locations (Schaeff *et al.,* 1993). Jeffreys Ledge appears to be important habitat for right whales, with extended whale residences; this area appears to be an important fall feeding area for right whales and an important nursery area during summer (Weinrich *et al.,* 2000). The second feeding area is off the southern tip of Nova Scotia in the Roseway Basin between Browns, Baccaro, and Roseway banks (Mitchell *et al.,* 1986; Gaskin, 1987; Stone *et al.,* 1988; Gaskin, 1991). The Cape Cod Bay and Great South Channel feeding grounds have been designated as critical habitat under the ESA (Silber and Clapham, 2001).

During the winter (as early as November and through March), North Atlantic right whales may be found in coastal waters off North Carolina, Georgia, and northern Florida (Winn *et al.,* 1986). The waters off Georgia and northern Florida are the only known calving ground for western North Atlantic right whales and they have been designated as critical habitat under the ESA. Calving occurs from December through March (Silber and Clapham, 2001). On 1 January 2005, the first observed birth on the calving grounds was reported (Zani *et al.,* 2005). The majority of the population is not accounted for on the calving grounds, and not all reproductively active females return to this area each year (Kraus *et al.,* 1986a).

The coastal waters of the Carolinas are suggested to be a migratory corridor for the right whale (Winn *et al.,* 1986). This area, consisting of coastal waters between North Carolina and northern Florida, was mainly a winter and early spring (January–March) right whaling ground during the late 1800s (Reeves and Mitchell, 1986). The whaling ground was centered along the coasts of South Carolina and Georgia (Reeves and Mitchell, 1986). An examination of sighting records from all sources between 1950 and 1992 found that wintering right whales were observed widely along the coast from Cape Hatteras, North Carolina, to Miami, Florida (Kraus *et al.,* 1993). Sightings off the Carolinas were comprised of single individuals that appeared to be transients (Kraus *et al.,* 1993). These observations are consistent with the hypothesis that the coastal waters of the Carolinas are part of a migratory corridor for the North Atlantic right whale (Winn *et al.,* 1986). Knowlton *et al.* (2002) analyzed sightings data collected in the mid-Atlantic from northern Georgia to southern New England and found that the majority of North Atlantic right whale sightings occurred within approximately 30 NM (56 km) from shore. Critical habitat for the north Atlantic population of the North Atlantic right whale exists in portions of the JAX and Northeast OPAREAs (Figure 4–1 of the Navy's Application). The following three areas occur in U.S. waters and were designated by NMFS as critical habitat in June 1994 (NMFS, 2005):

- Coastal Florida and Georgia (Sebastian Inlet, Florida, to the Altamaha River, Georgia),
- The Great South Channel, east of Cape Cod, and
- Cape Cod and Massachusetts Bays.

The northern critical habitat areas serve as feeding and nursery grounds, while the southern area from the mid-Georgia coast extending southward along the Florida coast serves as calving grounds. A large portion of this habitat lies within the coastal waters of the JAX OPAREA. The physical features correlated with the distribution of right whales in the southern critical habitat area provide an optimum environment for calving. For example, the bathymetry of the inner and nearshore middle shelf area minimizes the effect of strong winds and offshore waves, limiting the formation of large waves and rough water. The average temperature of critical habitat waters is cooler during the time right whales are present due to a lack of influence by the Gulf Stream and cool freshwater runoff from coastal areas. The water temperatures may provide an optimal balance between offshore waters that are too warm for nursing mothers to tolerate, yet not too cool for calves that may only have minimal fatty insulation. On the calving grounds, the reproductive females and calves are expected to be concentrated near the critical habitat in the JAX OPAREA from December through April.

Two additional biologically important habitat areas are located in Canadian waters—Grand Manan Basin and Roseway Basin. These areas were identified in Canada's final recovery strategy for the North Atlantic right whale. On October 6, 2010, NMFS published a notice announcing 90-day finding and 12-month determination on a petition to revise critical habitat for the North Atlantic right whale (75 FR 61690). NMFS found that the petition, in addition with the information readily available, presents substantial scientific information indicating that the requested revision may be warranted. NMFS determined that we would proceed with the ongoing rulemaking process for revising critical habitat for the North Atlantic right whale.

Humpback Whale

In the North Atlantic Ocean, humpbacks are found from spring through fall on feeding grounds that are located from south of New England to northern Norway (NMFS, 1991). The Gulf of Maine is one of the principal summer feeding grounds for humpback whales in the North Atlantic. The largest numbers of humpback whales are present from mid-April to mid-November. Feeding locations off the northeastern United States include Stellwagen Bank, Jeffreys Ledge, the Great South Channel, the edges and shoals of Georges Bank, Cashes Ledge, Grand Manan Banks, the banks on the Scotian Shelf, the Gulf of St. Lawrence, and the Newfoundland Grand Banks (CETAP, 1982; Whitehead, 1982; Kenney and Winn, 1986; Weinrich *et al.,* 1997). Distribution in this region has been largely correlated to prey species and abundance, although behavior and bottom topography are factors in foraging strategy (Payne *et al.,* 1986; Payne *et al.,* 1990b). Humpbacks typically return to the same feeding areas each year.

Feeding most often occurs in relatively shallow waters over the inner continental shelf and sometimes in deeper waters. Large multi-species feeding aggregations (including humpback whales) have been observed over the shelf break on the southern edge of Georges Bank (CETAP, 1982; Kenney and Winn, 1987) and in shelf break waters off the U.S. mid-Atlantic coast (Smith *et al.,* 1996).

Sperm Whale

The region of the Mississippi River Delta (Desoto Canyon) has been recognized for high densities of sperm whales and may potentially represent an important calving and nursery, or feeding area for these animals

(Townsend, 1935; Collum and Fritts, 1985; Mullin *et al.,* 1994a; Würsig *et al.,* 2000; Baumgartner *et al.,* 2001; Davis *et al.,* 2002; Mullin *et al.,* 2004; Jochens *et al.,* 2006). Sperm whales typically exhibit a strong affinity for deep waters beyond the continental shelf, though in the area of the Mississippi Delta they also occur on the outer continental shelf break.

Marine Mammal Density Estimates

A quantitative analysis of impacts on a species requires data on the abundance and distribution of the species population in the potentially impacted area. One metric for performing this type of analysis is density, which is the number of animals present per unit area. The Navy compiled existing, publically available density data for use in the quantitative acoustic impact analysis.

There is no single source of density data for every area of the world, species, and season because of the costs, resources, and effort required to provide adequate survey coverage to sufficiently estimate density. Therefore, to estimate the marine mammal densities for large areas like the AFTT Study Area, the Navy compiled data from several sources. To compile and structure the most appropriate database of marine species density data, the Navy developed a protocol to select the best available data sources based on species, area, and time (season). The resulting Geographic Information System database, called the Navy Marine Species Density Database, includes seasonal density values for every marine mammal species present within the AFTT Study Area (Navy, 2012).

The Navy Marine Species Density Database includes a compilation of the best available density data from several primary sources and published works including survey data from NMFS within the U.S. Exclusive Economic Zone.

Additional information on the density data sources and how the database was applied to the AFTT Study Area is detailed in the Navy Marine Species Density Database Technical Report (*aftteis.com/DocumentsandReferences/AFTTDocuments/SupportingTechnicalDocuments.aspx*).

Marine Mammal Hearing and Vocalizations

Cetaceans have an auditory anatomy that follows the basic mammalian pattern, with some changes to adapt to the demands of hearing underwater. The typical mammalian ear is divided into an outer ear, middle ear, and inner ear. The outer ear is separated from the inner ear by a tympanic membrane, or eardrum. In terrestrial mammals, the outer ear, eardrum, and middle ear transmit airborne sound to the inner ear, where the sound waves are propagated through the cochlear fluid. Since the impedance of water is close to that of the tissues of a cetacean, the outer ear is not required to transduce sound energy as it does when sound waves travel from air to fluid (inner ear). Sound waves traveling through the inner ear cause the basilar membrane to vibrate. Specialized cells, called hair cells, respond to the vibration and produce nerve pulses that are transmitted to the central nervous system. Acoustic energy causes the basilar membrane in the cochlea to vibrate. Sensory cells at different positions along the basilar membrane are excited by different frequencies of sound (Pickles, 1998).

Marine mammal vocalizations often extend both above and below the range of human hearing; vocalizations with frequencies lower than 20 Hz are labeled as infrasonic and those higher than 20 kHz as ultrasonic (National Research Council (NRC), 2003; Figure 4–1). Measured data on the hearing abilities of cetaceans are sparse, particularly for the larger cetaceans such as the baleen whales. The auditory thresholds of some of the smaller odontocetes have been determined in captivity. It is generally believed that cetaceans should at least be sensitive to the frequencies of their own vocalizations. Comparisons of the anatomy of cetacean inner ears and models of the structural properties and the response to vibrations of the ear's components in different species provide an indication of likely sensitivity to various sound frequencies. The ears of small toothed whales are optimized for receiving high-frequency sound, while baleen whale inner ears are best in low to infrasonic frequencies (Ketten, 1992; 1997; 1998).

Baleen whale vocalizations are composed primarily of frequencies below 1 kHz, and some contain fundamental frequencies as low as 16 Hz (Watkins *et al.,* 1987; Richardson *et al.,* 1995; Rivers, 1997; Moore *et al.,* 1998; Stafford *et al.,* 1999; Wartzok and Ketten, 1999) but can be as high as 24 kHz (humpback whale; Au *et al.,* 2006). Clark and Ellison (2004) suggested that baleen whales use low-frequency sounds not only for long-range communication, but also as a simple form of echo ranging, using echoes to navigate and orient relative to physical features of the ocean. Information on auditory function in baleen whales is extremely lacking. Sensitivity to low-frequency sound by baleen whales has been inferred from observed vocalization frequencies, observed reactions to playback of sounds, and anatomical analyses of the auditory system. Although there is apparently much variation, the source levels of most baleen whale vocalizations lie in the range of 150–190 dB re 1 µPa at 1 m. Low-frequency vocalizations made by baleen whales and their corresponding auditory anatomy suggest that they have good low-frequency hearing (Ketten, 2000), although specific data on sensitivity, frequency or intensity discrimination, or localization abilities are lacking. Marine mammals, like all mammals, have typical U-shaped audiograms that begin with relatively low sensitivity (high threshold) at some specified low frequency with increased sensitivity (low threshold) to a species specific optimum followed by a generally steep rise at higher frequencies (high threshold) (Fay, 1988).

The toothed whales produce a wide variety of sounds, which include species-specific broadband "clicks" with peak energy between 10 and 200 kHz, individually variable "burst pulse" click trains, and constant frequency or frequency-modulated (FM) whistles ranging from 4 to 16 kHz (Wartzok and Ketten, 1999). The general consensus is that the tonal vocalizations (whistles) produced by toothed whales play an important role in maintaining contact between dispersed individuals, while broadband clicks are used during echolocation (Wartzok and Ketten, 1999). Burst pulses have also been strongly implicated in communication, with some scientists suggesting that they play an important role in agonistic encounters (McCowan and Reiss, 1995), while others have proposed that they represent "emotive" signals in a broader sense, possibly representing graded communication signals (Herzing, 1996). Sperm whales, however, are known to produce only clicks, which are used for both communication and echolocation (Whitehead, 2003). Most of the energy of toothed whale social vocalizations is concentrated near 10 kHz, with source levels for whistles as high as 100 to 180 dB re 1 µPa at 1 m (Richardson *et al.,* 1995). No odontocete has been shown audiometrically to have acute hearing (<80 dB re 1 µPa) below 500 Hz (Southall *et al.,* 2007). Sperm whales produce clicks, which may be used to echolocate (Mullins *et al.,* 1988), with a frequency range from less than 100 Hz to 30 kHz and source levels up to 230 dB re 1 µPa 1 m or greater (Mohl *et al.,* 2000).

Brief Background on Sound

An understanding of the basic properties of underwater sound is necessary to comprehend many of the concepts and analyses presented in this document. A summary is included below.

Sound is a wave of pressure variations propagating through a medium (e.g., water). Sound measurements can be expressed in two forms: intensity and pressure. Acoustic intensity is the average rate of energy transmitted through a unit area in a specified direction and is expressed in watts per square meter (W/m^2). Acoustic intensity is rarely measured directly, but rather from ratios of pressures; the standard reference pressure for underwater sound is 1 microPascal (µPa); for airborne sound, the standard reference pressure is 20 µPa (Richardson *et al.,* 1995).

Acousticians have adopted a logarithmic scale for sound intensities, which is denoted in decibels (dB). Decibel measurements represent the ratio between a measured pressure value and a reference pressure value (in this case 1 µPa or, for airborne sound, 20 µPa.). The logarithmic nature of the scale means that each 10-dB increase is a ten-fold increase in acoustic power (and a 20-dB increase is then a 100-fold increase in power; and a 30-dB increase is a 1,000-fold increase in power). A ten-fold increase in acoustic power does not mean that the sound is perceived as being ten times louder. Humans perceive a 10-dB increase in sound level as a doubling of loudness, and a 10-dB decrease in sound level as a halving of loudness. The term ''sound pressure level'' implies a decibel measure and a reference pressure that is used as the denominator of the ratio. Throughout this document, NMFS uses 1 microPascal (denoted re: 1µPa) as a standard reference pressure unless noted otherwise.

It is important to note that decibels underwater and decibels in air are not the same and cannot be directly compared. To estimate a comparison between sound in air and underwater, because of the different densities of air and water and the different decibel standards (i.e., reference pressures) in air and water, a sound with the same intensity (i.e., power) in air and in water would be approximately 62 dB lower in air. Thus a sound that measures 160 dB (re 1µPa) underwater would have the same approximate effective level as a sound that is 98 dB (re 20 1µPa) in air.

Sound frequency is measured in cycles per second, or Hertz (abbreviated Hz), and is analogous to musical pitch; high-pitched sounds contain high frequencies and low-pitched sounds contain low frequencies. Natural sounds in the ocean span a huge range of frequencies: From earthquake noise at 5 Hz to harbor porpoise clicks at 150,000 Hz (150 kHz). These sounds are so low or so high in pitch that humans cannot even hear them; acousticians call these infrasonic (typically below 20 Hz) and ultrasonic (typically above 20,000 Hz) sounds, respectively. A single sound may be made up of many different frequencies together. Sounds made up of only a small range of frequencies are called ''narrowband,'' and sounds with a broad range of frequencies are called ''broadband''; tactical sonars are an example of a narrowband sound source and explosives are an example of a broadband sound source.

When considering the influence of various kinds of sound on the marine environment, it is necessary to understand that different kinds of marine life are sensitive to different frequencies of sound. Based on available behavioral data, audiograms derived using auditory evoked potential (AEP) techniques, anatomical modeling, and other data, Southall *et al.* (2007) designated ''functional hearing groups'' for marine mammals and estimated the lower and upper frequencies of functional hearing of the groups. Further, the frequency range in which each group's hearing is estimated as being most sensitive is represented in the flat part of the M-weighting functions (which are derived from the audiograms described above; see Figure 1 in Southall *et al.,* 2007) developed for each group. The functional groups and the associated frequencies are indicated below (though, again, animals are less sensitive to sounds at the outer edge of their functional range and most sensitive to sounds of frequencies within a smaller range somewhere in the middle of their functional hearing range):

- Low frequency cetaceans (13 species of mysticetes): functional hearing is estimated to occur between approximately 7 Hz and 30 kHz.
- Mid-frequency cetaceans (32 species of dolphins, six species of larger toothed whales, and 19 species of beaked and bottlenose whales): functional hearing is estimated to occur between approximately 150 Hz and 160 kHz.
- High frequency cetaceans (eight species of true porpoises, six species of river dolphins, *Kogia,* the franciscana, and four species of cephalorhynchids): functional hearing is estimated to occur between approximately 200 Hz and 180 kHz.
- Pinnipeds in Water: functional hearing is estimated to occur between approximately 75 Hz and 75 kHz, with the greatest sensitivity between approximately 700 Hz and 20 kHz.

The estimated hearing range for low-frequency cetaceans has been slightly extended from previous analyses (from 22 to 30 kHz). This decision is based on data from Watkins *et al.* (1986) for numerous mysticete species, Au *et al.* (2006) for humpback whales, and abstract from Frankel (2005) and a paper from Lucifredi and Stein (2007) on gray whales, and an unpublished report (Ketten and Mountain, 2009) and abstract (Tubelli *et al.,* 2012) for minke whales. As more data from additional species become available, these estimated hearing ranges may require modification.

When sound travels away (propagates) from its source, its loudness decreases as the distance traveled by the sound increases. Thus, the loudness of a sound at its source is higher than the loudness of that same sound a kilometer distant. Acousticians often refer to the loudness of a sound at its source (typically referenced to one meter from the source) as the source level and the loudness of sound elsewhere as the received level (i.e., typically the receiver). For example, a humpback whale 3 kilometers from a device that has a source level of 230 dB re 1 µPa may only be exposed to sound that is 160 dB re 1 µPa loud, depending on how the sound travels through the water (in this example, it is spherical spreading [3 dB reduction with doubling of distance]). As a result, it is important to understand the difference between source levels and received levels when discussing the loudness of sound in the ocean or its impacts on the marine environment.

As sound travels from a source, its propagation in water is influenced by various physical characteristics, including water temperature, depth, salinity, and surface and bottom properties that cause refraction, reflection, absorption, and scattering of sound waves. Oceans are not homogeneous and the contribution of each of these individual factors is extremely complex and interrelated. The physical characteristics that determine the sound's speed through the water will change with depth, season, geographic location, and with time of day (as a result, in actual sonar operations, crews will measure oceanic conditions, such as sea water temperature and depth, to calibrate models that determine the path the sonar signal will take as it travels through the ocean and how strong the

sound signal will be at a given range along a particular transmission path). As sound travels through the ocean, the intensity associated with the wavefront diminishes, or attenuates. This decrease in intensity is referred to as propagation loss, also commonly called transmission loss.

Metrics Used in This Document

This section includes a brief explanation of the two sound measurements (sound pressure level (SPL) and sound exposure level (SEL)) frequently used to describe sound levels in the discussions of acoustic effects in this document.

SPL

Sound pressure is the sound force per unit area, and is usually measured in micropascals (μPa), where 1 Pa is the pressure resulting from a force of one newton exerted over an area of one square meter. SPL is expressed as the ratio of a measured sound pressure and a reference level.

SPL (in dB) = 20 log (pressure/reference pressure)

The commonly used reference pressure level in underwater acoustics is 1 μPa, and the units for SPLs are dB re: 1 μPa. SPL is an instantaneous measurement and can be expressed as the peak, the peak-to-peak, or the root mean square (rms). Root mean square, which is the square root of the arithmetic average of the squared instantaneous pressure values, is typically used in discussions of the effects of sounds on vertebrates and all references to SPL in this document refer to the root mean square. SPL does not take the duration of a sound into account. SPL is the applicable metric used in the Behavioral Response Function (BRF), which is used to estimate behavioral harassment takes.

SEL

SEL is an energy metric that integrates the squared instantaneous sound pressure over a stated time interval. The units for SEL are dB re: 1 μPa^2 s.

SEL = SPL + 10 log(duration in seconds)

As applied to sonar and other active acoustic sources, the SEL includes both the SPL of a sonar ping and the total duration. Longer duration pings and/or pings with higher SPLs will have a higher SEL. If an animal is exposed to multiple pings, the SEL in each individual ping is summed to calculate the cumulative SEL. The cumulative SEL depends on the SPL, duration, and number of pings received. The thresholds that NMFS uses to indicate at what received level the onset of temporary threshold shift (TTS) and permanent threshold shift (PTS) in hearing are likely to occur are expressed as cumulative SEL.

Potential Effects of Specified Activities on Marine Mammals

The Navy has requested authorization for the take of marine mammals that may occur incidental to training and testing activities in the AFTT Study Area. The Navy has analyzed the potential impacts on marine mammals from impulsive and non-impulsive sound sources and vessel strikes.

Other potential impacts on marine mammals from AFTT training and testing activities were analyzed in the Navy's AFTT EIS/OEIS, in consultation with NMFS as a cooperating agency, and determined to be unlikely to result in marine mammal harassment. Therefore, the Navy has not requested authorization for take of marine mammals that might occur incidental to other components of their proposed activities. In this document, NMFS analyzes the potential effects on marine mammals from exposure to non-impulsive (sonar and other active acoustic sources) and impulsive (underwater detonations, pile driving, and air guns) stressors, and vessel strikes.

For the purpose of MMPA authorizations, NMFS' effects assessments serve four primary purposes: (1) To prescribe the permissible methods of taking (i.e., Level B Harassment (behavioral harassment), Level A Harassment (injury), or mortality, including an identification of the number and types of take that could occur by harassment or mortality) and to prescribe other means of effecting the least practicable adverse impact on such species or stock and its habitat (i.e., mitigation); (2) to determine whether the specified activity would have a negligible impact on the affected species or stocks of marine mammals (based on the likelihood that the activity would adversely affect the species or stock through effects on annual rates of recruitment or survival); (3) to determine whether the specified activity would have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (however, there are no subsistence communities that would be affected in the AFTT Study Area, so this determination is inapplicable to the AFTT rulemaking); and (4) to prescribe requirements pertaining to monitoring and reporting.

More specifically, for activities involving non-impulsive or impulsive sources, NMFS' analysis will identify the probability of lethal responses, physical trauma, sensory impairment (permanent and temporary threshold shifts and acoustic masking), physiological responses (particular stress responses), behavioral disturbance (that rises to the level of harassment), and social responses (effects to social relationships) that would be classified as a take and whether such take will have a negligible impact on such species or stocks. Vessel strikes, which have the potential to result in incidental take from direct injury and/or mortality, will be discussed in more detail in the Estimated Take of Marine Mammals Section. In this section, we will focus qualitatively on the different ways that non-impulsive and impulsive sources may affect marine mammals (some of which NMFS does not classify as harassment). Then, in the Estimated Take of Marine Mammals Section, we will relate the potential effects on marine mammals from non-impulsive and impulsive sources to the MMPA definitions of Level A and Level B Harassment, along with the potential effects from vessel strikes, and attempt to quantify those effects.

Non-Impulsive Sources

Direct Physiological Effects

Based on the literature, there are two basic ways that non-impulsive sources might directly result in direct physiological effects: Noise-induced loss of hearing sensitivity (more commonly-called "threshold shift") and acoustically mediated bubble growth. Separately, an animal's behavioral reaction to an acoustic exposure might lead to physiological effects that might ultimately lead to injury or death, which is discussed later in the Stranding Section.

Threshold Shift (Noise-Induced Loss of Hearing)

When animals exhibit reduced hearing sensitivity (i.e., sounds must be received at a higher level for an animal to recognize them) following exposure to a sufficiently intense sound, it is referred to as a noise-induced threshold shift (TS). An animal can experience temporary threshold shift (TTS) or permanent threshold shift (PTS). TTS can last from minutes or hours to days (i.e., there is recovery), occurs in specific frequency ranges (i.e., an animal might only have a temporary loss of hearing sensitivity between the frequencies of 1 and 10 kHz)), and can be of varying amounts (for example, an animal's hearing sensitivity might be reduced by only 6 dB or reduced by 30

dB). PTS is permanent, but some recovery is possible. PTS can also occurs in a specific frequency range and amount as mentioned above for TTS.

The following physiological mechanisms are thought to play a role in inducing auditory TSs: Effects on sensory hair cells in the inner ear that reduce their sensitivity, modification of the chemical environment within the sensory cells, residual muscular activity in the middle ear, displacement of certain inner ear membranes, increased blood flow, and post-stimulatory reduction in both efferent and sensory neural output (Southall *et al.,* 2007). The amplitude, duration, frequency, temporal pattern, and energy distribution of sound exposure all affect the amount of associated TS and the frequency range in which it occurs. As amplitude and duration of sound exposure increase, so, generally, does the amount of TS, along with the recovery time. For continuous sounds, exposures of equal energy (the same SEL) will lead to approximately equal effects. For intermittent sounds, less TS will occur than from a continuous exposure with the same energy (some recovery will occur between intermittent exposures) (Kryter *et al.,* 1966; Ward, 1997). For example, one short but loud (higher SPL) sound exposure may induce the same impairment as one longer but softer sound, which in turn may cause more impairment than a series of several intermittent softer sounds with the same total energy (Ward, 1997). Additionally, though TTS is temporary, very prolonged exposure to sound strong enough to elicit TTS, or shorter-term exposure to sound levels well above the TTS threshold, can cause PTS, at least in terrestrial mammals (Kryter, 1985). Although in the case of sonar and other active acoustic sources, animals are not expected to be exposed to levels high enough or durations long enough to result in PTS.

PTS is considered auditory injury (Southall *et al.,* 2007). Irreparable damage to the inner or outer cochlear hair cells may cause PTS, however, other mechanisms are also involved, such as exceeding the elastic limits of certain tissues and membranes in the middle and inner ears and resultant changes in the chemical composition of the inner ear fluids (Southall *et al.,* 2007).

Although the published body of scientific literature contains numerous theoretical studies and discussion papers on hearing impairments that can occur with exposure to a loud sound, only a few studies provide empirical information on the levels at which noise-induced loss in hearing sensitivity occurs in nonhuman animals. For cetaceans, published data are limited to the captive bottlenose dolphin, beluga, harbor porpoise, and Yangtze finless porpoise (Finneran *et al.,* 2000, 2002b, 2003, 2005a, 2007, 2010a, 2010b; Finneran and Schlundt, 2010; Lucke et al, 2009; Mooney *et al.,* 2009a, 2009b; Popov *et al.,* 2011a, 2011b; Popov and Supin, 2012; Kastelein *et al.,* 2012a; Schlundt *et al.,* 2000; Nachtigall *et al.,* 2003, 2004). For pinnipeds in water, data are limited to measurement of TTS in harbor seals, one elephant seal, and California sea lions (Kastak *et al.,* 1999, 2005; Kastelien *et al.,* 2012b).

Marine mammal hearing plays a critical role in communication with conspecifics, and interpretation of environmental cues for purposes such as predator avoidance and prey capture. Depending on the degree (elevation of threshold in dB), duration (i.e., recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in auditory masking, below). For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during time when communication is critical for successful mother/calf interactions could have more serious impacts. Also, depending on the degree and frequency range, the effects of PTS on an animal could range in severity, although it is considered generally more serious because it is a permanent condition. Of note, reduced hearing sensitivity as a simple function of aging has been observed in marine mammals, as well as humans and other taxa (Southall *et al.,* 2007), so we can infer that strategies exist for coping with this condition to some degree, though likely not without cost.

Acoustically Mediated Bubble Growth

A suggested indirect cause of injury to marine mammals is rectified diffusion (Crum and Mao, 1996), the process of increasing the size of a bubble by exposing it to a sound field. The process depends on many factors, including the sound pressure level and duration. Under this hypothesis, microscopic bubbles assumed to exist in the tissues of marine mammals may experience one of three things: (1) Bubbles grow to the extent that tissue hemorrhage (injury) occurs; (2) bubbles develop to the extent that an immune response is triggered or nervous system tissue is subjected to enough localized pressure that pain or dysfunction occurs (a stress response without injury); or (3) the bubbles are cleared by the lung without negative consequence to the animal. The probability of rectified diffusion, or any other indirect tissue effect, will necessarily be based on what is known about the specific process involved. Rectified diffusion is facilitated if the environment in which the ensonified bubbles exist is supersaturated with gas. Repetitive diving by marine mammals can cause the blood and some tissues to accumulate nitrogen gas to a greater degree than is supported by the surrounding environmental pressure (Ridgway and Howard, 1979). The dive patterns of some marine mammals (for example, beaked whales) are theoretically predicted to induce greater nitrogen gas supersaturation (Houser *et al.,* 2001). If rectified diffusion were possible in marine mammals exposed to a high level of sound, conditions of tissue supersaturation could theoretically speed the rate and increase the size of bubble growth. Subsequent effects due to tissue trauma and emboli would presumably mirror those observed in humans suffering from decompression sickness (e.g., nausea, disorientation, localized pain, breathing problems, etc.).

It is unlikely that the short duration of sonar or explosion sounds would last long enough to drive bubble growth to any substantial size, if such a phenomenon occurs. However, an alternative but related hypothesis is also suggested: stable microbubbles could be destabilized by high-level sound exposures so bubble growth would occur through static diffusion of gas out of the tissues. In such a scenario, the marine mammal would need to be in a gas-supersaturated state for a long enough time for bubbles to become a problematic size. Recent research with *ex vivo* supersaturated bovine tissues suggests that for a 37 kHz signal, a sound exposure of approximately 215 dB re 1 µPa would be required before microbubbles became destabilized and grew (Crum *et al.,* 2005). Assuming spherical spreading loss and a nominal sonar source level of 235 dB re 1 µPa, a whale would need to be within 33 ft. (10 m) of the sonar dome to be exposed to such sound levels. Furthermore, tissues in the study were supersaturated by exposing them to pressures of 400 to 700 kiloPascals (kPa) for periods of hours and then releasing them to

ambient pressures. Assuming the equilibration of gases with the tissues occurred when the tissues were exposed to the high pressures, levels of supersaturation in the tissues could have been as high as 400 to 700 percent. These levels of tissue supersaturation are substantially higher than model predictions for marine mammals (Houser *et al.,* 2001). It is improbable that this mechanism would be responsible for stranding events or traumas associated with beaked whale strandings. Both the degree of supersaturation and exposure levels observed to cause microbubble destabilization are unlikely to occur, either alone or in concert.

There is considerable disagreement among scientists as to the likelihood of bubble formation in diving marine mammals (Evans and Miller, 2003; Piantadosi and Thalmann, 2004). Although it has been argued that traumas from recent beaked whale strandings are consistent with gas emboli and bubble-induced tissue separations (Fernández *et al.,* 2005; Jepson *et al.,* 2003), nitrogen bubble formation as the cause of the traumas has not been verified. The presence of bubbles postmortem, particularly after decompression, is not necessarily indicative of bubble pathology. Prior experimental work demonstrates that the postmortem presence of bubbles following decompression in laboratory animals can occur as a result of invasive investigative procedures (Stock *et al.,* 1980). Also, variations in diving behavior or avoidance responses can possibly result in nitrogen tissue supersaturation and nitrogen off-gassing, possibly to the point of deleterious vascular bubble formation (Jepson *et al.,* 2003). The mechanism for bubble formation would be different from rectified diffusion, but the effects would be similar. Although hypothetical, the potential process is under debate in the scientific community. The hypothesis speculates that if exposure to a startling sound elicits a rapid ascent to the surface, tissue gas saturation sufficient for the evolution of nitrogen bubbles might result (Fernández *et al.,* 2005; Jepson *et al.,* 2003). In this scenario, the rate of ascent would need to be sufficiently rapid to compromise behavioral or physiological protections against nitrogen bubble formation.

Recent modeling suggests that even unrealistically rapid rates of ascent from normal dive behaviors are unlikely to result in supersaturation to the extent that bubble formation would be expected in beaked whales (Zimmer and Tyack, 2007). Tyack *et al.* (Tyack *et al.,* 2006) suggested that emboli observed in animals exposed to mid-frequency active sonar (Fernández *et al.,* 2005; Jepson *et al.,* 2003) could stem instead from a behavioral response that involves repeated dives, shallower than the depth of lung collapse. A bottlenose dolphin was trained to repetitively dive to specific depths to elevate nitrogen saturation to the point that asymptomatic nitrogen bubble formation was predicted to occur. However, inspection of the vascular system of the dolphin via ultrasound did not demonstrate the formation of any nitrogen gas bubbles (Houser *et al.,* 2009).

More recently, modeling has suggested that the long, deep dives performed regularly by beaked whales over a lifetime could result in the saturation of long-halftime tissues (e.g. fat, bone lipid) to the point that they are supersaturated when the animals are at the surface (Hooker *et al.* 2009). Proposed adaptations for prevention of bubble formation under conditions of persistent tissue saturation have been suggested (Fahlman *et al.,* 2006; Hooker *et al.,* 2009), while the condition of supersaturation required for bubble formation has been demonstrated in bycatch animals drowned at depth and brought to the surface (Moore *et al.,* 2009). Since bubble formation is facilitated by compromised blood flow, it has been suggested that rapid stranding may lead to bubble formation in animals with supersaturated, long-halftime tissues because of the stress of stranding and the cardiovascular collapse that can accompany it (Houser *et al.,* 2009).

A fat embolic syndrome was identified by Fernández *et al.* (2005) coincident with the identification of bubble emboli in stranded beaked whales. The fat embolic syndrome was the first pathology of this type identified in marine mammals, and was thought to possibly arise from the formation of bubbles in fat bodies, which subsequently resulted in the release of fat emboli into the blood stream. Recently, Dennison *et al.* (2011) reported on investigations of dolphins stranded in 2009–2010 and, using ultrasound, identified gas bubbles in kidneys of 21 of 22 live-stranded dolphins and in the liver of two of 22. The authors postulated that stranded animals are unable to recompress by diving, and thus may retain bubbles that are otherwise re-absorbed in animals that can continue to dive. The researchers concluded that the minor bubble formation observed can be tolerated since the majority of stranded dolphins released did not re-strand. As a result, no marine mammals addressed in this analysis are given differential treatment due to the possibility for acoustically mediated bubble growth.

Acoustic Masking

Marine mammals use acoustic signals for a variety of purposes, which differ among species, but include communication between individuals, navigation, foraging, reproduction, and learning about their environment (Erbe and Farmer 2000, Tyack 2000). Masking, or auditory interference, generally occurs when sounds in the environment are louder than and of a similar frequency to, auditory signals an animal is trying to receive. Masking is a phenomenon that affects animals that are trying to receive acoustic information about their environment, including sounds from other members of their species, predators, prey, and sounds that allow them to orient in their environment. Masking these acoustic signals can disturb the behavior of individual animals, groups of animals, or entire populations.

The extent of the masking interference depends on the spectral, temporal, and spatial relationships between the signals an animal is trying to receive and the masking noise, in addition to other factors. In humans, significant masking of tonal signals occurs as a result of exposure to noise in a narrow band of similar frequencies. As the sound level increases, though, the detection of frequencies above those of the masking stimulus decreases also. This principle is expected to apply to marine mammals as well because of common biomechanical cochlear properties across taxa.

Richardson *et al.* (1995b) argued that the maximum radius of influence of an industrial noise (including broadband low frequency sound transmission) on a marine mammal is the distance from the source to the point at which the noise can barely be heard. This range is determined by either the hearing sensitivity of the animal or the background noise level present. Industrial masking is most likely to affect some species' ability to detect communication calls and natural sounds (i.e., surf noise, prey noise, etc.; Richardson *et al.,* 1995).

The echolocation calls of toothed whales are subject to masking by high frequency sound. Human data indicate low-frequency sound can mask high-frequency sounds (i.e., upward masking). Studies on captive odontocetes by Au *et al.* (1974, 1985, 1993) indicate that some species may use various processes to reduce masking effects (e.g., adjustments in echolocation

call intensity or frequency as a function of background noise conditions). There is also evidence that the directional hearing abilities of odontocetes are useful in reducing masking at the high-frequencies these cetaceans use to echolocate, but not at the low-to-moderate frequencies they use to communicate (Zaitseva *et al.,* 1980). A recent study by Nachtigall and Supin (2008) showed that false killer whales adjust their hearing to compensate for ambient sounds and the intensity of returning echolocation signals.

As mentioned previously, the functional hearing ranges of mysticetes, odontocetes, and pinnipeds underwater all encompass the frequencies of the sonar sources used in the Navy's training exercises. Additionally, almost all species, vocal repertoires span across the frequencies of these sonar sources used by the Navy. The closer the characteristics of the masking signal to the signal of interest, the more likely masking is to occur. For hull-mounted sonar, the duty cycle of the signal makes it less likely that masking will occur as a result.

Impaired Communication

In addition to making it more difficult for animals to perceive acoustic cues in their environment, anthropogenic sound presents separate challenges for animals that are vocalizing. When they vocalize, animals are aware of environmental conditions that affect the ''active space'' of their vocalizations, which is the maximum area within which their vocalizations can be detected before it drops to the level of ambient noise (Brenowitz, 2004; Brumm *et al.,* 2004; Lohr *et al.,* 2003). Animals are also aware of environment conditions that affect whether listeners can discriminate and recognize their vocalizations from other sounds, which is more important than simply detecting that a vocalization is occurring (Brenowitz, 1982; Brumm *et al.,* 2004; Dooling, 2004, Marten and Marler, 1977; Patricelli *et al.,* 2006). Most animals that vocalize have evolved with an ability to make adjustments to their vocalizations to increase the signal-to-noise ratio, active space, and recognizability/distinguishability of their vocalizations in the face of temporary changes in background noise (Brumm *et al.,* 2004; Patricelli *et al.,* 2006). Vocalizing animals can make adjustments to vocalization characteristics such as the frequency structure, amplitude, temporal structure, and temporal delivery.

Many animals will combine several of these strategies to compensate for high levels of background noise. Anthropogenic sounds that reduce the signal-to-noise ratio of animal vocalizations, increase the masked auditory thresholds of animals listening for such vocalizations, or reduce the active space of an animal's vocalizations impair communication between animals. Most animals that vocalize have evolved strategies to compensate for the effects of short-term or temporary increases in background or ambient noise on their songs or calls. Although the fitness consequences of these vocal adjustments remain unknown, like most other trade-offs animals must make, some of these strategies probably come at a cost (Patricelli *et al.,* 2006). For example, vocalizing more loudly in noisy environments may have energetic costs that decrease the net benefits of vocal adjustment and alter a bird's energy budget (Brumm, 2004; Wood and Yezerinac, 2006). Shifting songs and calls to higher frequencies may also impose energetic costs (Lambrechts, 1996).

Stress Responses

Classic stress responses begin when an animal's central nervous system perceives a potential threat to its homeostasis. That perception triggers stress responses regardless of whether a stimulus actually threatens the animal; the mere perception of a threat is sufficient to trigger a stress response (Moberg, 2000; Sapolsky *et al.,* 2005; Seyle, 1950). Once an animal's central nervous system perceives a threat, it mounts a biological response or defense that consists of a combination of the four general biological defense responses: Behavioral responses, autonomic nervous system responses, neuroendocrine responses, or immune response.

In the case of many stressors, an animal's first and most economical (in terms of biotic costs) response is behavioral avoidance of the potential stressor or avoidance of continued exposure to a stressor. An animal's second line of defense to stressors involves the sympathetic part of the autonomic nervous system and the classical ''fight or flight'' response which includes the cardiovascular system, the gastrointestinal system, the exocrine glands, and the adrenal medulla to produce changes in heart rate, blood pressure, and gastrointestinal activity that humans commonly associate with ''stress.'' These responses have a relatively short duration and may or may not have significant long-term effect on an animal's welfare.

An animal's third line of defense to stressors involves its neuroendocrine or sympathetic nervous systems; the system that has received the most study has been the hypothalmus-pituitary-adrenal system (also known as the HPA axis in mammals or the hypothalamus-pituitary-interrenal axis in fish and some reptiles). Unlike stress responses associated with the autonomic nervous system, virtually all neuro-endocrine functions that are affected by stress—including immune competence, reproduction, metabolism, and behavior—are regulated by pituitary hormones. Stress-induced changes in the secretion of pituitary hormones have been implicated in failed reproduction (Moberg, 1987; Rivier, 1995) and altered metabolism (Elasser *et al.,* 2000), reduced immune competence (Blecha, 2000) and behavioral disturbance. Increases in the circulation of glucocorticosteroids (cortisol, corticosterone, and aldosterone in marine mammals; see Romano *et al.,* 2004) have been equated with stress for many years.

The primary distinction between stress (which is adaptive and does not normally place an animal at risk) and distress is the biotic cost of the response. During a stress response, an animal uses glycogen stores that can be quickly replenished once the stress is alleviated. In such circumstances, the cost of the stress response would not pose a risk to the animal's welfare. However, when an animal does not have sufficient energy reserves to satisfy the energetic costs of a stress response, energy resources must be diverted from other biotic function, which impairs those functions that experience the diversion. For example, when mounting a stress response diverts energy away from growth in young animals, those animals may experience stunted growth. When mounting a stress response diverts energy from a fetus, an animal's reproductive success and its fitness will suffer. In these cases, the animals will have entered a pre-pathological or pathological state which is called ''distress'' (sensu Seyle 1950) or ''allostatic loading'' (sensu McEwen and Wingfield, 2003). This pathological state will last until the animal replenishes its biotic reserves sufficient to restore normal function. Note that these examples involved a long-term (days or weeks) stress response exposure to stimuli.

Relationships between these physiological mechanisms, animal behavior, and the costs of stress responses have also been documented fairly well through controlled experiment; because this physiology exists in every vertebrate that has been studied, it is not surprising that stress responses and their costs have been

documented in both laboratory and free-living animals (for examples see, Holberton *et al.,* 1996; Hood *et al.,* 1998; Jessop *et al.,* 2003; Krausman *et al.,* 2004; Lankford *et al.,* 2005; Reneerkens *et al.,* 2002; Thompson and Hamer, 2000). Information has also been collected on the physiological responses of marine mammals to exposure to anthropogenic sounds (Fair and Becker, 2000; Romano *et al.,* 2002; Wright *et al.,* 2008). For example, Rolland *et al.* (2012) found that noise reduction from reduced ship traffic in the Bay of Fundy was associated with decreased stress in North Atlantic right whales. In a conceptual model developed by the Population Consequences of Acoustic Disturbance (PCAD) working group, serum hormones were identified as possible indicators of behavioral effects that translated into altered rates of reproduction and mortality. The Office of Naval Research hosted a workshop (Effects of Stress on Marine Mammals Exposed to Sound) in 2009 that focused on this very topic (ONR, 2009).

Studies of other marine animals and terrestrial animals would lead us to expect some marine mammals to experience physiological stress responses and, perhaps, physiological responses that would be classified as ''distress'' upon exposure to high frequency, mid-frequency and low-frequency sounds. For example, Jansen (1998) reported on the relationship between acoustic exposures and physiological responses that are indicative of stress responses in humans (for example, elevated respiration and increased heart rates). Jones (1998) reported on reductions in human performance when faced with acute, repetitive exposures to acoustic disturbance. Trimper *et al.* (1998) reported on the physiological stress responses of osprey to low-level aircraft noise while Krausman *et al.* (2004) reported on the auditory and physiology stress responses of endangered Sonoran pronghorn to military overflights. Smith *et al.* (2004a, 2004b) identified noise-induced physiological transient stress responses in hearing-specialist fish (i.e., goldfish) that accompanied short- and long-term hearing losses. Welch and Welch (1970) reported physiological and behavioral stress responses that accompanied damage to the inner ears of fish and several mammals.

Hearing is one of the primary senses marine mammals use to gather information about their environment and to communicate with conspecifics. Although empirical information on the relationship between sensory impairment (TTS, PTS, and acoustic masking) on marine mammals remains limited, it seems reasonable to assume that reducing an animal's ability to gather information about its environment and to communicate with other members of its species would be stressful for animals that use hearing as their primary sensory mechanism. Therefore, we assume that acoustic exposures sufficient to trigger onset PTS or TTS would be accompanied by physiological stress responses because terrestrial animals exhibit those responses under similar conditions (NRC, 2003). More importantly, marine mammals might experience stress responses at received levels lower than those necessary to trigger onset TTS. Based on empirical studies of the time required to recover from stress responses (Moberg, 2000), we also assume that stress responses are likely to persist beyond the time interval required for animals to recover from TTS and might result in pathological and pre-pathological states that would be as significant as behavioral responses to TTS.

Behavioral Disturbance

Behavioral responses to sound are highly variable and context-specific. Many different variables can influence an animal's perception of and response to (nature and magnitude) an acoustic event. An animal's prior experience with a sound or sound source effects whether it is less likely (habituation) or more likely (sensitization) to respond to certain sounds in the future (animals can also be innately pre-disposed to respond to certain sounds in certain ways) (Southall *et al.,* 2007). Related to the sound itself, the perceived nearness of the sound, bearing of the sound (approaching vs. retreating), similarity of a sound to biologically relevant sounds in the animal's environment (i.e., calls of predators, prey, or conspecifics), and familiarity of the sound may affect the way an animal responds to the sound (Southall *et al.,* 2007). Individuals (of different age, gender, reproductive status, etc.) among most populations will have variable hearing capabilities, and differing behavioral sensitivities to sounds that will be affected by prior conditioning, experience, and current activities of those individuals. Often, specific acoustic features of the sound and contextual variables (i.e., proximity, duration, or recurrence of the sound or the current behavior that the marine mammal is engaged in or its prior experience), as well as entirely separate factors such as the physical presence of a nearby vessel, may be more relevant to the animal's response than the received level alone.

Exposure of marine mammals to sound sources can result in no response or responses including, but not limited to increased alertness; orientation or attraction to a sound source; vocal modifications; cessation of feeding; cessation of social interaction; alteration of movement or diving behavior; habitat abandonment (temporary or permanent); and, in severe cases, panic, flight, stampede, or stranding, potentially resulting in death (Southall *et al.,* 2007). A review of marine mammal responses to anthropogenic sound was first conducted by Richardson and others in 1995. A review by Nowacek *et al.* (2007) addresses studies conducted since 1995 and focuses on observations where the received sound level of the exposed marine mammal(s) was known or could be estimated. The following sub-sections provide examples of behavioral responses that provide an idea of the variability in behavioral responses that would be expected given the differential sensitivities of marine mammal species to sound and the wide range of potential acoustic sources to which a marine mammal may be exposed.

Flight Response—A flight response is a dramatic change in normal movement to a directed and rapid movement away from the perceived location of a sound source. Relatively little information on flight responses of marine mammals to anthropogenic signals exist, although observations of flight responses to the presence of predators have occurred (Connor and Heithaus, 1996). Flight responses have been speculated as being a component of marine mammal strandings associated with sonar activities (Evans and England, 2001).

Response to Predator—Evidence suggests that at least some marine mammals have the ability to acoustically identify potential predators. For example, harbor seals that reside in the coastal waters off British Columbia are frequently targeted by certain groups of killer whales, but not others. The seals discriminate between the calls of threatening and non-threatening killer whales (Deecke *et al.,* 2002), a capability that should increase survivorship while reducing the energy required for attending to and responding to all killer whale calls. The occurrence of masking or hearing impairment provides a means by which marine mammals may be prevented from responding to the acoustic cues produced by their predators. Whether or not this is a possibility depends on the duration of the masking/hearing impairment and the likelihood of encountering a predator during the time that predator cues are impeded.

Diving—Changes in dive behavior can vary widely. They may consist of increased or decreased dive times and surface intervals as well as changes in the rates of ascent and descent during a dive. Variations in dive behavior may reflect interruptions in biologically significant activities (e.g., foraging) or they may be of little biological significance. Variations in dive behavior may also expose an animal to potentially harmful conditions (e.g., increasing the chance of ship-strike) or may serve as an avoidance response that enhances survivorship. The impact of a variation in diving resulting from an acoustic exposure depends on what the animal is doing at the time of the exposure and the type and magnitude of the response.

Nowacek *et al.* (2004) reported disruptions of dive behaviors in foraging North Atlantic right whales when exposed to an alerting stimulus, an action, they noted, that could lead to an increased likelihood of ship strike. However, the whales did not respond to playbacks of either right whale social sounds or vessel noise, highlighting the importance of the sound characteristics in producing a behavioral reaction. Conversely, Indo-Pacific humpback dolphins have been observed to dive for longer periods of time in areas where vessels were present and/or approaching (Ng and Leung, 2003). In both of these studies, the influence of the sound exposure cannot be decoupled from the physical presence of a surface vessel, thus complicating intepretations of the relative contribution of each stimulus to the response. Indeed, the presence of surface vessels, their approach and speed of approach, seemed to be significant factors in the response of the Indo-Pacific humpback dolphins (Ng and Leung, 2003). Low frequency signals of the Acoustic Thermometry of Ocean Climate (ATOC) sound source were not found to affect dive times of humpback whales in Hawaiian waters (Frankel and Clark, 2000) or to overtly affect elephant seal dives (Costa *et al.,* 2003). They did, however, produce subtle effects that varied in direction and degree among the individual seals, illustrating the equivocal nature of behavioral effects and consequent difficulty in defining and predicting them.

Due to past incidents of beaked whale strandings associated with sonar operations, feedback paths are provided between avoidance and diving and indirect tissue effects. This feedback accounts for the hypothesis that variations in diving behavior and/or avoidance responses can possibly result in nitrogen tissue supersaturation and nitrogen off-gassing, possibly to the point of deleterious vascular bubble formation (Jepson *et al.,* 2003). Although hypothetical, discussions surrounding this potential process are controversial.

Foraging—Disruption of feeding behavior can be difficult to correlate with anthropogenic sound exposure, so it is usually inferred by observed displacement from known foraging areas, the appearance of secondary indicators (e.g., bubble nets or sediment plumes), or changes in dive behavior. Noise from seismic surveys was not found to impact the feeding behavior in western grey whales off the coast of Russia (Yazvenko *et al.,* 2007) and sperm whales engaged in foraging dives did not abandon dives when exposed to distant signatures of seismic airguns (Madsen *et al.,* 2006). Balaenopterid whales exposed to moderate low-frequency signals similar to the ATOC sound source demonstrated no variation in foraging activity (Croll *et al.,* 2001), whereas five out of six North Atlantic right whales exposed to an acoustic alarm interrupted their foraging dives (Nowacek *et al.,* 2004). Although the received sound pressure level at the animals was similar in the latter two studies, the frequency, duration, and temporal pattern of signal presentation were different. These factors, as well as differences in species sensitivity, are likely contributing factors to the differential response. A determination of whether foraging disruptions incur fitness consequences will require information on or estimates of the energetic requirements of the individuals and the relationship between prey availability, foraging effort and success, and the life history stage of the animal.

Breathing—Variations in respiration naturally vary with different behaviors and variations in respiration rate as a function of acoustic exposure can be expected to co-occur with other behavioral reactions, such as a flight response or an alteration in diving. However, respiration rates in and of themselves may be representative of annoyance or an acute stress response. Mean exhalation rates of gray whales at rest and while diving were found to be unaffected by seismic surveys conducted adjacent to the whale feeding grounds (Gailey *et al.,* 2007). Studies with captive harbor porpoises showed increased respiration rates upon introduction of acoustic alarms (Kastelein *et al.,* 2001; Kastelein *et al.,* 2006a) and emissions for underwater data transmission (Kastelein *et al.,* 2005). However, exposure of the same acoustic alarm to a striped dolphin under the same conditions did not elicit a response (Kastelein *et al.,* 2006a), again highlighting the importance in understanding species differences in the tolerance of underwater noise when determining the potential for impacts resulting from anthropogenic sound exposure.

Social relationships—Social interactions between mammals can be affected by noise via the disruption of communication signals or by the displacement of individuals. Disruption of social relationships therefore depends on the disruption of other behaviors (e.g., caused avoidance, masking, etc.) and no specific overview is provided here. However, social disruptions must be considered in context of the relationships that are affected. Long-term disruptions of mother/calf pairs or mating displays have the potential to affect the growth and survival or reproductive effort/success of individuals, respectively.

Vocalizations (also see Masking Section)—Vocal changes in response to anthropogenic noise can occur across the repertoire of sound production modes used by marine mammals, such as whistling, echolocation click production, calling, and singing. Changes may result in response to a need to compete with an increase in background noise or may reflect an increased vigilance or startle response. For example, in the presence of low-frequency active sonar, humpback whales have been observed to increase the length of their ''songs'' (Miller *et al.,* 2000; Fristrup *et al.,* 2003), possibly due to the overlap in frequencies between the whale song and the low-frequency active sonar. A similar compensatory effect for the presence of low frequency vessel noise has been suggested for right whales; right whales have been observed to shift the frequency content of their calls upward while reducing the rate of calling in areas of increased anthropogenic noise (Parks *et al.,* 2007). Killer whales off the northwestern coast of the United States have been observed to increase the duration of primary calls once a threshold in observing vessel density (e.g., whale watching) was reached, which has been suggested as a response to increased masking noise produced by the vessels (Foote *et al.,* 2004). In contrast, both sperm and pilot whales potentially ceased sound production during the Heard Island feasibility test (Bowles *et al.,* 1994), although it cannot be absolutely determined whether the inability to acoustically detect the animals was due to the cessation of sound production or

the displacement of animals from the area.

Avoidance—Avoidance is the displacement of an individual from an area as a result of the presence of a sound. Richardson *et al.,* (1995) noted that avoidance reactions are the most obvious manifestations of disturbance in marine mammals. It is qualitatively different from the flight response, but also differs in the magnitude of the response (i.e., directed movement, rate of travel, etc.). Oftentimes avoidance is temporary, and animals return to the area once the noise has ceased. Longer term displacement is possible, however, which can lead to changes in abundance or distribution patterns of the species in the affected region if they do not become acclimated to the presence of the sound (Blackwell *et al.,* 2004; Bejder *et al.,* 2006; Teilmann *et al.,* 2006). Acute avoidance responses have been observed in captive porpoises and pinnipeds exposed to a number of different sound sources (Kastelein *et al.,* 2001; Finneran *et al.,* 2003; Kastelein *et al.,* 2006a; Kastelein *et al.,* 2006b). Short term avoidance of seismic surveys, low frequency emissions, and acoustic deterrants has also been noted in wild populations of odontocetes (Bowles *et al.,* 1994; Goold, 1996; 1998; Stone *et al.,* 2000; Morton and Symonds, 2002) and to some extent in mysticetes (Gailey *et al.,* 2007), while longer term or repetitive/chronic displacement for some dolphin groups and for manatees has been suggested to be due to the presence of chronic vessel noise (Haviland-Howell *et al.,* 2007; Miksis-Olds *et al.,* 2007).

Maybaum (1993) conducted sound playback experiments to assess the effects of MFAS on humpback whales in Hawaiian waters. Specifically, she exposed focal pods to sounds of a 3.3-kHz sonar pulse, a sonar frequency sweep from 3.1 to 3.6 kHz, and a control (blank) tape while monitoring behavior, movement, and underwater vocalizations. The two types of sonar signals (which both contained mid- and low-frequency components) differed in their effects on the humpback whales, but both resulted in avoidance behavior. The whales responded to the pulse by increasing their distance from the sound source and responded to the frequency sweep by increasing their swimming speeds and track linearity. In the Caribbean, sperm whales avoided exposure to mid-frequency submarine sonar pulses, in the range of 1000 Hz to 10,000 Hz (IWC 2005).

Kvadsheim *et al.,* (2007) conducted a controlled exposure experiment in which killer whales fitted with D-tags were exposed to mid-frequency active sonar (Source A: a 1.0 second upsweep 209 dB @ 1–2 kHz every 10 seconds for 10 minutes; Source B: with a 1.0 second upsweep 197 dB @ 6–7 kHz every 10 seconds for 10 minutes). When exposed to Source A, a tagged whale and the group it was traveling with did not appear to avoid the source. When exposed to Source B, the tagged whales along with other whales that had been carousel feeding, ceased feeding during the approach of the sonar and moved rapidly away from the source. When exposed to Source B, Kvadsheim and his co-workers reported that a tagged killer whale seemed to try to avoid further exposure to the sound field by the following behaviors: Immediately swimming away (horizontally) from the source of the sound; engaging in a series of erratic and frequently deep dives that seemed to take it below the sound field; or swimming away while engaged in a series of erratic and frequently deep dives. Although the sample sizes in this study are too small to support statistical analysis, the behavioral responses of the orcas were consistent with the results of other studies.

In 2007, the first in a series of behavioral response studies conducted by NMFS and other scientists showed one beaked whale (*Mesoplodon densirostris*) responding to an MFAS playback. The BRS–07 cruise report indicates that the playback began when the tagged beaked whale was vocalizing at depth (at the deepest part of a typical feeding dive), following a previous control with no sound exposure. The whale appeared to stop clicking significantly earlier than usual, when exposed to mid-frequency signals in the 130–140 dB (rms) received level range. After a few more minutes of the playback, when the received level reached a maximum of 140–150 dB, the whale ascended on the slow side of normal ascent rates with a longer than normal ascent, at which point the exposure was terminated. The results are from a single experiment and that a greater sample size is needed before robust and definitive conclusions can be drawn.

Studies on the Atlantic Undersea Test and Evaluation Center instrumented range in the Bahamas have shown that some Blainville's beaked whales may be resident during all or part of the year in the area, and that individuals may move off of the range for several days during and following a sonar event. However, animals are thought to continue feeding at short distances (a few kilometers) from the range out of the louder sound fields (less than 157 dB re 1 µPa) (McCarthy *et al.,* 2011; Tyack *et al.,* 2011). With these studies, there are now statistically strong data suggesting that beaked whales tend to avoid both actual naval mid-frequency sonar in real anti-submarine training scenarios as well as sonar-like signals and other signals used during controlled sound exposure studies in the same area.

Results from a 2007–2008 study conducted near the Bahamas showed a change in diving behavior of an adult Blainville's beaked whale to playback of mid-frequency source and predator sounds (Boyd *et al.,* 2008; Tyack *et al.,* 2011). Reaction to mid-frequency sounds included premature cessation of clicking and termination of a foraging dive, and a slower ascent rate to the surface. Preliminary results from a similar behavioral response study in southern California waters have been presented for the 2010–2011 field season (Southall *et al.* 2011). Cuvier's beaked whale responses suggested particular sensitivity to sound exposure as consistent with results for Blainville's beaked whale. Similarly, beaked whales exposed to sonar during British training exercises stopped foraging (DSTL 2007), and preliminary results of controlled playback of sonar may indicate feeding/foraging disruption of killer whales and sperm whales (Miller *et al.* 2011).

Orientation—A shift in an animal's resting state or an attentional change via an orienting response represent behaviors that would be considered mild disruptions if occurring alone. As previously mentioned, the responses may co-occur with other behaviors; for instance, an animal may initially orient toward a sound source, and then move away from it. Thus, any orienting response should be considered in context of other reactions that may occur.

There are few empirical studies of avoidance responses of free-living cetaceans to mid-frequency sonars. Much more information is available on the avoidance responses of free-living cetaceans to other acoustic sources, such as seismic airguns and low frequency tactical sonar, than mid-frequency active sonar.

Behavioral Responses (Southall et al. (2007))

Southall *et al.,* (2007) reports the results of the efforts of a panel of experts in acoustic research from behavioral, physiological, and physical disciplines that convened and reviewed the available literature on marine mammal hearing and physiological and behavioral responses to human-made sound with the goal of proposing exposure criteria for certain effects. This peer-reviewed compilation of literature is very valuable, though Southall *et al.*

(2007) note that not all data are equal, some have poor statistical power, insufficient controls, and/or limited information on received levels, background noise, and other potentially important contextual variables—such data were reviewed and sometimes used for qualitative illustration but were not included in the quantitative analysis for the criteria recommendations. All of the studies considered, however, contain an estimate of the received sound level when the animal exhibited the indicated response.

In the Southall *et al.,* (2007) publication, for the purposes of analyzing responses of marine mammals to anthropogenic sound and developing critieria, the authors differentiate between single pulse sounds, multiple pulse sounds, and non-pulse sounds. Sonar and other active acoustic sources are considered a non-pulse sound. Southall *et al.,* (2007) summarize the studies associated with low-frequency, mid-frequency, and high-frequency cetacean and pinniped responses to non-pulse sounds, based strictly on received level, in Appendix C of their article (incorporated by reference and summarized in the three paragraphs below).

The studies that address responses of low frequency cetaceans to non-pulse sounds include data gathered in the field and related to several types of sound sources (of varying similarity to sonar and other active acoustic sources) including: vessel noise, drilling and machinery playback, low-frequency M-sequences (sine wave with multiple phase reversals) playback, tactical low-frequency active sonar playback, drill ships, Acoustic Thermometry of Ocean Climate (ATOC) source, and non-pulse playbacks. These studies generally indicate no (or very limited) responses to received levels in the 90 to 120 dB re: 1 µPa range and an increasing likelihood of avoidance and other behavioral effects in the 120 to 160 dB range. As mentioned earlier, though, contextual variables play a very important role in the reported responses and the severity of effects are not linear when compared to received level. Also, few of the laboratory or field datasets had common conditions, behavioral contexts or sound sources, so it is not surprising that responses differ.

The studies that address responses of mid-frequency cetaceans to non-pulse sounds include data gathered both in the field and the laboratory and related to several different sound sources (of varying similarity to sonar and other active acoustic sources) including: pingers, drilling playbacks, ship and ice-breaking noise, vessel noise, Acoustic Harassment Devices (AHDs), Acoustic Deterrent Devices (ADDs), MFAS, and non-pulse bands and tones. Southall *et al.* (2007) were unable to come to a clear conclusion regarding the results of these studies. In some cases, animals in the field showed significant responses to received levels between 90 and 120 dB, while in other cases these responses were not seen in the 120 to 150 dB range. The disparity in results was likely due to contextual variation and the differences between the results in the field and laboratory data (animals typically responded at lower levels in the field).

The studies that address responses of high frequency cetaceans to non-pulse sounds include data gathered both in the field and the laboratory and related to several different sound sources (of varying similarity to sonar and other active acoustic sources) including: pingers, AHDs, and various laboratory non-pulse sounds. All of these data were collected from harbor porpoises. Southall *et al.* (2007) concluded that the existing data indicate that harbor porpoises are likely sensitive to a wide range of anthropogenic sounds at low received levels (~90–120 dB), at least for initial exposures. All recorded exposures above 140 dB induced profound and sustained avoidance behavior in wild harbor porpoises (Southall *et al.,* 2007). Rapid habituation was noted in some but not all studies. There is no data to indicate whether other high frequency cetaceans are as sensitive to anthropogenic sound as harbor porpoises are.

The studies that address the responses of pinnipeds in water to non-pulse sounds include data gathered both in the field and the laboratory and related to several different sound sources (of varying similarity to sonar and other active acoustic sources) including: AHDs, ATOC, various non-pulse sounds used in underwater data communication; underwater drilling, and construction noise. Few studies exist with enough information to include them in the analysis. The limited data suggested that exposures to non-pulse sounds between 90 and 140 dB generally do not result in strong behavioral responses in pinnipeds in water, but no data exist at higher received levels.

In addition to summarizing the available data, the authors of Southall *et al.* (2007) developed a severity scaling system with the intent of ultimately being able to assign some level of biological significance to a response. Following is a summary of their scoring system, a comprehensive list of the behaviors associated with each score may be found in the report:

- 0–3 (Minor and/or brief behaviors) includes, but is not limited to: no response; minor changes in speed or locomotion (but with no avoidance); individual alert behavior; minor cessation in vocal behavior; minor changes in response to trained behaviors (in laboratory).
- 4–6 (Behaviors with higher potential to affect foraging, reproduction, or survival) includes, but is not limited to: moderate changes in speed, direction, or dive profile; brief shift in group distribution; prolonged cessation or modification of vocal behavior (duration > duration of sound), minor or moderate individual and/or group avoidance of sound; brief cessation of reproductive behavior; or refusal to initiate trained tasks (in laboratory).
- 7–9 (Behaviors considered likely to affect the aforementioned vital rates) includes, but is not limited to: extensive of prolonged aggressive behavior; moderate, prolonged or significant separation of females and dependent offspring with disruption of acoustic reunion mechanisms; long-term avoidance of an area; outright panic, stampede, stranding; threatening or attacking sound source (in laboratory).

Potential Effects of Behavioral Disturbance

The different ways that marine mammals respond to sound are sometimes indicators of the ultimate effect that exposure to a given stimulus will have on the well-being (survival, reproduction, etc.) of an animal. There is little marine mammal data quantitatively relating the exposure of marine mammals to sound to effects on reproduction or survival, though data exists for terrestrial species to which we can draw comparisons for marine mammals.

Attention is the cognitive process of selectively concentrating on one aspect of an animal's environment while ignoring other things (Posner, 1994). Because animals (including humans) have limited cognitive resources, there is a limit to how much sensory information they can process at any time. The phenomenon called ''attentional capture'' occurs when a stimulus (usually a stimulus that an animal is not concentrating on or attending to) ''captures'' an animal's attention. This shift in attention can occur consciously or unconsciously (for example, when an animal hears sounds that it associates with the approach of a predator) and the shift in attention can be sudden (Dukas, 2002; van Rij, 2007).

Once a stimulus has captured an animal's attention, the animal can respond by ignoring the stimulus, assuming a "watch and wait" posture, or treat the stimulus as a disturbance and respond accordingly, which includes scanning for the source of the stimulus or "vigilance" (Cowlishaw *et al.,* 2004).

Vigilance is normally an adaptive behavior that helps animals determine the presence or absence of predators, assess their distance from conspecifics, or to attend cues from prey (Bednekoff and Lima, 1998; Treves, 2000). Despite those benefits, however, vigilance has a cost of time: when animals focus their attention on specific environmental cues, they are not attending to other activities such as foraging. These costs have been documented best in foraging animals, where vigilance has been shown to substantially reduce feeding rates (Saino, 1994; Beauchamp and Livoreil, 1997; Fritz *et al.,* 2002).

Animals will spend more time being vigilant, which may translate to less time foraging or resting, when disturbance stimuli approach them more directly, remain at closer distances, have a greater group size (for example, multiple surface vessels), or when they co-occur with times that an animal perceives increased risk (for example, when they are giving birth or accompanied by a calf). Most of the published literature, however, suggests that direct approaches will increase the amount of time animals will dedicate to being vigilant. For example, bighorn sheep and Dall's sheep dedicated more time being vigilant, and less time resting or foraging, when aircraft made direct approaches over them (Frid, 2001; Stockwell *et al.,* 1991).

Several authors have established that long-term and intense disturbance stimuli can cause population declines by reducing the body condition of individuals that have been disturbed, followed by reduced reproductive success, reduced survival, or both (Daan *et al.,* 1996; Madsen, 1994; White, 1983). For example, Madsen (1994) reported that pink-footed geese in undisturbed habitat gained body mass and had about a 46-percent reproductive success rate compared with geese in disturbed habitat (being consistently scared off the fields on which they were foraging) which did not gain mass and had a 17 percent reproductive success rate. Similar reductions in reproductive success have been reported for mule deer (Odocoileus hemionus) disturbed by all-terrain vehicles (Yarmoloy *et al.,* 1988), caribou disturbed by seismic exploration blasts (Bradshaw *et al.,* 1998), caribou disturbed by low-elevation jet fights (Luick *et al.,* 1996; Harrington and Veitch, 1992. Similarly, a study of elk that were disturbed experimentally by pedestrians concluded that the ratio of young to mothers was inversely related to disturbance rate (Phillips and Alldredge, 2000).

The primary mechanism by which increased vigilance and disturbance appear to affect the fitness of individual animals is by disrupting an animal's time budget and, as a result, reducing the time they might spend foraging and resting (which increases an animal's activity rate and energy demand). For example, a study of grizzly bears reported that bears disturbed by hikers reduced their energy intake by an average of 12 kcal/minute (50.2×10^3kJ/minute), and spent energy fleeing or acting aggressively toward hikers (White *et al.* 1999). Alternately, Ridgway *et al.* (2006) reported that increased vigilance in bottlenose dolphins exposed to sound over a 5-day period did not cause any sleep deprivation or stress effects such as changes in cortisol or epinephrine levels.

On a related note, many animals perform vital functions, such as feeding, resting, traveling, and socializing, on a diel cycle (24-hour cycle). Substantive behavioral reactions to noise exposure (such as disruption of critical life functions, displacement, or avoidance of important habitat) are more likely to be significant if they last more than one diel cycle or recur on subsequent days (Southall *et al.,* 2007). Consequently, a behavioral response lasting less than one day and not recurring on subsequent days is not considered particularly severe unless it could directly affect reproduction or survival (Southall *et al.,* 2007).

In response to the National Research Council of the National Academies (2005) review, the Office of Naval Research founded a working group to formalize the Population Consequences of Acoustic Disturbance (PCAD) framework. The PCAD model connects observable data through a series of transfer functions using a case study approach. The long-term goal is to improve the understanding of how effects of sound on marine mammals transfer between behavior and life functions and between life functions and vital rates of individuals. Then, this understanding of how disturbance can affect the vital rates of individuals will facilitate the further assessment of the population level effects of anthropogenic sound on marine mammals by providing a quantitative approach to evaluate effects and the relationship between takes and possible changes to adult survival and/or annual recruitment.

Stranding and Mortality

When a live or dead marine mammal swims or floats onto shore and becomes "beached" or incapable of returning to sea, the event is termed a "stranding" (Geraci *et al.,* 1999; Perrin and Geraci, 2002; Geraci and Lounsbury, 2005; NMFS, 2007). The legal definition for a stranding within the United States is that (A) "a marine mammal is dead and is (i) on a beach or shore of the United States; or (ii) in waters under the jurisdiction of the United States (including any navigable waters); or (B) a marine mammal is alive and is (i) on a beach or shore of the United States and is unable to return to the water; (ii) on a beach or shore of the United States and, although able to return to the water, is in need of apparent medical attention; or (iii) in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance." (16 U.S.C. 1421h).

Marine mammals are known to strand for a variety of reasons, such as infectious agents, biotoxicosis, starvation, fishery interaction, ship strike, unusual oceanographic or weather events, sound exposure, or combinations of these stressors sustained concurrently or in series. However, the cause or causes of most stranding are unknown (Geraci *et al.,* 1976; Eaton, 1979, Odell *et al.,* 1980; Best, 1982). Numerous studies suggest that the physiology, behavior, habitat relationships, age, or condition of cetaceans may cause them to strand or might pre-dispose them to strand when exposed to another phenomenon. These suggestions are consistent with the conclusions of numerous other studies that have demonstrated that combinations of dissimilar stressors commonly combine to kill an animal or dramatically reduce its fitness, even though one exposure without the other does not produce the same result (Chroussos, 2000; Creel, 2005; DeVries *et al.,* 2003; Fair and Becker, 2000; Foley *et al.,* 2001; Moberg, 2000; Relyea, 2005a; 2005b, Romero, 2004; Sih *et al.,* 2004). For reference, between 2001–2009, there was an annual average of approximately 1,400 cetacean strandings and 4,300 pinniped strandings along the coasts of the continental United States and Alaska (NMFS, 2011).

Several sources have published lists of mass stranding events of cetaceans during attempts to identify relationships between those stranding events and

military sonar (Hildebrand, 2004; IWC, 2005; Taylor *et al.,* 2004). For example, based on a review of stranding records between 1960 and 1995, the International Whaling Commission (2005) identified ten mass stranding events of Cuvier's beaked whales had been reported and one mass stranding of four Baird's beaked whale. The IWC concluded that, out of eight stranding events reported from the mid-1980s to the summer of 2003, seven had been coincident with the use of tactical mid-frequency sonar, one of those seven had been associated with the use of tactical low-frequency sonar, and the remaining stranding event had been associated with the use of seismic airguns.

Most of the stranding events reviewed by the International Whaling Commission involved beaked whales. A mass stranding of Cuvier's beaked whales in the eastern Mediterranean Sea occurred in 1996 (Franzis, 1998) and mass stranding events involving Gervais' beaked whales, Blainville's beaked whales, and Cuvier's beaked whales occurred off the coast of the Canary Islands in the late 1980s (Simmonds and Lopez-Jurado, 1991). The stranding events that occurred in the Canary Islands and Kyparissiakos Gulf in the late 1990s and the Bahamas in 2000 have been the most intensively-studied mass stranding events and have been associated with naval maneuvers involving the use of tactical sonar.

Between 1960 and 2006, 48 strandings (68 percent) involved beaked whales, 3 (4 percent) involved dolphins, and 14 (20 percent) involved whale species. Cuvier's beaked whales were involved in the greatest number of these events (48 or 68 percent), followed by sperm whales (7 or 10 percent), and Blainville's and Gervais' beaked whales (4 each or 6 percent). Naval activities (not just activities conducted by the U.S. Navy) that might have involved active sonar are reported to have coincided with 9 (13 percent) or 10 (14 percent) of those stranding events. Between the mid-1980s and 2003 (the period reported by the International Whaling Commission), we identified reports of 44 mass cetacean stranding events of which at least seven were coincident with naval exercises that were using mid-frequency sonar.

Strandings Associated With Impulse Sound

During a Navy training event on March 4, 2011 at the Silver Strand Training Complex in San Diego, California, three or possibly four dolphins were killed in an explosion. During an underwater detonation training event, a pod of 100 to 150 long-beaked common dolphins were observed moving towards the 700-yd (640.1–m) exclusion zone around the explosive charge, monitored by personnel in a safety boat and participants in a dive boat. Approximately 5 minutes remained on a time-delay fuse connected to a single 8.76 lb. (3.97 kg) explosive charge (C–4 and detonation cord). Although the dive boat was placed between the pod and the explosive in an effort to guide the dolphins away from the area, that effort was unsuccessful and three long-beaked common dolphins near the explosion died. In addition to the three dolphins found dead on March 4, the remains of a fourth dolphin were discovered on March 7, 2011 near Ocean Beach, California (3 days later and approximately 11.8 mi. [19 km] from Silver Strand where the training event occurred), which might also have been related to this event. Association of the fourth stranding with the training event is uncertain because dolphins strand on a regular basis in the San Diego area. Details such as the dolphins' depth and distance from the explosive at the time of the detonation could not be estimated from the 250 yd (228.6 m) standoff point of the observers in the dive boat or the safety boat.

These dolphin mortalities are the only known occurrence of a U.S. Navy training or testing event involving impulse energy (underwater detonation) that caused mortality or injury to a marine mammal. Despite this being a rare occurrence, the Navy has reviewed training requirements, safety procedures, and possible mitigation measures and implemented changes to reduce the potential for this to occur in the future. Discussions of procedures associated with these and other training and testing events are presented in the Mitigation section.

Strandings Associated With MFAS

Over the past 16 years, there have been five stranding events coincident with military mid-frequency sonar use in which exposure to sonar is believed to have been a contributing factor: Greece (1996); the Bahamas (2000); Madeira (2000); Canary Islands (2002); and Spain (2006). Additionally, during the 2004 Rim of the Pacific (RIMPAC) exercises, between 150 and 200 usually pelagic melon-headed whales occupied the shallow waters of Hanalei Bay, Kaua'i, Hawaii for over 28 hours. NMFS determined that MFAS was a plausible, if not likely, contributing factor in what may have been a confluence of events that led to the stranding. A number of other stranding events coincident with the operation of mid-frequency sonar including the death of beaked whales or other species (minke whales, dwarf sperm whales, pilot whales) have been reported; however, the majority have not been investigated to the degree necessary to determine the cause of the stranding and only one of these stranding events, the Bahamas (2000), was associated with exercises conducted by the U.S. Navy.

Greece (1996)

Twelve Cuvier's beaked whales stranded atypically (in both time and space) along a 38.2-kilometer strand of the coast of the Kyparissiakos Gulf on May 12 and 13, 1996 (Frantzis, 1998). From May 11 through May 15, the NATO research vessel *Alliance* was conducting sonar tests with signals of 600 Hz and 3 kHz and source levels of 228 and 226 dB re: 1μPa, respectively (D'Amico and Verboom, 1998; D'Spain *et al.,* 2006). The timing and the location of the testing encompassed the time and location of the whale strandings (Frantzis, 1998).

Necropsies of eight of the animals were performed but were limited to basic external examination and sampling of stomach contents, blood, and skin. No ears or organs were collected, and no histological samples were preserved. No apparent abnormalities or wounds were found (Frantzis, 2004). Examination of photos of the animals, taken soon after their death, revealed that the eyes of at least four of the individuals were bleeding. Photos were taken soon after their death (Frantzis, 2004). Stomach contents contained the flesh of cephalopods, indicating that feeding had recently taken place (Frantzis, 1998).

All available information regarding the conditions associated with this stranding event were compiled, and many potential causes were examined including major pollution events, prominent tectonic activity, unusual physical or meteorological events, magnetic anomalies, epizootics, and conventional military activities (International Council for the Exploration of the Sea, 2005a). However, none of these potential causes coincided in time or space with the mass stranding, or could explain its characteristics (International Council for the Exploration of the Sea, 2005a). The robust condition of the animals, plus the recent stomach contents, is inconsistent with pathogenic causes (Frantzis, 2004). In addition, environmental causes can be ruled out as there were no unusual environmental circumstances or events before or during this time period and within the general proximity (Frantzis, 2004).

Because of the rarity of this mass stranding of Cuvier's beaked whales in the Kyparissiakos Gulf (first one in history), the probability for the two events (the military exercises and the strandings) to coincide in time and location, while being independent of each other, was extremely low (Frantzis, 1998). However, because full necropsies had not been conducted, and no abnormalities were noted, the cause of the strandings could not be precisely determined (Cox *et al.,* 2006). A Bioacoustics Panel convened by NATO concluded that the evidence available did not allow them to accept or reject sonar exposures as a causal agent in these stranding events. The analysis of this stranding event provided support for, but no clear evidence for, the cause-and-effect relationship of tactical sonar training activities and beaked whale strandings (Cox *et al.,* 2006).

Bahamas (2000)

NMFS and the Navy prepared a joint report addressing the multi-species stranding in the Bahamas in 2000, which took place within 24 hours of U.S. Navy ships using MFAS as they passed through the Northeast and Northwest Providence Channels on March 15–16, 2000. The ships, which operated both AN/SQS–53C and AN/SQS–56, moved through the channel while emitting sonar pings approximately every 24 seconds. Of the 17 cetaceans that stranded over a 36-hr period (Cuvier's beaked whales, Blainville's beaked whales, Minke whales, and a spotted dolphin), seven animals died on the beach (5 Cuvier's beaked whales, 1 Blainville's beaked whale, and the spotted dolphin), while the other 10 were returned to the water alive (though their ultimate fate is unknown). As discussed in the Bahamas report (DOC/DON, 2001), there is no likely association between the minke whale and spotted dolphin strandings and the operation of MFAS.

Necropsies were performed on five of the stranded beaked whales. All five necropsied beaked whales were in good body condition, showing no signs of infection, disease, ship strike, blunt trauma, or fishery related injuries, and three still had food remains in their stomachs. Auditory structural damage was discovered in four of the whales, specifically bloody effusions or hemorrhaging around the ears. Bilateral intracochlear and unilateral temporal region subarachnoid hemorrhage, with blood clots in the lateral ventricles, were found in two of the whales. Three of the whales had small hemorrhages in their acoustic fats (located along the jaw and in the melon).

A comprehensive investigation was conducted and all possible causes of the stranding event were considered, whether they seemed likely at the outset or not. Based on the way in which the strandings coincided with ongoing naval activity involving tactical MFAS use, in terms of both time and geography, the nature of the physiological effects experienced by the dead animals, and the absence of any other acoustic sources, the investigation team concluded that MFAS aboard U.S. Navy ships that were in use during the sonar exercise in question were the most plausible source of this acoustic or impulse trauma to beaked whales. This sound source was active in a complex environment that included the presence of a surface duct, unusual and steep bathymetry, a constricted channel with limited egress, intensive use of multiple, active sonar units over an extended period of time, and the presence of beaked whales that appear to be sensitive to the frequencies produced by these sonars. The investigation team concluded that the cause of this stranding event was the confluence of the Navy MFAS and these contributory factors working together, and further recommended that the Navy avoid operating MFAS in situations where these five factors would be likely to occur. This report does not conclude that all five of these factors must be present for a stranding to occur, nor that beaked whales are the only species that could potentially be affected by the confluence of the other factors. Based on this, NMFS believes that the operation of MFAS in situations where surface ducts exist, or in marine environments defined by steep bathymetry and/or constricted channels may increase the likelihood of producing a sound field with the potential to cause cetaceans (especially beaked whales) to strand, and therefore, suggests the need for increased vigilance while operating MFAS in these areas, especially when beaked whales (or potentially other deep divers) are likely present.

Madeira, Spain (2000)

From May 10–14, 2000, three Cuvier's beaked whales were found atypically stranded on two islands in the Madeira archipelago, Portugal (Cox *et al.,* 2006). A fourth animal was reported floating in the Madeiran waters by fisherman but did not come ashore (Woods Hole Oceanographic Institution, 2005). Joint NATO amphibious training peacekeeping exercises involving participants from 17 countries 80 warships, took place in Portugal during May 2–15, 2000.

The bodies of the three stranded whales were examined post mortem (Woods Hole Oceanographic Institution, 2005), though only one of the stranded whales was fresh enough (24 hours after stranding) to be necropsied (Cox *et al.,* 2006). Results from the necropsy revealed evidence of hemorrhage and congestion in the right lung and both kidneys (Cox *et al.,* 2006). There was also evidence of intercochlear and intracranial hemorrhage similar to that which was observed in the whales that stranded in the Bahamas event (Cox *et al.,* 2006). There were no signs of blunt trauma, and no major fractures (Woods Hole Oceanographic Institution, 2005). The cranial sinuses and airways were found to be clear with little or no fluid deposition, which may indicate good preservation of tissues (Woods Hole Oceanographic Institution, 2005).

Several observations on the Madeira stranded beaked whales, such as the pattern of injury to the auditory system, are the same as those observed in the Bahamas strandings. Blood in and around the eyes, kidney lesions, pleural hemorrhages, and congestion in the lungs are particularly consistent with the pathologies from the whales stranded in the Bahamas, and are consistent with stress and pressure related trauma. The similarities in pathology and stranding patterns between these two events suggest that a similar pressure event may have precipitated or contributed to the strandings at both sites (Woods Hole Oceanographic Institution, 2005).

Even though no definitive causal link can be made between the stranding event and naval exercises, certain conditions may have existed in the exercise area that, in their aggregate, may have contributed to the marine mammal strandings (Freitas, 2004): exercises were conducted in areas of at least 547 fathoms (1000 m) depth near a shoreline where there is a rapid change in bathymetry on the order of 547 to 3,281 fathoms (1000–6000 m) occurring a cross a relatively short horizontal distance (Freitas, 2004); multiple ships were operating around Madeira, though it is not known if MFA sonar was used, and the specifics of the sound sources used are unknown (Cox *et al.,* 2006, Freitas, 2004); and exercises took place in an area surrounded by landmasses separated by less than 35 nm (65 km) and at least 10 nm (19 km) in length, or in an embayment. Exercises involving multiple ships employing MFA near land may produce sound directed towards a channel or embayment that may cut off the lines of egress for marine mammals (Freitas, 2004).

Canary Islands, Spain (2002)

The southeastern area within the Canary Islands is well known for aggregations of beaked whales due to its ocean depths of greater than 547 fathoms (1,000 m) within a few hundred meters of the coastline (Fernandez *et al.,* 2005). On September 24, 2002, 14 beaked whales were found stranded on Fuerteventura and Lanzarote Islands in the Canary Islands (International Council for Exploration of the Sea, 2005a). Seven whales died, while the remaining seven live whales were returned to deeper waters (Fernandez *et al.,* 2005). Four beaked whales were found stranded dead over the next 3 days either on the coast or floating offshore. These strandings occurred within near proximity of an international naval exercise that utilized MFAS and involved numerous surface warships and several submarines. Strandings began about 4 hours after the onset of MFA sonar activity (International Council for Exploration of the Sea, 2005a; Fernandez *et al.,* 2005).

Eight Cuvier's beaked whales, one Blainville's beaked whale, and one Gervais' beaked whale were necropsied, six of them within 12 hours of stranding (Fernandez *et al.,* 2005). No pathogenic bacteria were isolated from the carcasses (Jepson *et al.,* 2003). The animals displayed severe vascular congestion and hemorrhage especially around the tissues in the jaw, ears, brain, and kidneys, displaying marked disseminated microvascular hemorrhages associated with widespread fat emboli (Jepson *et al.,* 2003; International Council for Exploration of the Sea, 2005a). Several organs contained intravascular bubbles, although definitive evidence of gas embolism in vivo is difficult to determine after death (Jepson *et al.,* 2003). The livers of the necropsied animals were the most consistently affected organ, which contained macroscopic gas-filled cavities and had variable degrees of fibrotic encapsulation. In some animals, cavitary lesions had extensively replaced the normal tissue (Jepson *et al.,* 2003). Stomachs contained a large amount of fresh and undigested contents, suggesting a rapid onset of disease and death (Fernandez *et al.,* 2005). Head and neck lymph nodes were enlarged and congested, and parasites were found in the kidneys of all animals (Fernandez *et al.,* 2005).

The association of NATO MFAS use close in space and time to the beaked whale strandings, and the similarity between this stranding event and previous beaked whale mass strandings coincident with sonar use, suggests that a similar scenario and causative mechanism of stranding may be shared between the events. Beaked whales stranded in this event demonstrated brain and auditory system injuries, hemorrhages, and congestion in multiple organs, similar to the pathological findings of the Bahamas and Madeira stranding events. In addition, the necropsy results of Canary Islands stranding event lead to the hypothesis that the presence of disseminated and widespread gas bubbles and fat emboli were indicative of nitrogen bubble formation, similar to what might be expected in decompression sickness (Jepson *et al.,* 2003; Fernández *et al.,* 2005).

Hanalei Bay (2004)

On July 3 and 4, 2004, approximately 150 to 200 melon-headed whales occupied the shallow waters of the Hanalei Bay, Kaua'i, Hawaii for over 28 hours. Attendees of a canoe blessing observed the animals entering the Bay in a single wave formation at 7 a.m. on July 3, 2004. The animals were observed moving back into the shore from the mouth of the Bay at 9 a.m. The usually pelagic animals milled in the shallow bay and were returned to deeper water with human assistance beginning at 9:30 a.m. on July 4, 2004, and were out of sight by 10:30 a.m.

Only one animal, a calf, was known to have died following this event. The animal was noted alive and alone in the Bay on the afternoon of July 4, 2004 and was found dead in the Bay the morning of July 5, 2004. A full necropsy, magnetic resonance imaging, and computerized tomography examination were performed on the calf to determine the manner and cause of death. The combination of imaging, necropsy and histological analyses found no evidence of infectious, internal traumatic, congenital, or toxic factors. Cause of death could not be definitively determined, but it is likely that maternal separation, poor nutritional condition, and dehydration contributed to the final demise of the animal. Although we do not know when the calf was separated from its mother, the animals' movement into the Bay and subsequent milling and re-grouping may have contributed to the separation or lack of nursing, especially if the maternal bond was weak or this was a primiparous calf.

Environmental factors, abiotic and biotic, were analyzed for any anomalous occurrences that would have contributed to the animals entering and remaining in Hanalei Bay. The Bay's bathymetry is similar to many other sites within the Hawaiian Island chain and dissimilar to sites that have been associated with mass strandings in other parts of the U.S. The weather conditions appeared to be normal for that time of year with no fronts or other significant features noted. There was no evidence of unusual distribution, occurrence of predator or prey species, or unusual harmful algal blooms, although Mobley *et al.,* 2007 suggested that the full moon cycle that occurred at that time may have influenced a run of squid into the Bay. Weather patterns and bathymetry that have been associated with mass strandings elsewhere were not found to occur in this instance.

The Hanalei event was spatially and temporally correlated with RIMPAC. Official sonar training and tracking exercises in the Pacific Missile Range Facility (PMRF) warning area did not commence until approximately 8 a.m. on July 3 and were thus ruled out as a possible trigger for the initial movement into the Bay. However, six naval surface vessels transiting to the operational area on July 2 intermittently transmitted active sonar (for approximately 9 hours total from 1:15 p.m. to 12:30 a.m.) as they approached from the south. The potential for these transmissions to have triggered the whales' movement into Hanalei Bay was investigated. Analyses with the information available indicated that animals to the south and east of Kaua'i could have detected active sonar transmissions on July 2, and reached Hanalei Bay on or before 7 a.m. on July 3. However, data limitations regarding the position of the whales prior to their arrival in the Bay, the magnitude of sonar exposure, behavioral responses of melon-headed whales to acoustic stimuli, and other possible relevant factors preclude a conclusive finding regarding the role of sonar in triggering this event. Propagation modeling suggest that transmissions from sonar use during the July 3 exercise in the PMRF warning area may have been detectable at the mouth of the Bay. If the animals responded negatively to these signals, it may have contributed to their continued presence in the Bay. The U.S. Navy ceased all active sonar transmissions during exercises in this range on the afternoon of July 3. Subsequent to the cessation of sonar use, the animals were herded out of the Bay.

While causation of this stranding event may never be unequivocally determined, we consider the active sonar transmissions of July 2–3, 2004, a plausible, if not likely, contributing factor in what may have been a confluence of events. This conclusion is based on the following: (1) The evidently anomalous nature of the

stranding; (2) its close spatiotemporal correlation with wide-scale, sustained use of sonar systems previously associated with stranding of deep-diving marine mammals; (3) the directed movement of two groups of transmitting vessels toward the southeast and southwest coast of Kauai; (4) the results of acoustic propagation modeling and an analysis of possible animal transit times to the Bay; and (5) the absence of any other compelling causative explanation. The initiation and persistence of this event may have resulted from an interaction of biological and physical factors. The biological factors may have included the presence of an apparently uncommon, deep-diving cetacean species (and possibly an offshore, non-resident group), social interactions among the animals before or after they entered the Bay, and/or unknown predator or prey conditions. The physical factors may have included the presence of nearby deep water, multiple vessels transiting in a directed manner while transmitting active sonar over a sustained period, the presence of surface sound ducting conditions, and/or intermittent and random human interactions while the animals were in the Bay.

A separate event involving melon-headed whales and rough-toothed dolphins took place over the same period of time in the Northern Mariana Islands (Jefferson *et al.,* 2006), which is several thousand miles from Hawaii. Some 500 to 700 melon-headed whales came into Sasanhaya Bay on July 4, 2004 near the island of Rota and then left of their own accord after 5.5 hours; no known active sonar transmissions occurred in the vicinity of that event. The Rota incident led to scientific debate regarding what, if any, relationship the event had to the simultaneous events in Hawaii and whether they might be related by some common factor (e.g., there was a full moon on July 2, 2004 as well as during other melon-headed whale strandings and nearshore aggregations (Brownell *et al.,* 2009; Lignon *et al.,* 2007; Mobley *et al.,* 2007). Brownell *et al.* (2009) compared the two incidents, along with one other stranding incident at Nuka Hiva in French Polynesia and normal resting behaviors observed at Palmyra Island, in regard to physical features in the areas, melon-headed whale behavior, and lunar cycles. Brownell *et al.,* (2009) concluded that the rapid entry of the whales into Hanalei Bay, their movement into very shallow water far from the 100-m contour, their milling behavior (typical pre-stranding behavior), and their reluctance to leave the bay constituted an unusual event that was not similar to the events that occurred at Rota (but was similar to the events at Palmyra), which appear to be similar to observations of melon-headed whales resting normally at Palmyra Island. Additionally, there was no correlation between lunar cycle and the types of behaviors observed in the Brownell *et al.* (2009) examples.

Spain (2006)

The Spanish Cetacean Society reported an atypical mass stranding of four beaked whales that occurred January 26, 2006, on the southeast coast of Spain, near Mojacar (Gulf of Vera) in the Western Mediterranean Sea. According to the report, two of the whales were discovered the evening of January 26 and were found to be still alive. Two other whales were discovered during the day on January 27, but had already died. The first three animals were located near the town of Mojacar and the fourth animal was found dead, a few kilometers north of the first three animals. From January 25–26, 2006, Standing North Atlantic Treaty Organization (NATO) Response Force Maritime Group Two (five of seven ships including one U.S. ship under NATO Operational Control) had conducted active sonar training against a Spanish submarine within 50 nm (93 km) of the stranding site.

Veterinary pathologists necropsied the two male and two female Cuvier's beaked whales. According to the pathologists, the most likely primary cause of this type of beaked whale mass stranding event was anthropogenic acoustic activities, most probably anti-submarine MFAS used during the military naval exercises. However, no positive acoustic link was established as a direct cause of the stranding. Even though no causal link can be made between the stranding event and naval exercises, certain conditions may have existed in the exercise area that, in their aggregate, may have contributed to the marine mammal strandings (Freitas, 2004): Exercises were conducted in areas of at least 547 fathoms (1,000 m) depth near a shoreline where there is a rapid change in bathymetry on the order of 547 to 3,281 fathoms (1,000–6,000 m) occurring across a relatively short horizontal distance (Freitas, 2004); multiple ships (in this instance, five) were operating MFAS in the same area over extended periods of time (in this case, 20 hours) in close proximity; and exercises took place in an area surrounded by landmasses, or in an embayment. Exercises involving multiple ships employing MFAS near land may have produced sound directed towards a channel or embayment that may have cut off the lines of egress for the affected marine mammals (Freitas, 2004).

Association Between Mass Stranding Events and Exposure to MFAS

Several authors have noted similarities between some of these stranding incidents: They occurred in islands or archipelagoes with deep water nearby, several appeared to have been associated with acoustic waveguides like surface ducting, and the sound fields created by ships transmitting MFAS (Cox *et al.,* 2006, D'Spain *et al.,* 2006). Although Cuvier's beaked whales have been the most common species involved in these stranding events (81 percent of the total number of stranded animals), other beaked whales (including *Mesoplodon europeaus, M. densirostris,* and *Hyperoodon ampullatus*) comprise 14 percent of the total. Other species (*Stenella coeruleoalba, Kogia breviceps* and *Balaenoptera acutorostrata*) have stranded, but in much lower numbers and less consistently than beaked whales.

Based on the evidence available, however, we cannot determine whether: (a) Cuvier's beaked whale is more prone to injury from high-intensity sound than other species; (b) their behavioral responses to sound makes them more likely to strand; or (c) they are more likely to be exposed to MFAS than other cetaceans (for reasons that remain unknown). Because the association between active sonar exposures and marine mammals mass stranding events is not consistent—some marine mammals strand without being exposed to sonar and some sonar transmissions are not associated with marine mammal stranding events despite their co-occurrence—other risk factors or a groupings of risk factors probably contribute to these stranding events.

Behaviorally Mediated Responses to MFAS That May Lead to Stranding

Although the confluence of Navy MFAS with the other contributory factors noted in the report was identified as the cause of the Bahamas (2000) stranding event, the specific mechanisms that led to that stranding (or the others) are not understood, and there is uncertainty regarding the ordering of effects that led to the stranding. It is unclear whether beaked whales were directly injured by sound (acoustically mediated bubble growth, addressed above) prior to stranding or whether a behavioral response to sound occurred that ultimately caused the beaked whales to be injured and strand.

Although causal relationships between beaked whale stranding events and active sonar remain unknown, several authors have hypothesized that stranding events involving these species in the Bahamas and Canary Islands may have been triggered when the whales changed their dive behavior in a startled response to exposure to active sonar or to further avoid exposure (Cox *et al.,* 2006, Rommel *et al.,* 2006). These authors proposed three mechanisms by which the behavioral responses of beaked whales upon being exposed to active sonar might result in a stranding event. These include the following: gas bubble formation caused by excessively fast surfacing; remaining at the surface too long when tissues are supersaturated with nitrogen; or diving prematurely when extended time at the surface is necessary to eliminate excess nitrogen. More specifically, beaked whales that occur in deep waters that are in close proximity to shallow waters (for example, the ''canyon areas'' that are cited in the Bahamas stranding event; see D'Spain and D'Amico, 2006), may respond to active sonar by swimming into shallow waters to avoid further exposures and strand if they were not able to swim back to deeper waters. Second, beaked whales exposed to active sonar might alter their dive behavior. Changes in their dive behavior might cause them to remain at the surface or at depth for extended periods of time which could lead to hypoxia directly by increasing their oxygen demands or indirectly by increasing their energy expenditures (to remain at depth) and increase their oxygen demands as a result. If beaked whales are at depth when they detect a ping from an active sonar transmission and change their dive profile, this could lead to the formation of significant gas bubbles, which could damage multiple organs or interfere with normal physiological function (Cox *et al.,* 2006; Rommel *et al.,* 2006; Zimmer and Tyack, 2007). Baird *et al.* (2005) found that slow ascent rates from deep dives and long periods of time spent within 50 m of the surface were typical for both Cuvier's and Blainville's beaked whales, the two species involved in mass strandings related to naval sonar. These two behavioral mechanisms may be necessary to purge excessive dissolved nitrogen concentrated in their tissues during their frequent long dives (Baird *et al.,* 2005). Baird *et al.* (2005) further suggests that abnormally rapid ascents or premature dives in response to high-intensity sonar could indirectly result in physical harm to the beaked whales, through the mechanisms described above (gas bubble formation or non-elimination of excess nitrogen).

Because many species of marine mammals make repetitive and prolonged dives to great depths, it has long been assumed that marine mammals have evolved physiological mechanisms to protect against the effects of rapid and repeated decompressions. Although several investigators have identified physiological adaptations that may protect marine mammals against nitrogen gas supersaturation (alveolar collapse and elective circulation; Kooyman *et al.,* 1972; Ridgway and Howard, 1979), Ridgway and Howard (1979) reported that bottlenose dolphins that were trained to dive repeatedly had muscle tissues that were substantially supersaturated with nitrogen gas. Houser *et al.* (2001) used these data to model the accumulation of nitrogen gas within the muscle tissue of other marine mammal species and concluded that cetaceans that dive deep and have slow ascent or descent speeds would have tissues that are more supersaturated with nitrogen gas than other marine mammals. Based on these data, Cox *et al.* (2006) hypothesized that a critical dive sequence might make beaked whales more prone to stranding in response to acoustic exposures. The sequence began with (1) very deep (to depths as deep as 2 kilometers) and long (as long as 90 minutes) foraging dives with (2) relatively slow, controlled ascents, followed by (3) a series of ''bounce'' dives between 100 and 400 meters in depth (also see Zimmer and Tyack, 2007). They concluded that acoustic exposures that disrupted any part of this dive sequence (for example, causing beaked whales to spend more time at surface without the bounce dives that are necessary to recover from the deep dive) could produce excessive levels of nitrogen supersaturation in their tissues, leading to gas bubble and emboli formation that produces pathologies similar to decompression sickness.

Zimmer and Tyack (2007) modeled nitrogen tension and bubble growth in several tissue compartments for several hypothetical dive profiles and concluded that repetitive shallow dives (defined as a dive where depth does not exceed the depth of alveolar collapse, approximately 72 m for Ziphius), perhaps as a consequence of an extended avoidance reaction to sonar sound, could pose a risk for decompression sickness and that this risk should increase with the duration of the response. Their models also suggested that unrealistically rapid ascent rates from normal dive behaviors are unlikely to result in supersaturation to the extent that bubble formation would be expected. Tyack *et al.* (2006) suggested that emboli observed in animals exposed to mid-frequency range sonar (Jepson *et al.,* 2003; Fernandez *et al.,* 2005) could stem from a behavioral response that involves repeated dives shallower than the depth of lung collapse. Given that nitrogen gas accumulation is a passive process (i.e. nitrogen is metabolically inert), a bottlenose dolphin was trained to repetitively dive a profile predicted to elevate nitrogen saturation to the point that nitrogen bubble formation was predicted to occur. However, inspection of the vascular system of the dolphin via ultrasound did not demonstrate the formation of asymptomatic nitrogen gas bubbles (Houser *et al.,* 2007). Baird *et al.* (2008), in a beaked whale tagging study off Hawaii, showed that deep dives are equally common during day or night, but ''bounce dives'' are typically a daytime behavior, possibly associated with visual predator avoidance. This may indicate that ''bounce dives'' are associated with something other than behavioral regulation of dissolved nitrogen levels, which would be necessary day and night.

If marine mammals respond to a Navy vessel that is transmitting active sonar in the same way that they might respond to a predator, their probability of flight responses should increase when they perceive that Navy vessels are approaching them directly, because a direct approach may convey detection and intent to capture (Burger and Gochfeld, 1981, 1990; Cooper, 1997, 1998). The probability of flight responses should also increase as received levels of active sonar increase (and the ship is, therefore, closer) and as ship speeds increase (that is, as approach speeds increase). For example, the probability of flight responses in Dall's sheep (*Ovis dalli dalli*) (Frid 2001a, b), ringed seals (*Phoca hispida*) (Born *et al.,* 1999), Pacific brant (*Branta bernic nigricans*) and Canada geese (*B. Canadensis*) increased as a helicopter or fixed-wing aircraft approached groups of these animals more directly (Ward *et al.,* 1999). Bald eagles (*Haliaeetus leucocephalus*) perched on trees alongside a river were also more likely to flee from a paddle raft when their perches were closer to the river or were closer to the ground (Steidl and Anthony, 1996).

Despite the many theories involving bubble formation (both as a direct cause of injury (see Acoustically Mediated Bubble Growth Section) and an indirect cause of stranding (See Behaviorally Mediated Bubble Growth Section),

Southall *et al.,* (2007) summarizes that there is either scientific disagreement or a lack of information regarding each of the following important points: (1) Received acoustical exposure conditions for animals involved in stranding events; (2) pathological interpretation of observed lesions in stranded marine mammals; (3) acoustic exposure conditions required to induce such physical trauma directly; (4) whether noise exposure may cause behavioral reactions (such as atypical diving behavior) that secondarily cause bubble formation and tissue damage; and (5) the extent the post mortem artifacts introduced by decomposition before sampling, handling, freezing, or necropsy procedures affect interpretation of observed lesions.

During AFTT exercises there will be use of multiple sonar units in areas where six species of beaked whale species may be present. A surface duct may be present in a limited area for a limited period of time. Although most of the ASW training events will take place in the deep ocean, some will occur in areas of high bathymetric relief. However, none of the training events will take place in a location having a constricted channel with limited egress similar to the Bahamas (because none exist in the AFTT Study Area). None of the AFTT exercise areas will have a convergence of all five of the environmental factors believed to contribute to the Bahamas stranding (mid-frequency sonar, beaked whale presence, surface ducts, steep bathymetry, and constricted channels with limited egress). However, as mentioned previously, NMFS recommends caution when steep bathymetry, surface ducting conditions, or a constricted channel is present when mid-frequency tactical sonar is employed and cetaceans (especially beaked whales) are present.

Impulsive Sources

Underwater explosive detonations send a shock wave and sound energy through the water and can release gaseous by-products, create an oscillating bubble, or cause a plume of water to shoot up from the water surface. The shock wave and accompanying noise are of most concern to marine animals. Depending on the intensity of the shock wave and size, location, and depth of the animal, an animal can be injured, killed, suffer non-lethal physical effects, experience hearing related effects with or without behavioral responses, or exhibit temporary behavioral responses or tolerance from hearing the blast sound. Generally, exposures to higher levels of impulse and pressure levels would result in greater impacts on an individual animal.

Injuries resulting from a shock wave take place at boundaries between tissues of different densities. Different velocities are imparted to tissues of different densities, and this can lead to their physical disruption. Blast effects are greatest at the gas-liquid interface (Landsberg, 2000). Gas-containing organs, particularly the lungs and gastrointestinal tract, are especially susceptible (Goertner, 1982; Hill, 1978; Yelverton *et al.,* 1973). In addition, gas-containing organs including the nasal sacs, larynx, pharynx, trachea, and lungs may be damaged by compression/expansion caused by the oscillations of the blast gas bubble (Reidenberg and Laitman, 2003). Intestinal walls can bruise or rupture, with subsequent hemorrhage and escape of gut contents into the body cavity. Less severe gastrointestinal tract injuries include contusions, petechiae (small red or purple spots caused by bleeding in the skin), and slight hemorrhaging (Yelverton *et al.,* 1973).

Because the ears are the most sensitive to pressure, they are the organs most sensitive to injury (Ketten, 2000). Sound-related damage associated with sound energy from detonations can be theoretically distinct from injury from the shock wave, particularly farther from the explosion. If an animal is able to hear a noise, at some level it can damage its hearing by causing decreased sensitivity (Ketten, 1995). Sound-related trauma can be lethal or sublethal. Lethal impacts are those that result in immediate death or serious debilitation in or near an intense source and are not, technically, pure acoustic trauma (Ketten, 1995). Sublethal impacts include hearing loss, which is caused by exposures to perceptible sounds. Severe damage (from the shock wave) to the ears includes tympanic membrane rupture, fracture of the ossicles, damage to the cochlea, hemorrhage, and cerebrospinal fluid leakage into the middle ear. Moderate injury implies partial hearing loss due to tympanic membrane rupture and blood in the middle ear. Permanent hearing loss also can occur when the hair cells are damaged by one very loud event, as well as by prolonged exposure to a loud noise or chronic exposure to noise. The level of impact from blasts depends on both an animal's location and, at outer zones, on its sensitivity to the residual noise (Ketten, 1995).

There have been fewer studies addressing the behavioral effects of explosives on marine mammals compared to sonar and other active acoustic sources. However, though the nature of the sound waves emitted from an explosion are different (in shape and rise time) from sonar and other active acoustic sources, we still anticipate the same sorts of behavioral responses to result from repeated explosive detonations (a smaller range of likely less severe responses (i.e., not rising to the level of MMPA harassment) would be expected to occur as a result of exposure to a single explosive detonation that was not powerful enough or close enough to the animal to cause TTS or injury).

Vessel Strike

Commercial and Navy ship strikes of cetaceans can cause major wounds, which may lead to the death of the animal. An animal at the surface could be struck directly by a vessel, a surfacing animal could hit the bottom of a vessel, or an animal just below the surface could be cut by a vessel's propeller. The severity of injuries typically depends on the size and speed of the vessel (Knowlton and Kraus, 2001; Laist *et al.,* 2001; Vanderlaan and Taggart, 2007).

The most vulnerable marine mammals are those that spend extended periods of time at the surface in order to restore oxygen levels within their tissues after deep dives (e.g., the sperm whale). In addition, some baleen whales, such as the North Atlantic right whale, seem generally unresponsive to vessel sound, making them more susceptible to vessel collisions (Nowacek *et al.,* 2004). These species are primarily large, slow moving whales. Smaller marine mammals (e.g., bottlenose dolphin) move quickly through the water column and are often seen riding the bow wave of large ships. Marine mammal responses to vessels may include avoidance and changes in dive pattern (NRC, 2003).

An examination of all known ship strikes from all shipping sources (civilian and military) indicates vessel speed is a principal factor in whether a vessel strike results in death (Knowlton and Kraus, 2001; Laist *et al.,* 2001; Jensen and Silber, 2003; Vanderlaan and Taggart, 2007). In assessing records in which vessel speed was known, Laist *et al.* (2001) found a direct relationship between the occurrence of a whale strike and the speed of the vessel involved in the collision. The authors concluded that most deaths occurred when a vessel was traveling in excess of 13 knots.

Jensen and Silber (2003) detailed 292 records of known or probable ship strikes of all large whale species from 1975 to 2002. Of these, vessel speed at the time of collision was reported for 58

cases. Of these cases, 39 (or 67 percent) resulted in serious injury or death (19 of those resulted in serious injury as determined by blood in the water, propeller gashes or severed tailstock, and fractured skull, jaw, vertebrae, hemorrhaging, massive bruising or other injuries noted during necropsy and 20 resulted in death). Operating speeds of vessels that struck various species of large whales ranged from 2 to 51 knots. The majority (79 percent) of these strikes occurred at speeds of 13 knots or greater. The average speed that resulted in serious injury or death was 18.6 knots. Pace and Silber (2005) found that the probability of death or serious injury increased rapidly with increasing vessel speed. Specifically, the predicted probability of serious injury or death increased from 45 to 75 percent as vessel speed increased from 10 to 14 knots, and exceeded 90 percent at 17 knots. Higher speeds during collisions result in greater force of impact, but higher speeds also appear to increase the chance of severe injuries or death by pulling whales toward the vessel. Computer simulation modeling showed that hydrodynamic forces pulling whales toward the vessel hull increase with increasing speed (Clyne, 1999; Knowlton *et al.,* 1995).

The Jensen and Silber (2003) report notes that the database represents a minimum number of collisions, because the vast majority probably goes undetected or unreported. In contrast, Navy vessels are likely to detect any strike that does occur, and they are required to report all ship strikes involving marine mammals. Overall, the percentages of Navy traffic relative to overall reported large shipping traffic are very small (on the order of 2 percent).

Over a period of 18 years from 1995 to 2012 there have been a total of 19 Navy vessel strikes in the Study Area. Eight of the strikes resulted in a confirmed death; but in 11 of the 19 strikes, the fate of the animal was unknown. It is possible that some of the 11 reported strikes resulted in recoverable injury or were not marine mammals at all, but another large marine species (e.g., basking shark). However, it is prudent to consider that all of the strikes could have resulted in the death of a marine mammal. The maximum number of strikes in any given year was three strikes, which occurred in 2001 and 2004. The highest average number of strikes over any five year period was two strikes per year from 2001 to 2005. The average number of strikes for the entire 18-year period is 1.055 strikes per year. Since the implementation of the Navy's Marine Species Awareness Training in 2007, strikes in the Study Area have decreased to an average of 0.5 per year. Over the last five years on the east coast, the Navy was involved in two strikes, with no confirmed marine mammal deaths as a result of the vessel strike.

Mitigation

In order to issue an incidental take authorization (ITA) under Section 101(a)(5)(A) of the MMPA, NMFS must set forth the ''permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.'' The NDAA of 2004 amended the MMPA as it relates to military-readiness activities and the incidental take authorization process such that ''least practicable adverse impact'' shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the ''military readiness activity.'' The training and testing activities described in the AFTT application are considered military readiness activities.

NMFS reviewed the proposed activities and the proposed mitigation measures as described in the Navy's LOA application to determine if they would result in the least practicable adverse effect on marine mammals, which includes a careful balancing of the likely benefit of any particular measure to the marine mammals with the likely effect of that measure on personnel safety, practicality of implementation, and impact on the effectiveness of the ''military readiness activity.'' Included below are the mitigation measures the Navy proposed in its LOA application.

Proposed Mitigation Measures

In general, mitigation measures are modifications to the proposed activities that are implemented for the sole purpose of reducing a specific potential environmental impact on a particular resource. These do not include standard operating procedures, which are established for reasons other than environmental benefit. Most of the following proposed mitigation measures are currently implemented, and the remainder were developed where there was no mitigation for new systems. The Navy's overall approach to assessing potential mitigation measures is provided in Section 5.2.2 of the AFTT DEIS/OEIS. It may be necessary for NMFS to require additional mitigation or monitoring beyond those presented below based on information and comments received during the public comment period as well as through the consultation process required under section 7 of the ESA.

Lookouts

The use of lookouts is a critical component of Navy procedural measures and implementation of mitigation zones. Navy lookouts are highly qualified and experienced observers of the marine environment. Their duties require that they report all objects sighted in the water to the Officer of the Deck (OOD) (e.g., trash, a periscope, marine mammals, sea turtles) and all disturbances (e.g., surface disturbance, discoloration) that may be indicative of a threat to the vessel and its crew. There are personnel standing watch on station at all times (day and night) when a ship or surfaced submarine is moving through the water.

The Navy would have two types of lookouts for purposes of conducting visual observations: (1) Those positioned on surface ships, and (2) those positioned in aircraft or on boats. Lookouts positioned on surface ships would be dedicated solely to diligent observation of the air and surface of the water. They would have multiple observation objectives, which include but are not limited to detecting the presence of biological resources and recreational or fishing boats, observing mitigation zones, and monitoring for vessel and personnel safety concerns.

Due to aircraft and boat manning and space restrictions, lookouts positioned in aircraft or on boats would consist of the aircraft crew, pilot, or boat crew. Lookouts positioned in aircraft and boats may necessarily be responsible for tasks in addition to observing the air or surface of the water (for example, navigation of a helicopter or rigid hull inflatable boat). However, aircraft and boat lookouts would, to the maximum extent practicable and consistent with aircraft and boat safety and training and testing requirements, comply with the observation objectives described above for lookouts positioned on surface ships.

The Navy proposes to use at least one lookout during the training and testing activities provided in Table 10. Additional details on lookout procedures are provided in Chapter 11 of the Navy's LOA application (*http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*).

TABLE 10—LOOKOUT MITIGATION MEASURES FOR TRAINING AND TESTING ACTIVITIES WITHIN THE AFTT STUDY AREA

Number of lookouts	Training and testing activities	Benefit
2 to 4	Mine countermeasure and neutralization activities using time delay would use 4 lookouts. If applicable, aircrew and divers would report sightings of marine mammals. Ship shock trials would have a minimum of 2–4 lookouts depending on the size of the charge.	Lookouts can visually detect marine mammals so that potentially harmful impacts from explosives use can be avoided. Trained lookouts can more quickly and effectively relay sighting information so that corrective action can be taken. Support from aircrew and divers, if they are involved, would increase the probability of sightings, reducing the potential for impacts.
1 to 2	Vessels using low-frequency active sonar or hull-mounted mid-frequency active sonar associated with ASW activities would have either one or two lookouts, depending on the size of the vessel and the status/location of the vessel.	Lookouts can visually detect marine mammals so that potentially harmful impacts from Navy sonar and explosives use can be avoided. Trained lookouts can more quickly and effectively relay sighting information so that corrective action can be taken. Support from aircrew and divers, if they are involved, would increase the probability of sightings, reducing the potential for impacts. Mine countermeasure and neutralization activities with positive control would use one or two lookouts (depending on net explosive weight), with at least one on each support vessel. If applicable, aircrew and divers would also report the presence of marine mammals. Mine neutralization activities involving diver placed charges of up to 100 lb (45 kg) net explosive weight detonation would use two lookouts. Sinking exercises would use two lookouts (one in an aircraft and one on a vessel). At sea explosives testing would have at least one lookout.
1	Surface ships and aircraft conducting ASW, ASUW, or MIW activities using high-frequency active sonar; non-hull mounted mid-frequency active sonar; helicopter dipping mid-frequency active sonar; anti-swimmer grenades; IEER sonobuoys; line charge testing; surface gunnery activities using a surface target; surface missile activities using a surface target; bombing activities; explosive torpedo testing; elevated causeway system pile driving; towed in-water devices; full power propulsion testing of surface vessels; vessel movements; and activities using non-explosive practice munitions, would have one lookout.	Lookouts can visually detect marine mammals so that potentially harmful impacts from Navy sonar; explosives; sonobuoys; gunnery rounds and missiles using a surface target; explosive torpedoes; pile driving; towed systems; surface vessel propulsion; vessel movements; and non-explosive munitions can be avoided. A trained lookout can more quickly and effectively relay sighting information so that corrective action can be taken.

Personnel standing watch on the bridge, Commanding Officers, Executive Officers, maritime patrol aircraft aircrews, anti-submarine warfare helicopter crews, civilian equivalents, and lookouts would complete the NMFS-approved Marine Species Awareness Training (MSAT) prior to standing watch or serving as a lookout. Additional details on the Navy's MSAT program are provided in Chapter 5 of the AFTT Draft EIS/OEIS.

Mitigation Zones

The Navy proposes to use mitigation zones to reduce the potential impacts on marine mammals from training and testing activities. Mitigation zones are measured as the radius from a source and represent a distance that the Navy would monitor. Mitigation zones are applied to acoustic stressors (i.e., non-impulsive and impulsive sound), and physical strike and disturbance (e.g., vessel movement and bombing exercises). In each instance, visual detections of marine mammals would be communicated immediately to a watch station for information dissemination and appropriate action. Acoustic detections would be communicated to lookouts posted in aircraft and on surface vessels.

Most of the current mitigation zones for activities that involve the use of impulsive and non-impulsive sources were originally designed to reduce the potential for onset of TTS. The Navy updated their acoustic modeling to incorporate new hearing threshold metrics (i.e., upper and lower frequency limits), new marine mammal density data, and factors such as an animal's likely presence at various depths. An explanation of the acoustic modeling process can be found in the Marine Species Modeling Team Technical Report (U.S. Department of the Navy, 2012a).

As a result of updates to the acoustic modeling, some of the ranges to effects are larger than previous model outputs. Due to the ineffectiveness associated with mitigating such large areas, the Navy is unable to mitigate for onset of TTS during every activity. However, some ranges to effects are smaller than previous models estimated, and the mitigation zones were adjusted accordingly to provide consistency across the measures. The Navy developed each proposed mitigation zone to avoid or reduce the potential for onset of the lowest level of injury, permanent threshold shift (PTS), out to the predicted maximum range (except for shock trials; a detailed discussion of how shock trial mitigation zones were developed is presented in Chapter 6.1.7.1 of the Navy's LOA application). Mitigating to the predicted maximum range to PTS also mitigates to the predicted maximum range to onset mortality (1 percent mortality), onset slight lung injury, and onset slight gastrointestinal tract injury, since the maximum range to effects for these criteria are shorter than for PTS. Furthermore, in most cases, the predicted maximum range to PTS also covers the predicted average range to

TTS. Tables 11 and 12 summarize the predicted average range to TTS, average range to PTS, maximum range to PTS, and recommended mitigation zone for each activity category, based on the Navy's acoustic propagation modeling results. It is important for the Navy to have standardized mitigation zones wherever training and testing may be conducted. The information in Tables 11 and 12 was developed in consideration of both Atlantic and Pacific Ocean conditions, marine mammal species, environmental factors, effectiveness, and operational assessments. Therefore, the ranges to effects in Tables 11 and 12 provide effective values that ensure appropriate mitigation ranges for both Atlantic Fleet and Pacific Fleet activities, and may not align with range to effects values found in other tables of the Navy's LOA application.

The Navy's proposed mitigation zones are based on the longest range for all the marine mammal and sea turtle functional hearing groups. Most mitigation zones were driven by the high-frequency cetaceans or sea turtles functional hearing group. Therefore, the mitigation zones are more conservative for the remaining functional hearing groups (low-frequency and mid-frequency cetaceans, and pinnipeds), and likely cover a larger portion of the potential range to onset of TTS. Additional information on the estimated range to effects for each acoustic stressor is detailed in Chapter 11 of the Navy's LOA application (*http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*).

TABLE 11—PREDICTED AVERAGE RANGE TO TTS AND AVERAGE AND MAXIMUM RANGE TO PTS AND RECOMMENDED MITIGATION ZONES

Activity category	Representative source (bin) *	Predicted average range to TTS	Predicted average range to PTS	Predicted maximum range to PTS	Recommended mitigation zone
Non-Impulsive Sound					
Low-Frequency and Hull-Mounted Mid-Frequency Active Sonar.	SQS–53 ASW hull-mounted sonar (MF1).	4,251 yd. (3,887 m) ..	281 yd. (257 m)	<292 yd. (<267 m)	6 dB power down at 1,000 yd. (914 m); 4 dB power down at 500 yd. (457 m); and shutdown at 200 yd. (183 m).
High-Frequency and Non-Hull Mounted Mid-Frequency Active Sonar.	AQS–22 ASW dipping sonar (MF4).	226 yd. (207 m)	<55 yd. (<50 m)	<55 yd. (<50 m)	200 yd. (183 m).
Explosive and Impulsive Sound					
Improved Extended Echo Ranging Sonobuoys.	Explosive sonobuoy (E4).	434 yd. (397 m)	156 yd. (143 m)	563 yd. (515 m)	600 yd. (549 m).
Explosive Sonobuoys using 0.6–2.5 lb. NEW.	Explosive sonobuoy (E3).	290 yd. (265 m)	113 yd. (103 m)	309 yd. (283 m)	350 yd. (320 m).
Anti-Swimmer Grenades.	Up to 0.5 lb. NEW (E2).	190 yd. (174 m)	83 yd. (76 m)	182 yd. (167 m)	200 yd. (183 m).
Mine Countermeasure and Neutralization Activities Using Positive Control Firing Devices.	Dependent on charge size (see Table 12)				
Mine Neutralization Diver Placed Mines Using Time-Delay Firing Devices.	Up to 20 lb. NEW (E6).	647 yd. (592 m)	232 yd. (212 m)	469 yd. (429 m)	1,000 yd. (915 m).
Ordnance Testing (Line Charge Testing).	Numerous 5 lb. charges (E4).	434 yd. (397 m)	156 yd. (143 m)	563 yd. (515 m)	900 yd. (823 m).**
Gunnery Exercises—Small- and Medium-Caliber (Surface Target).	40 mm projectile (E2)	190 yd. (174 m)	83 yd. (76 m)	182 yd. (167 m)	200 yd. (183 m).
Gunnery Exercises—Large-Caliber (Surface Target).	5 in. projectiles (E5 at the surface ***).	453 yd. (414 m)	186 yd. (170 m)	526 yd. (481 m)	600 yd. (549 m).
Missile Exercises up to 250 lb. NEW (Surface Target).	Maverick missile (E9)	949 yd. (868 m)	398 yd. (364 m)	699 yd. (639 m)	900 yd. (823 m).
Missile Exercises up to 500 lb. NEW (Surface Target).	Harpoon missile (E10).	1,832 yd. (1,675 m) ..	731 yd. (668 m)	1,883 yd. (1,721 m) ..	2,000 yd. (1.8 km).
Bombing Exercises	MK–84 2,000 lb. bomb (E12).	2,513 yd. (2.3 km)	991 yd. (906 m)	2,474 yd. (2.3 km)	2,500 yd. (2.3 km).**

TABLE 11—PREDICTED AVERAGE RANGE TO TTS AND AVERAGE AND MAXIMUM RANGE TO PTS AND RECOMMENDED MITIGATION ZONES—Continued

Activity category	Representative source (bin) *	Predicted average range to TTS	Predicted average range to PTS	Predicted maximum range to PTS	Recommended mitigation zone
Torpedo (Explosive) Testing.	MK–48 torpedo (E11)	1,632 yd. (1.5 km)	697 yd. (637 m)	2,021 yd. (1.8 km)	2,100 yd. (1.9 km).
Sinking Exercises	Various sources up to the MK–84 2,000 lb. bomb (E12).	2,513 yd. (2.3 km)	991 yd. (906 m)	2,474 yd. (2.3 km)	2.5 nm (4.6 km).**
Ship Shock Trials in JAX Range Complex.	10,000 lb. charge (HBX).	5.8 nm (10.8 km)	2.7 nm (4.9 km)	4.8 nm (8.9 km)	3.5 nm (6.5 km).
	40,000 lb. charge (HBX).	9.2 nm (17 km)	3.6 nm (6.6 km)	6.4 nm (11.9 km)	3.5 nm (6.5 km).
Ship Shock Trials in VACAPES Range Complex.	10,000 lb. charge (HBX).	9 nm (16.7 km)	2 nm (3.6 km)	4.7 nm (8.7 km)	3.5 nm (6.5 km).
	40,000 lb. charge (HBX).	10.3 nm (19.2 km)	3.7 nm (6.8 km)	7.6 nm (14 km)	3.5 nm (6.5 km).
At-Sea Explosive Testing.	Various sources less than 10 lb. NEW (E5 at various depths***).	525 yd. (480 m)	204 yd. (187 m)	649 yd. (593 m)	1,600 yd. (1.4 km).**
Elevated Causeway System—Pile Driving.	24 in. steel impact hammer.	1,094 yd. (1,000 m) ..	51 yd. (46 m)	51 yd. (46 m)	60 yd. (55 m).

ASW: Anti-submarine warfare; JAX: Jacksonville; NEW: Net explosive weight; PTS: Permanent threshold shift; TTS: Temporary threshold shift;
* This table does not provide an inclusive list of source bins; bins presented here represent the source bin with the largest range to effects within the given activity category.
** Recommended mitigation zones are larger than the modeled injury zones to account for multiple types of sources or charges being used.
*** The representative source bin E5 has different range to effects depending on the depth of activity occurrence (at the surface or at various depths).

TABLE 12—PREDICTED RANGE TO EFFECTS AND MITIGATION ZONE RADIUS FOR MINE COUNTERMEASURE AND NEUTRALIZATION ACTIVITIES USING POSITIVE CONTROL FIRING DEVICES

Charge size net explosive weight (bins)	General mine countermeasure and neutralization activities using positive control firing devices*				Mine countermeasure and neutralization activities using diver placed charges under positive control **			
	Predicted average range to TTS	Predicted average range to PTS	Predicted maximum range to PTS	Recommended mitigation zone	Predicted average range to TTS	Predicted average range to PTS	Predicted maximum range to PTS	Recommended mitigation zone
2.6–5 lb. (E4)	434 yd. (474 m).	197 yd. (180 m).	563 yd. (515 m).	600 yd. (549 m).	545 yd. (498 m).	169 yd. (155 m).	301 yd. (275 m).	350 yd. (320 m).
6–10 lb. (E5)	525 yd. (480 m).	204 yd. (187 m).	649 yd. (593 m).	800 yd. (732 m).	587 yd. (537 m).	203 yd. (185 m).	464 yd. (424 m).	500 yd. (457 m).
11–20 lb. (E6)	766 yd. (700 m).	288 yd. (263 m).	648 yd. (593 m).	800 yd. (732 m).	647 yd. (592 m).	232 yd. (212 m).	469 yd. (429 m).	500 yd. (457 m).
21–60 lb. (E7) ***.	1,670 yd. (1,527 m).	581 yd. (531 m).	964 yd. (882 m).	1,200 yd. (1.1 km).	1,532 yd. (1,401 m).	473 yd. (432 m).	789 yd. (721 m).	800 yd. (732 m).
61–100 lb. (E8) ****.	878 yd. (802 m).	383 yd. (351 m).	996 yd. (911 m).	1,600 yd. (1.4 m).	969 yd. (886 m).	438 yd. (400 m).	850 yd. (777 m).	850 yd. (777 m).
250–500 lb. (E10).	1,832 yd. (1,675 m).	731 yd. (668 m).	1,883 yd. (1,721 m).	2,000 yd. (1.8 km).	.....	.....	.....	Not Applicable.
501–650 lb. (E11).	1,632 yd. (1,492 m).	697 yd. (637 m).	2,021 yd. (1,848 m).	2,100 yd. (1.9 km).	.....	.....	.....	Not Applicable.

PTS: Permanent threshold shift; TTS: Temporary threshold shift.
* These mitigation zones are applicable to all mine countermeasure and neutralization activities conducted in all locations that Tables 2.8–1 through 2.8–5 in the AFTT DEIS/OEIS specifies.
** These mitigation zones are only applicable to mine countermeasure and neutralization activities involving the use of diver placed charges. These activities are conducted in shallow-water and the mitigation zones are based only on the functional hearing groups with species that occur in these areas (mid-frequency cetaceans and sea turtles).
*** The E7 bin was only modeled in shallow-water locations so there is no difference for the diver placed charges category.
**** The E8 bin was only modeled for surface explosions, so some of the ranges are shorter than for sources modeled in the E7 bin which occur at depth.

When mine neutralization activities using diver placed charges (up to a 20 lb. NEW) are conducted with a time-delay firing device, the detonation is fused with a specified time-delay by the personnel conducting the activity and is not authorized until the area is clear at the time the fuse is initiated. During these activities, the detonation cannot

be terminated once the fuse is initiated due to human safety concerns. The Navy is proposing to modify the number of lookouts currently used for mine neutralization activities using diver-placed time-delay firing devices. As a reference, the current mitigation involves the use of six lookouts and three small rigid hull inflatable boats (two lookouts positioned in each of the three boats) for mitigation zones equal to or larger than 1,400 yd. (1,280 m), or four lookouts and two boats for mitigation zones smaller than 1,400 yd. (1,280 m), which was incorporated into the current Silver Strand Training Complex IHA to minimize the possibility of take by serious injury or mortality (which is not authorized under an IHA). The Navy has determined that using six lookouts and three boats in the long-term is impracticable to implement from an operational standpoint due to the impact that it is causing on resource requirements (i.e., limited personnel resources and boat availability). During activities using up to a 20 lb. NEW (bin E6) detonation, the Navy is proposing to have four lookouts and two small rigid hull inflatable boats (two lookouts positioned in each of the two boats). In addition, when aircraft are used, the pilot or member of the aircrew will serve as an additional lookout.

NMFS believes that the Navy's proposed modification to this mitigation measure will still reduce the potential for injury or mortality for several reasons: (1) The Navy's acoustic propagation modeling results show that the predicted ranges to TTS and PTS for mine neutralization diver place mines using time-delay firing devices do not exceed 647 yd (592 m), which is well within the proposed 1,000-yd (915-m) mitigation zone; (2) the number of lookouts for a 1,000-yd (915-m) mitigation zone would not change; (3) the maximum net explosive weight would decrease from 29 lb (currently) to 20 lb (proposed); (4) the Navy would continue to monitor the mitigation zone for 30 minutes before, during, and 30 after the activity to ensure that the area is clear of marine mammals; and (5) time-delay firing device activities are only conducted during daylight hours.

Mitigation Areas

The Navy proposes to implement several mitigation measures within pre-defined habitat areas in the AFTT Study Area. NMFS and the Navy refer to these areas as ''mitigation areas.'' It is important to note that the mitigation measures proposed for implementation only apply within each area as described.

North Atlantic Right Whale Mitigation Area Off the Southeast United States

Several mitigation measures are proposed for implementation within pre-defined boundaries of a North Atlantic right whale mitigation area off the southeast United States annually during calving season between November 15 and April 15. The southeast United States mitigation area is defined as follows (and depicted in Figure 4–1 of the LOA application): A 5 nm (9.3 km) buffer around the coastal waters between 31°15′ North and 30°15′ North from the coast out 15 nm (27.8 km); and the coastal waters between 30°15′ North and 28°00′ North from the coast out 5 nm (9.3 km).

The Navy would not conduct the following activities within the mitigation area:

- High-frequency and non-hull mounted mid-frequency active sonar (excluding helicopter dipping)
- Missile activities (explosive and non-explosive)
- Bombing exercises (explosive and non-explosive)
- Underwater detonations
- Improved extended echo ranging sonobuoy exercises
- Torpedo exercises (explosive)
- Small-, medium-, and large-caliber gunnery exercises

The Navy would minimize, to the maximum extent practicable, the use of the following systems within the mitigation area:

- Helicopter dipping using active sonar
- Low-frequency and hull-mounted mid-frequency active sonar used for navigation training
- Low-frequency and hull-mounted mid-frequency active sonar used for object detection exercises

Before transiting through or conducting any training or testing activities within the mitigation area, the Navy would communicate with the Fleet Area Control and Surveillance Facility, Jacksonville to obtain Early Warning System North Atlantic right whale sightings data. The Fleet Area Control and Surveillance Facility, Jacksonville, would advise ships of all reported whale sightings in the vicinity of the mitigation area to help ships and aircraft reduce potential interactions with North Atlantic right whales. Commander Submarine Force United States Atlantic Fleet would coordinate any submarine operations that may require approval from the Fleet Area Control and Surveillance Facility, Jacksonville. When transiting within the mitigation area, all Navy vessels would exercise extreme caution and proceed at the slowest speed that is consistent with safety, mission, training, and operations. Vessels would implement speed reductions under any of the following conditions: (1) After they observe a North Atlantic right whale; (2) if they are within 5 nm (9 km) of a sighting reported within the past 12 hours.; or (3) when operating at night or during periods of poor visibility. The Navy would minimize to the maximum extent practicable north-south transits through the mitigation area. The Navy may periodically travel in a north-south direction during training and testing activities due to operational requirements. If north-south directional travel is required during training or testing activities, the Navy would implement the increased caution and speed reductions described above when applicable.

North Atlantic Right Whale Mitigation Area Off the Northeast United States

Two important North Atlantic right whale foraging habitats, the Great South Channel and Cape Cod Bay, are located off the northeast United States. These two areas comprise the northeast United States mitigation area, which apply year-round and are defined as follows:

- Great South Channel: The area bounded by 41°40′ North/69°45′ West; 41°00′ North/69°05′ West; 41°38′ North/68°13′ West; and 42°10′ North/68°31′ West
- Cape Cod Bay: The area bounded by 42°04.8′ North/70°10′ West; 42°12′ North/70°15′ West; 42°12′ North/70°30′ West; 41°46.8′ North/70°30′ West and on the south and east by the interior shoreline of Cape Cod, Massachusetts

The Navy would not conduct the following activities within the boundaries of the mitigation area or within additional specified distances from the mitigation area:

- Improved extended echo ranging sonobuoy exercises in or within 3 nm (5.6 km) of the mitigation area
- Bombing exercises (explosive and non-explosive)
- Underwater detonations
- Torpedo exercises (explosive)

The Navy would minimize to the maximum extent practicable the use of the following systems within the boundaries of the mitigation area:

- Low-frequency and hull-mounted active sonar
- High-frequency and non-hull mounted mid-frequency active sonar, including helicopter dipping

Before transiting the mitigation area with a surface vessel, the Navy would conduct a prior web query or email inquiry to the NMFS Northeast U.S.

Right Whale Sighting Advisory System in order to obtain the latest North Atlantic right whale sighting information. When transiting within the mitigation area, Navy vessels would exercise extreme caution and proceed at the slowest speed that is consistent with safety, mission, training, and operations. Vessels would implement speed reductions under the following conditions: (1) After they observe a North Atlantic right whale; (2) if they are within 5 nm (9 km) of a sighting reported within the past week; or (3) when operating at night or during periods of poor visibility. These additional speed reductions shall be implemented according to Rule 6 of the International Navigation Rules ((COLREGS, 1972).

Additional mitigation would be required when conducting Torpedo Exercises (TORPEXs) in the Northeast Right Whale Mitigation Area. Surface vessels and submarines would maintain a speed of no more than 10 knots (19 km/hr.) during transit; and torpedo exercise firing vessel speeds would range from 10 knots (19 km/hr.) during normal firing, 18 knots (33.3 km/hr.) during submarine target firing, and in excess of 18 knots (33.3 km/hr.) during surface vessel target firing (speeds in excess of 18 knots would occur for a short time [e.g., 10–15 min.]).

The Navy would conduct all non-explosive torpedo testing during daylight hours in Beaufort sea states of 3 or less to increase the probability of marine mammal detection. Mitigation would include visual observation immediately before and during the exercise within the immediate vicinity of the activity. During the conduct of the test, visual surveys of the test area would be conducted by all vessels and aircraft involved in the exercise to detect the presence of marine mammals. The test scenario would not commence if concentrations of floating vegetation (*Sargassum* or kelp patties) are observed in the immediate vicinity of the activity. The test scenario would cease if a North Atlantic right whale is visually detected within the immediate vicinity of the activity. The test scenario would re-commence if any one of the following conditions are met: (1) The animal is observed exiting the immediate vicinity of the activity, (2) the animal is thought to have exited the immediate vicinity of the activity based on its course and speed, or (3) the immediate vicinity of the activity has been clear from any additional sightings for a period of 30 minutes.

North Atlantic Right Whale Mid-Atlantic Mitigation Area

A North Atlantic right whale migratory route is located off the mid-Atlantic coast of the United States. When transiting within the mitigation area, the Navy would practice increased vigilance, exercise extreme caution, and proceed at the slowest speed that is consistent with safety, mission, and training and testing objectives. This mitigation area would apply from November 1 through April 30 and would be defined as follows:

- Block Island Sound: The area bounded by 40°51′53.7″ North/070°36′44.9″ West; 41°20′14.1″ North/070°49′44.1″ West
- New York and New Jersey: 20 nm (37 km) seaward of the line between 40°29′42.2″ North/073°55′57.6″ West
- Delaware Bay: 38°52′27.4″ North/075°01′32.1″ West
- Chesapeake Bay: 37°00′36.9″ North/075°57″50.5″ West
- Morehead City, North Carolina: 34°41′32.0″ North/076°40′08.3″ West
- Wilmington, North Carolina, through South Carolina, and to Brunswick, Georgia: Within a continuous area 20 nm from shore and west back to shore bounded by 34°10′30″ North/077°49′12″ West; 33°56′42″ North/077°31′30″ West; 33°36′30″ North/077°47′06″ West; 33°28′24″ North/078°32′30″ West; 32°59′06″ North/078°50′18″ West; 31°50′00″North/080°33′12″ West; 31°27′00″ North/080°51′36″ West

Planning Awareness Areas

The Navy has designated several planning awareness areas (PAAs) based on locations of high productivity that have been correlated with high concentrations of marine mammals (such as persistent oceanographic features like upwellings associated with the Gulf Stream front where it is deflected off the east coast near the Outer Banks), and areas of steep bathymetric contours that are frequented by deep diving marine mammals such as beaked whales and sperm whales.

For events involving active sonar, the Navy would avoid planning major exercises in planning awareness areas (Figure 11–1 in the LOA application) when feasible. To the extent operationally feasible, the Navy would not conduct more than one of the five major exercises or similar scale events per year in the Gulf of Mexico planning awareness area. If national security needs require the conduct of more than five major exercises or similar scale events in the planning awareness areas per year, or more than one within the Gulf of Mexico planning awareness area per year, the Navy would provide NMFS with prior notification and include the information in any associated after-action or monitoring reports.

Cetacean and Sound Mapping

NMFS Office of Protected Resources standardly considers available information about marine mammal habitat use to inform discussions with applicants regarding potential spatio-temporal limitations of their activities that might help effect the least practicable adverse impact (e.g., Planning Awareness Areas). Through the Cetacean and Sound Mapping effort (*www.cetsound.noaa.gov*), NOAA's Cetacean Density and Distribution Mapping Working Group (CetMap) is currently involved in a process to compile available literature and solicit expert review to identify areas and times where species are known to concentrate for specific behaviors (e.g., feeding, breeding/calving, or migration) or be range-limited (e.g., small resident populations). These areas, called Biologically Important Areas (BIAs), are useful tools for planning and impact assessments and are being provided to the public via the CetSound Web site, along with a summary of the supporting information. While these BIAs are useful tools for analysts, any decisions regarding protective measures based on these areas must go through the normal MMPA evaluation process (or any other statutory process that the BIAs are used to inform)—the designation of a BIA does not pre-suppose any specific management decision associated with those areas. Additionally, the BIA process is iterative and the areas will be updated as new information becomes available. Currently, NMFS has published BIAs for the Arctic Slope and some in Hawaii. The BIAs in other regions, such as the Atlantic and West Coast of the continental U.S. are still in development. We have indicated to the Navy that once these BIAs are complete and put on the Web site, we may need to discuss whether (in the context of the nature and scope of any Navy activities planned in and around the BIAs, what impacts might be anticipated, and practicability) additional protective measures might be appropriate.

Stranding Response Plan

NMFS and the Navy developed Stranding Response Plans for the Study Areas and Range Complexes that make up the AFTT Study Area in 2009 as part of the previous incidental take authorization process. The Stranding Response Plans are specifically

intended to outline the applicable requirements the authorizations are conditioned upon in the event that a marine mammal stranding is reported in the east coast Range Complexes and AFAST Study Area during a major training exercise. NMFS considers all plausible causes within the course of a stranding investigation and these plans in no way presume that any strandings in a Navy range complex are related to, or caused by, Navy training and testing activities, absent a determination made during investigation. The plans are designed to address mitigation, monitoring, and compliance. The Navy is currently working with NMFS to refine these plans for the new AFTT Study Area. The current Stranding Response Plans are available for review here: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*.

Mitigation Conclusions

NMFS has carefully evaluated the Navy's proposed mitigation measures and considered a broad range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another: the manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts on marine mammals; the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and the practicability of the measure for applicant implementation, including consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

In some cases, additional mitigation measures are required beyond those that the applicant proposes. Any mitigation measure(s) prescribed by NMFS should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

(a) Avoidance or minimization of injury or death of marine mammals wherever possible (goals b, c, and d may contribute to this goal).

(b) A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of sonar and other active acoustic sources, underwater detonations, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing harassment takes only).

(c) A reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to received levels of sonar and other active acoustic sources, underwater detonations, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing harassment takes only).

(d) A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of sonar and other active acoustic sources, underwater detonations, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).

(e) Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.

(f) For monitoring directly related to mitigation—an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation (shut-down zone, etc.).

Based on our evaluation of the Navy's proposed measures, as well as other measures considered by NMFS or recommended by the public, NMFS has determined preliminarily that the Navy's proposed mitigation measures (especially when the adaptive management component is taken into consideration (see Adaptive Management, below)) are adequate means of effecting the least practicable adverse impacts on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, while also considering personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity. Further detail is included below.

The proposed rule comment period will afford the public an opportunity to submit recommendations, views, and/or concerns regarding this action and the proposed mitigation measures. While NMFS has determined preliminarily that the Navy's proposed mitigation measures would effect the least practicable adverse impact on the affected species or stocks and their habitat, NMFS will consider all public comments to help inform our final decision. Consequently, the proposed mitigation measures may be refined, modified, removed, or added to prior to the issuance of the final rule based on public comments received, and where appropriate, further analysis of any additional mitigation measures.

Monitoring

In order to issue an ITA for an activity, Section 101(a)(5)(A) of the MMPA states that NMFS must set forth "requirements pertaining to the monitoring and reporting of such taking." The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for LOAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

(1) An increase in the probability of detecting marine mammals, both within the safety zone (thus allowing for more effective implementation of the mitigation) and in general to generate more data to contribute to the analyses mentioned below

(2) An increase in our understanding of how many marine mammals are likely to be exposed to levels of sonar and other active acoustic sources (or explosives or other stimuli) that we associate with specific adverse effects, such as behavioral harassment, TTS, or PTS.

(3) An increase in our understanding of how marine mammals respond to sonar and other active acoustic sources (at specific received levels), explosives, or other stimuli expected to result in take and how anticipated adverse effects on individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival) through any of the following methods:

- Behavioral observations in the presence of sonar and other active acoustic sources compared to observations in the absence of sonar (need to be able to accurately predict received level and report bathymetric conditions, distance from source, and other pertinent information)
- Physiological measurements in the presence of sonar and other active acoustic sources compared to observations in the absence of tactical sonar (need to be able to accurately predict received level and report

bathymetric conditions, distance from source, and other pertinent information)

- Pre-planned and thorough investigation of stranding events that occur coincident to naval activities
- Distribution and/or abundance comparisons in times or areas with concentrated sonar and other active acoustic sources versus times or areas without sonar and other active acoustic sources
- An increased knowledge of the affected species
- An increase in our understanding of the effectiveness of certain mitigation and monitoring measures.

Overview of Navy Monitoring Program

The current Navy monitoring program is composed of a collection of ''range-specific'' monitoring plans, each developed individually as part of the previous MMPA/ESA authorization processes. These individual plans established specific monitoring requirements for each range complex based on a set of effort-based metrics (e.g., 20 days of aerial survey). Concurrent with implementation of the initial range-specific monitoring plans, the Navy and NMFS began development of the Integrated Comprehensive Monitoring Program (ICMP). The ICMP has been developed in direct response to Navy permitting requirements established in various MMPA final rules, ESA consultations, Biological Opinions, and applicable regulations. The ICMP is intended to coordinate monitoring efforts across all regions and to allocate the most appropriate level and type of effort for each range complex based on a set of standardized objectives, and in acknowledgement of regional expertise and resource availability. The ICMP is designed to be flexible, scalable, and adaptable plan, through the adaptive management and strategic planning processes to periodically assess progress, and re-evaluate objectives.

Although the ICMP does not specify actual monitoring field work or projects, it does establish top-level goals that have been developed in coordination with NMFS. As the ICMP is implemented, detailed and specific studies will be developed which support the Navy's top-level monitoring goals. In essence, the ICMP directs that monitoring activities relating to the effects of Navy training and testing activities on marine species should be designed to accomplish one or more of the following top-level goals:

- An increase in our understanding of the likely occurrence of marine mammals and/or ESA-listed marine species in the vicinity of the action (i.e., presence, abundance, distribution, and/or density of species);
- An increase in our understanding of the nature, scope, or context of the likely exposure of marine mammals and/or ESA-listed species to any of the potential stressor(s) associated with the action (e.g., tonal and impulsive sound), through better understanding of one or more of the following: (1) The action and the environment in which it occurs (e.g., sound source characterization, propagation, and ambient noise levels); (2) the affected species (e.g., life history or dive patterns); (3) the likely co-occurrence of marine mammals and/or ESA-listed marine species with the action (in whole or part) associated with specific adverse effects, and/or; (4) the likely biological or behavioral context of exposure to the stressor for the marine mammal and/or ESA-listed marine species (e.g., age class of exposed animals or known pupping, calving or feeding areas);
- An increase in our understanding of how individual marine mammals or ESA-listed marine species respond (behaviorally or physiologically) to the specific stressors associated with the action (in specific contexts, where possible, e.g., at what distance or received level);
- An increase in our understanding of how anticipated individual responses, to individual stressors or anticipated combinations of stressors, may impact either: (1) The long-term fitness and survival of an individual; or (2) the population, species, or stock (e.g., through effects on annual rates of recruitment or survival);
- An increase in our understanding of the effectiveness of mitigation and monitoring measures;
- A better understanding and record of the manner in which the authorized entity complies with the ITA and Incidental Take Statement;
- An increase in the probability of detecting marine mammals (through improved technology or methods), both specifically within the safety zone (thus allowing for more effective implementation of the mitigation) and in general, to better achieve the above goals; and
- A reduction in the adverse impact of activities to the least practicable level, as defined in the MMPA.

While the ICMP only directly applies to monitoring activities under applicable MMPA and ESA authorizations, it also serves to facilitate coordination among the Navy's marine species monitoring program and the basic and applied research programs discussed in the Research Section of this document.

An October 2010 Navy monitoring meeting initiated a process to critically evaluate current Navy monitoring plans and begin development of revisions to existing range-specific monitoring plans and associated updates to the ICMP. Discussions at that meeting and through the Navy/NMFS adaptive management process established a way ahead for continued refinement of the Navy's monitoring program. This process included establishing a Scientific Advisory Group (SAG) composed of technical experts to provide objective scientific guidance for Navy consideration. The Navy established the SAG in early 2011 with the initial task of evaluating current Navy monitoring approaches under the ICMP and existing LOAs and developing objective scientific recommendations that would serve as the basis for a Strategic Planning Process for Navy monitoring to be incorporated as a major component of the ICMP. The SAG convened in March 2011, composed of leading academic and civilian scientists with significant expertise in marine species monitoring, acoustics, ecology, and modeling. The SAG's final report laid out both over-arching and range-specific recommendations for the Navy's Marine Species Monitoring program and is available through the US Navy Marine Species Monitoring web portal at *http://www.navymarinespeciesmonitoring.us/*. Adaptive management discussions between the Navy and NMFS established a way ahead for continued refinement of the Navy's monitoring program. Consensus was that the ICMP and associated implementation components would continue the evolution of Navy marine species monitoring towards a single integrated program, incorporate SAG recommendations when appropriate and logistically feasible, and establish a more collaborative framework for evaluating, selecting, and implementing future monitoring across the all Navy range complexes through the adaptive management and strategic planning process.

Past and Current Monitoring in the AFTT Study Area

NMFS has received multiple years' worth of annual exercise and monitoring reports addressing active sonar use and explosive detonations within the AFTT Study Area. The data and information contained in these reports have been considered in developing mitigation and monitoring measures for the proposed training and testing activities within the AFTT Study Area. The Navy's annual exercise and

monitoring reports may be viewed at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*; or at the Navy's marine species monitoring Web site: *http://www.navymarinespeciesmonitoring.us/*.

NMFS has reviewed these reports and summarized the results, as related to marine mammal monitoring, below.

(1) The Navy has shown significant initiative in developing its marine species monitoring program and made considerable progress toward reaching goals and objectives of the ICMP.

(2) Observation data from watchstanders aboard Navy vessels is generally useful to indicate the presence or absence of marine mammals within the mitigation zones (and sometimes without) and to document the implementation of mitigation measures, but does not provide useful species-specific information or behavioral data.

(3) Data gathered by experienced marine mammal observers can provide very valuable information at a level of detail not possible with watchstanders.

(4) Though it is by no means conclusive, it is worth noting that no instances of obvious behavioral disturbance have been observed by Navy watchstanders or experienced marine mammal observers conducting visual monitoring.

(5) Visual surveys generally provide suitable data for addressing questions of distribution and abundance of marine mammals but are much less effective at providing information on movements and behavior, with a few notable exceptions where sightings are most frequent.

(6) Passive acoustics and animal tagging have significant potential for applications addressing animal movements and behavioral response to Navy training activities but require a longer time horizon and heavy investment in analysis to produce relevant results.

(7) NMFS and the Navy should more carefully consider what and how information should be gathered during training exercises and monitoring events, as some reports contain different information, making cross-report comparisons difficult.

The Navy has invested over $10M in monitoring activities in the AFAST and east coast range complex portions of AFTT Study Area since 2009 and has accomplished the following:

- Covered over 150,000 km of visual survey effort;
- Sighted over 30,000 individual marine mammals;
- Monitored 20 individual training exercise events;
- Taken over 23,000 digital photos;
- Collected over 100 biopsy samples;
- Deployed 11 DTags and conducted 6 playback exposures on short finned pilot whales;
- Made 23 HARP deployments and collected over 28,000 hours of passive acoustic recordings;
- Deployed 3 temporary bottom-mounted passive acoustic arrays during training exercises.

In addition, 518 sightings for an estimated 2,645 marine mammals were reported by watchstanders aboard navy ships within the AFTT Study Area from 2009 to 2012. These observations were mainly during major at-sea training events and there were no reported observations of adverse reactions by marine mammals and no dead or injured animals reported associated with navy training activities.

Proposed Monitoring for the AFTT Study Area

Based on discussions between the Navy and NMFS, future monitoring would address the ICMP top-level goals through a collection of specific regional and ocean basin studies based on scientific objectives. Quantitative metrics of monitoring effort (e.g., 20 days of aerial survey) would not be a specific requirement. The adaptive management process and reporting requirements would serve as the basis for evaluating performance and compliance, primarily considering the quality of the work and results produced as well as peer review and publications, and public dissemination of information, reports, and data. The strategic planning process (see below) would be used to set intermediate scientific objectives, identify potential species of interest at a regional scale, and evaluate and select specific monitoring projects to fund or continue supporting for a given fiscal year. The strategic planning process would also address relative investments to different range complexes based on goals across all range complexes, and monitoring would leverage multiple techniques for data acquisition and analysis whenever possible.

Research

Overview

The Navy is working towards a better understanding of marine mammals and sound in ways that are not directly related to the MMPA process. The Navy highlights some of those ways in the section below. Further, NMFS is working on a long-term stranding study that will be supported by the Navy by way of a funding and information sharing component (see below).

Navy Research

The Navy is one of the world's leading organizations in assessing the effects of human activities on the marine environment, and provides a significant amount of funding and support to marine research. They also develop approaches to ensure that these resources are minimally impacted by current and future Navy operations. Navy scientists work cooperatively with other government researchers and scientists, universities, industry, and non-governmental conservation organizations in collecting, evaluating, and modeling information on marine resources, including working towards a better understanding of marine mammals and sound. From 2004 to 2012, the Navy has provided over $230 million for marine species research. The U.S. Navy sponsors 70 percent of all U.S. research concerning the effects of human-generated sound on marine mammals and 50 percent of such research conducted worldwide. Major topics of Navy-supported marine species research directly applicable to AFTT activities include the following:

- Better understanding of marine species distribution and important habitat areas;
- Developing methods to detect and monitor marine species before and during training;
- Understanding the impacts of sound on marine mammals, sea turtles, fish, and birds;
- Developing tools to model and estimate potential impacts of sound.

It is imperative that the Navy's research and development (R&D) efforts related to marine mammals are conducted in an open, transparent manner with validated study needs and requirements. The goal of the Navy's R&D program is to enable collection and publication of scientifically valid research as well as development of techniques and tools for Navy, academic, and commercial use. The two Navy organizations that account for most funding and oversight of the Navy marine mammal research program are the Office of Naval Research (ONR) Marine Mammals and Biology (MMB) Program, and the Office of the Chief of Naval Operations (CNO) Energy and Environmental Readiness Division (N45) Living Marine Resources (LMR) Program. The primary focus of these programs has been on understanding the effects of sound on marine mammals, including physiological, behavioral and ecological effects.

The ONR Marine Mammals and Biology program supports basic and applied research and technology

development related to understanding the effects of sound on marine mammals, including physiological, behavioral, ecological effects and population-level effects. Current program thrusts include, but are not limited to:

- Monitoring and detection;
- Integrated ecosystem research including sensor and tag development;
- Effects of sound on marine life [including hearing, behavioral response studies, diving and stress, physiology, and Population Consequences of Acoustic Disturbance (PCAD); and
- Models and databases for environmental compliance.

The mission of the LMR program is to develop, demonstrate, and assess information and technology solutions to protect living marine resources by minimizing the environmental risks of Navy at-sea training and testing activities while preserving core Navy readiness capabilities. This mission is accomplished by:

- Providing science-based information to support Navy environmental effects assessments for research, development, acquisition, testing and evaluation (RDAT&E) as well as Fleet at-sea training, exercises, maintenance and support activities;
- Improving knowledge of the status and trends of marine species of concern and the ecosystems of which they are a part;
- Developing the scientific basis for the criteria and thresholds to measure the effects of Navy generated sound;
- Improving understanding of underwater sound and sound field characterization unique to assessing the biological consequences resulting from underwater sound (as opposed to tactical applications of underwater sound or propagation loss modeling for military communications or tactical applications); and
- Developing technologies and methods to monitor and, where possible, mitigate biologically significant consequences to living marine resources resulting from naval activities, emphasizing those consequences that are most likely to be biologically significant.

The program is focused on three primary objectives that influence program management priorities and directly affect the program's success in accomplishing its mission:

(1) Collect, Validate and Rank R&D Needs: Expand awareness of R&D program opportunities within the Navy marine resource community to encourage and facilitate the submittal of well-defined and appropriate needs statements.

(2) Address High Priority Needs: Ensure that program investments and the resulting projects maintain a direct and consistent link to the defined user needs.

(3) Transition Solutions and Validate Benefits: Maximize the number of program-derived solutions that are successfully transitioned to the Fleet and system commands (SYSCOMs). The LMR program primarily invests in the following areas:

- Developing Data to Support Risk Threshold Criteria;
- Improved Data Collection on Protected Species, Critical Habitat within Navy Ranges;
- New Monitoring and Mitigation Technology Demonstrations;
- Database and Model Development;
- Education and Outreach, Emergent Opportunities.

The Navy has also developed the technical reports and supporting data referenced used for analysis in the AFTT EIS/OEIS and this proposed rule, which include the Navy Marine Species Density Database (NMSDD), Acoustic Criteria and Thresholds, and Determination of Acoustic Effects on Marine Mammals and Sea Turtles. Furthermore, research cruises by the NMFS and by academic institutions have received funding from the U.S. Navy. For instance, the ONR contributed financially to the Sperm Whale Seismic Study (SWSS) in the Gulf of Mexico, and CNO–N45 currently supports the Atlantic Marine Assessment Program for Protected Species (AMAPPS). Both the ONR and CNO–N45 programs are partners in the multi-year Southern California Behavioral Response Study (SOCAL–BRS). All of this research helps in understanding the marine environment and the effects that may arise from underwater noise in the oceans. Further, NMFS is working on a long-term stranding study that will be supported by the Navy by way of a funding and information sharing component (see below).

Adaptive Management and Strategic Planning Process

The final regulations governing the take of marine mammals incidental to Navy training and testing exercises in the AFTT Study Area would continue to contain an adaptive management component carried over from previous authorizations. Although better than five years ago, our understanding of the effects of Navy training and testing (e.g., sonar and other active acoustic sources and explosives) on marine mammals is still relatively limited, and yet the science in this field is evolving fairly quickly. These circumstances make the inclusion of an adaptive management component both valuable and necessary within the context of 5-year regulations for activities that have been associated with marine mammal mortality in certain circumstances and locations (though not the AFTT Study Area). The proposed reporting requirements are designed to provide NMFS with monitoring data from the previous year, which allows NMFS to consider whether any changes are appropriate. NMFS and the Navy would meet to discuss the monitoring reports, Navy R&D developments, and current science and whether mitigation or monitoring modifications are appropriate. The use of adaptive management would allow the Navy and NMFS to consider new data from different sources to determine if modified mitigation or monitoring measures are warranted (including possible additions or deletions). Mitigation and monitoring measures could be modified, added, or deleted if new data suggests that such modifications would have a reasonable likelihood of reducing adverse effects on marine mammals and if the measures are practicable.

The following are some of the possible sources of applicable data to be considered through the adaptive management process: (1) Results from monitoring and exercises reports; (2) compiled results of Navy funded research and development (R&D) studies; (3) results from specific stranding investigations; (4) results from general marine mammal and sound research; and (5) any information which reveals that marine mammals may have been taken in a manner, extent or number not authorized by these regulations or subsequent LOAs.

The Navy is currently establishing a strategic planning process under the ICMP in coordination with NMFS. The objective of the strategic planning process is to guide the continued evolution of Navy marine species monitoring towards a single integrated program, incorporating expert review and recommendations, and establishing a more structured and collaborative framework for evaluating, selecting, and implementing future monitoring across the all Navy range complexes. The Strategic Plan is intended to be a primary component of the ICMP and provide a ''vision'' for Navy monitoring across geographic regions—serving as guidance for determining how to most efficiently and effectively invest the marine species monitoring resources to address ICMP top-level goals and satisfy MMPA monitoring requirements.

This process is being designed to integrate various elements including:

- Integrated Comprehensive monitoring Program top-level goals;
- Scientific Advisory Group recommendations;
- Integration of regional scientific expert input;
- Ongoing adaptive management review dialog between NMFS and Navy;
- Lessons learned from past and future monitoring at Navy training and testing ranges;
- Leveraged research and lessons learned from other Navy funded marine science programs

NMFS and the Navy continue to coordinate on the strategic planning process through the regulatory process of this proposed rule; however, these discussions are still ongoing and we anticipate that more specific details will be available by the time it is finalized in advance of the issuance of the final rule. Additionally, the process and associated monitoring requirements may be modified or supplemented based on comments or new information received from the public during the public comment period.

Reporting

In order to issue an ITA for an activity, Section 101(a)(5)(A) of the MMPA states that NMFS must set forth ''requirements pertaining to the monitoring and reporting of such taking.'' Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring. Some of the reporting requirements are still in development and the final rule may contain additional details not contained in the proposed rule. Additionally, proposed reporting requirements may be modified, eliminated, or added based on information or comments received during the public comment period. Reports from individual monitoring events, results of analyses, publications, and periodic progress reports for specific monitoring projects will be posted to the U.S. Navy Marine Species Monitoring web portal as they become available. Currently, there are several specific reporting requirements pursuant to these proposed regulations:

General Notification of Injured or Dead Marine Mammals

Navy personnel would ensure that NMFS (regional stranding coordinator) is notified immediately (or as soon as clearance procedures allow) if an injured or dead marine mammal is found during or shortly after, and in the vicinity of, any Navy training exercise utilizing MFAS, HFAS, or underwater explosive detonations. The Navy would provide NMFS with species identification or description of the animal(s), the condition of the animal(s) (including carcass condition if the animal is dead), location, time of first discovery, observed behaviors (if alive), and photographs or video (if available). The AFTT Stranding Response Plan would contain more specific reporting requirements for specific circumstances.

Annual Monitoring and Exercise Report

As noted above, reports from individual monitoring events, results of analyses, publications, and periodic progress reports for specific monitoring projects would be posted to the Navy's Marine Species Monitoring web portal as they become available. Progress and results from all monitoring activity conducted within the AFTT Study Area, as well as required Major Training Event exercise activity, would be summarized in an annual report. A draft of this report would be submitted to NMFS for review by April 15 of each year. NMFS would review the report and provide comments for incorporation within 3 months.

Comprehensive Monitoring and Exercise Summary Report

The Navy would submit to NMFS a draft report that analyzes, compares, and summarizes all multi-year marine mammal data gathered during training and testing exercises for which individual annual reports are required under the proposed regulations. This report would be submitted at the end of the fourth year of the rule (December 2018), covering activities that have occurred through June 1, 2018. The Navy would respond to NMFS comments on the draft comprehensive report if submitted within 3 months of receipt. The report will be considered final after the Navy has addressed NMFS' comments, or 3 months after the submittal of the draft if NMFS does not provide comments.

Estimated Take of Marine Mammals

In the potential effects section, NMFS' analysis identified the lethal responses, physical trauma, sensory impairment (PTS, TTS, and acoustic masking), physiological responses (particular stress responses), and behavioral responses that could potentially result from exposure to sonar and other active acoustic sources and explosives and other impulsive sources. In this section, we will relate the potential effects to marine mammals from these sound sources to the MMPA regulatory definitions of Level A and Level B Harassment and attempt to quantify the effects that might occur from the specific training and testing activities that the Navy proposes in the AFTT Study Area.

As mentioned previously, behavioral responses are context-dependent, complex, and influenced to varying degrees by a number of factors other than just received level. For example, an animal may respond differently to a sound emanating from a ship that is moving towards the animal than it would to an identical received level coming from a vessel that is moving away, or to a ship traveling at a different speed or at a different distance from the animal. At greater distances, though, the nature of vessel movements could also potentially not have any effect on the animal's response to the sound. In any case, a full description of the suite of factors that elicited a behavioral response would require a mention of the vicinity, speed and movement of the vessel, or other factors. So, while sound sources and the received levels are the primary focus of the analysis and those that are laid out quantitatively in the regulatory text, it is with the understanding that other factors related to the training are sometimes contributing to the behavioral responses of marine mammals, although they cannot be quantified.

Definition of Harassment

As mentioned previously, with respect to military readiness activities, section 3(18)(B) of the MMPA defines ''harassment'' as: (i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild [Level A Harassment]; or (ii) any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered [Level B Harassment].

Level B Harassment

Of the potential effects that were described in the Potential Effects of Exposure of Marine Mammal to Non-Impulsive and Impulsive Sound Sources Section, the following are the types of effects that fall into the Level B Harassment category:

Behavioral Harassment—Behavioral disturbance that rises to the level described in the definition above, when resulting from exposures to non-impulsive or impulsive sound, is considered Level B Harassment. Some of the lower level physiological stress

responses discussed earlier would also likely co-occur with the predicted harassments, although these responses are more difficult to detect and fewer data exist relating these responses to specific received levels of sound. When Level B Harassment is predicted based on estimated behavioral responses, those takes may have a stress-related physiological component as well.

Earlier in this document, we described the Southall *et al.,* (2007) severity scaling system and listed some examples of the three broad categories of behaviors: 0–3 (Minor and/or brief behaviors); 4–6 (Behaviors with higher potential to affect foraging, reproduction, or survival); 7–9 (Behaviors considered likely to affect the aforementioned vital rates). Generally speaking, MMPA Level B Harassment, as defined in this document, would include the behaviors described in the 7–9 category, and a subset, dependent on context and other considerations, of the behaviors described in the 4–6 categories. Behavioral harassment does not generally include behaviors ranked 0–3 in Southall *et al.,* (2007).

Acoustic Masking and Communication Impairment—Acoustic masking is considered Level B Harassment as it can disrupt natural behavioral patterns by interrupting or limiting the marine mammal's receipt or transmittal of important information or environmental cues.

TTS—As discussed previously, TTS can affect how an animal behaves in response to the environment, including conspecifics, predators, and prey. The following physiological mechanisms are thought to play a role in inducing auditory fatigue: Effects to sensory hair cells in the inner ear that reduce their sensitivity, modification of the chemical environment within the sensory cells, residual muscular activity in the middle ear, displacement of certain inner ear membranes, increased blood flow, and post-stimulatory reduction in both efferent and sensory neural output. Ward (1997) suggested that when these effects result in TTS rather than PTS, they are within the normal bounds of physiological variability and tolerance and do not represent a physical injury. Additionally, Southall *et al.* (2007) indicate that although PTS is a tissue injury, TTS is not because the reduced hearing sensitivity following exposure to intense sound results primarily from fatigue, not loss, of cochlear hair cells and supporting structures and is reversible. Accordingly, NMFS classifies TTS (when resulting from exposure sonar and other active acoustic sources and explosives and other impulsive sources) as Level B Harassment, not Level A Harassment (injury).

Level A Harassment

Of the potential effects that were described earlier, following are the types of effects that fall into the Level A Harassment category:

PTS—PTS (resulting either from exposure to sonar and other active acoustic sources or explosive detonations) is irreversible and considered an injury. PTS results from exposure to intense sounds that cause a permanent loss of inner or outer cochlear hair cells or exceed the elastic limits of certain tissues and membranes in the middle and inner ears and result in changes in the chemical composition of the inner ear fluids.

Tissue Damage due to Acoustically Mediated Bubble Growth—A few theories suggest ways in which gas bubbles become enlarged through exposure to intense sounds (sonar and other active acoustic sources) to the point where tissue damage results. In rectified diffusion, exposure to a sound field would cause bubbles to increase in size. A short duration of sonar pings (such as that which an animal exposed to MFAS would be most likely to encounter) would not likely be long enough to drive bubble growth to any substantial size. Alternately, bubbles could be destabilized by high-level sound exposures such that bubble growth then occurs through static diffusion of gas out of the tissues. The degree of supersaturation and exposure levels observed to cause microbubble destabilization are unlikely to occur, either alone or in concert because of how close an animal would need to be to the sound source to be exposed to high enough levels, especially considering the likely avoidance of the sound source and the required mitigation. Still, possible tissue damage from either of these processes would be considered an injury.

Tissue Damage due to Behaviorally Mediated Bubble Growth—Several authors suggest mechanisms in which marine mammals could behaviorally respond to exposure to sonar and other active acoustic sources by altering their dive patterns in a manner (unusually rapid ascent, unusually long series of surface dives, etc.) that might result in unusual bubble formation or growth ultimately resulting in tissue damage (emboli, etc.) In this scenario, the rate of ascent would need to be sufficiently rapid to compromise behavioral or physiological protections against nitrogen bubble formation.

There is considerable disagreement among scientists as to the likelihood of this phenomenon (Piantadosi and Thalmann, 2004; Evans and Miller, 2003). Although it has been argued that traumas from recent beaked whale strandings are consistent with gas emboli and bubble-induced tissue separations (Jepson *et al.,* 2003; Fernandez *et al.,* 2005), nitrogen bubble formation as the cause of the traumas has not been verified. If tissue damage does occur by this phenomenon, it would be considered an injury.

Physical Disruption of Tissues Resulting from Explosive Shock Wave—Physical damage of tissues resulting from a shock wave (from an explosive detonation) is classified as an injury. Blast effects are greatest at the gas-liquid interface (Landsberg, 2000) and gas-containing organs, particularly the lungs and gastrointestinal tract, are especially susceptible (Goertner, 1982; Hill 1978; Yelverton *et al.,* 1973). Nasal sacs, larynx, pharynx, trachea, and lungs may be damaged by compression/expansion caused by the oscillations of the blast gas bubble (Reidenberg and Laitman, 2003). Severe damage (from the shock wave) to the ears can include tympanic membrane rupture, fracture of the ossicles, damage to the cochlea, hemorrhage, and cerebrospinal fluid leakage into the middle ear.

Vessel or Ordnance Strike—Vessel strike or ordnance strike associated with the specified activities would be considered Level A harassment, serious injury, or mortality.

Take Criteria

For the purposes of an MMPA authorization, three types of take are identified: Level B Harassment; Level A Harassment; and mortality (or serious injury leading to mortality). The categories of marine mammal responses (physiological and behavioral) that fall into the two harassment categories were described in the previous section.

Because the physiological and behavioral responses of the majority of the marine mammals exposed to non-impulse and impulse sounds cannot be detected or measured (not all responses visible external to animal, portion of exposed animals underwater (so not visible), many animals located many miles from observers and covering very large area, etc.) and because NMFS must authorize take prior to the impacts on marine mammals, a method is needed to estimate the number of individuals that will be taken, pursuant to the MMPA, based on the proposed action. To this end, the Navy's application and the AFTT DEIS/OEIS contain proposed acoustic criteria and thresholds that would, in some instances, represent changes from what NMFS has used to

evaluate the Navy's proposed activities for past incidental take authorizations. The revised thresholds are based on evaluations of recent scientific studies; a detailed explanation of how they were derived is provided in the AFTT DEIS/OEIS Criteria and Thresholds Technical Report. NMFS is currently updating and revising all of its acoustic criteria and thresholds. Until that process is complete, NMFS will continue its long-standing practice of considering specific modifications to the acoustic criteria and thresholds currently employed for incidental take authorizations only after providing the public with an opportunity for review and comment. NMFS is requesting comments on all aspects of the proposed rule, and specifically requests comment on the proposed acoustic criteria and thresholds. The acoustic criteria for non-impulse and impulse sounds are discussed below.

Non-Impulse Acoustic Criteria

NMFS utilizes three acoustic criteria for non-impulse sounds: PTS (injury—Level A Harassment), TTS (Level B Harassment), and behavioral harassment (Level B Harassment). Because the TTS and PTS criteria are derived similarly and the PTS criteria were extrapolated from the TTS data, the TTS and PTS acoustic criteria will be presented first, before the behavioral criteria.

For more information regarding these criteria, please see the Navy's DEIS/OEIS for AFTT.

Level B Harassment Threshold (TTS)

Behavioral disturbance, acoustic masking, and TTS are all considered Level B Harassment. Marine mammals would usually be behaviorally disturbed at lower received levels than those at which they would likely sustain TTS, so the levels at which behavioral disturbance are likely to occur is considered the onset of Level B Harassment. The behavioral responses of marine mammals to sound are variable, context specific, and, therefore, difficult to quantify (see Risk Function section, below). Alternately, TTS is a physiological effect that has been studied and quantified in laboratory conditions. Because data exist to support an estimate of the received levels at which marine mammals will incur TTS, NMFS uses an acoustic criteria to estimate the number of marine mammals that might sustain TTS. TTS is a subset of Level B Harassment (along with sub-TTS behavioral harassment) and we are not specifically required to estimate those numbers; however, the more specifically we can estimate the affected marine mammal responses, the better the analysis.

Level A Harassment Threshold (PTS)

For acoustic effects, because the tissues of the ear appear to be the most susceptible to the physiological effects of sound, and because threshold shifts tend to occur at lower exposures than other more serious auditory effects, NMFS has determined that PTS is the best indicator for the smallest degree of injury that can be measured. Therefore, the acoustic exposure associated with onset-PTS is used to define the lower limit of Level A harassment.

PTS data do not currently exist for marine mammals and are unlikely to be obtained due to ethical concerns. However, PTS levels for these animals may be estimated using TTS data from marine mammals and relationships between TTS and PTS that have been discovered through study of terrestrial mammals.

We note here that behaviorally mediated injuries (such as those that have been hypothesized as the cause of some beaked whale strandings) could potentially occur in response to received levels lower than those believed to directly result in tissue damage. As mentioned previously, data to support a quantitative estimate of these potential effects (for which the exact mechanism is not known and in which factors other than received level may play a significant role) does not exist. However, based on the number of years (more than 60) and number of hours of MFAS per year that the U.S. (and other countries) has operated compared to the reported (and verified) cases of associated marine mammal strandings, NMFS believes that the probability of these types of injuries is very low. Tables 13 and 14 provide a summary of non-impulsive and impulsive thresholds to TTS and PTS for marine mammals. A detailed explanation of how these thresholds were derived is provided in the AFTT DEIS/OEIS Criteria and Thresholds Technical Report (*http://aftteis.com/DocumentsandReferences/AFTT Documents/SupportingTechnical Documents.aspx*) and summarized in Chapter 6 of the Navy's LOA application (*http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*).

TABLE 13—ONSET TTS AND PTS THRESHOLDS FOR NON-IMPULSE SOUND

Group	Species	Onset TTS	Onset PTS
Low-Frequency Cetaceans	All mysticetes	178 dB re 1μPa²-sec(LF_{II})	198 dB re 1μPa²-sec(LF_{II}).
Mid-Frequency Cetaceans	Most delphinids, beaked whales, medium and large toothed whales.	178 dB re 1μPa²-sec(MF_{II})	198 dB re 1μPa²-sec(MF_{II}).
High-Frequency Cetaceans	Porpoises, Kogia spp.	152 dB re 1μPa²-sec(HF_{II})	172 dB re 1μPa²-secSEL (HF_{II}).
Phocidae In-water	Harbor, Gray, Bearded, Harp, Hooded, and Ringed seals.	183 dB re 1μPa²-sec(P_{WI})	197 dB re 1μPa²-sec(P_{WI}).

TABLE 14—IMPULSIVE SOUND EXPLOSIVE CRITERIA AND THRESHOLDS FOR PREDICTING ONSET INJURY AND MORTALITY

Group	Species	Onset TTS	Onset PTS	Onset GI tract injury	Onset slight lung	Onset mortality (1% mortality)
Low-frequency Cetaceans.	All mysticetes	172 dB SEL (LF_{II}) or 224 dB Peak SPL.	187 dB SEL (LF_{II}) or 230 dB Peak SPL.	237 dB SPL (unweighted)	Equation 1.	Equation 2.
Mid-frequency Cetaceans.	Most delphinids, medium and large toothed whales.	172 dB SEL (MF_{II}) or 224 dB Peak SPL.	187 dB SEL (MF_{II}) or 230 dB Peak SPL.			
High-frequency Cetaceans.	Porpoises and *Kogia* spp..	146 dB SEL (HF_{II}) or 195 dB Peak SPL.	161 dB SEL (HF_{II}) or 201dB Peak SPL.			

TABLE 14—IMPULSIVE SOUND EXPLOSIVE CRITERIA AND THRESHOLDS FOR PREDICTING ONSET INJURY AND MORTALITY—Continued

Group	Species	Onset TTS	Onset PTS	Onset GI tract injury	Onset slight lung	Onset mortality (1% mortality)
Phocidae	Harbor, Gray, Bearded, Harp, Hooded, and Ringed seals.	177 dB SEL (P_{WI}) or 212 dB Peak SPL.	192 dB SEL (P_{WI}) or 218 dB Peak SPL.			

Equation 1:

$= 39.1M^{1/3} (1+[D_{Rm}/10.081])^{1/2}$ Pa-sec

Equation 2:

$= 91.4M^{1/3} (1+[D_{Rm}/10.081])^{1/2}$ Pa-sec

Where:

M = mass of the animals in kg.

D_{Rm} = depth of the receiver (animal) in meters.

SPL = sound pressure level.

Level B Harassment Risk Function (Behavioral Harassment)

In 2006, NMFS issued the first MMPA authorization to allow the take of marine mammals incidental to MFAS (to the Navy for RIMPAC). For that authorization, NMFS used 173 dB SEL as the criterion for the onset of behavioral harassment (Level B Harassment). This type of single number criterion is referred to as a step function, in which (in this example) all animals estimated to be exposed to received levels above 173 dB SEL would be predicted to be taken by Level B Harassment and all animals exposed to less than 173 dB SEL would not be taken by Level B Harassment. As mentioned previously, marine mammal behavioral responses to sound are highly variable and context specific (affected by differences in acoustic conditions; differences between species and populations; differences in gender, age, reproductive status, or social behavior; or the prior experience of the individuals), which does not support the use of a step function to estimate behavioral harassment.

Unlike step functions, acoustic risk continuum functions (which are also called ''exposure-response functions,'' ''dose-response functions,'' or ''stress-response functions'' in other risk assessment contexts) allow for probability of a response that NMFS would classify as harassment to occur over a range of possible received levels (instead of one number) and assume that the probability of a response depends first on the ''dose'' (in this case, the received level of sound) and that the probability of a response increases as the ''dose'' increases (see Figures 6–5 and 6–6 in the LOA application). In January 2009, NMFS issued three final rules governing the incidental take of marine mammals (within Navy's HRC, SOCAL, and Atlantic Fleet Active Sonar Training (AFAST)) that used a risk continuum to estimate the percent of marine mammals exposed to various levels of MFAS that would respond in a manner NMFS considers harassment.

The Navy and NMFS have previously used acoustic risk functions to estimate the probable responses of marine mammals to acoustic exposures for other training and research programs. Examples of previous application include the Navy FEISs on the SURTASS LFA sonar (U.S. Department of the Navy, 2001c); the North Pacific Acoustic Laboratory experiments conducted off the Island of Kauai (Office of Naval Research, 2001), and the Supplemental EIS for SURTASS LFA sonar (U.S. Department of the Navy, 2007d). As discussed earlier, factors other than received level (such as distance from or bearing to the sound source) can affect the way that marine mammals respond; however, data to support a quantitative analysis of those (and other factors) do not currently exist. NMFS will continue to modify these criteria as new data that meet NMFS standards of quality become available and can be appropriately and effectively incorporated.

The particular acoustic risk functions developed by NMFS and the Navy (see Figures 6–5 and 6–6 in the LOA application) estimate the probability of behavioral responses to MFAS/HFAS (interpreted as the percentage of the exposed population) that NMFS would classify as harassment for the purposes of the MMPA given exposure to specific received levels of MFAS/HFAS. The mathematical function (below) underlying this curve is a cumulative probability distribution adapted from a solution in Feller (1968) and was also used in predicting risk for the Navy's SURTASS LFA MMPA authorization as well.

$$R = \frac{1-\left(\frac{L-B}{K}\right)^{-A}}{1-\left(\frac{L-B}{K}\right)^{-2A}}$$

Where:

R = Risk (0–1.0)

L = Received level (dB re: 1 µPa)

B = Basement received level = 120 dB re: 1 µPa

K = Received level increment above B where 50-percent risk = 45 dB re: 1 µPa

A = Risk transition sharpness parameter = 10 (odontocetes and pinnipeds) or 8 mysticetes)

Detailed information on the above equation and its parameters is available in the AFTT DEIS/OEIS and previous Navy documents listed above.

The inclusion of a special behavioral response criterion for beaked whales of the family Ziphiidae is new to these criteria. It has been speculated for some time that beaked whales might have unusual sensitivities to sonar sound due to their likelihood of stranding in conjunction with MFAS use, even in areas where other species were more abundant (D'Amico *et al.* 2009), but there were not sufficient data to support a separate treatment for beaked whales until recently. With the recent publication of results from Blainville's beaked whale monitoring and experimental exposure studies on the instrumented Atlantic Undersea Test and Evaluation Center range in the Bahamas (McCarthy *et al.* 2011; Tyack *et al.* 2011), there are now statistically strong data suggesting that beaked whales tend to avoid both actual naval MFAS in real anti-submarine training scenarios as well as sonar-like signals and other signals used during controlled sound exposure studies in the same area. An unweighted 140 dB re 1 µPa sound pressure level threshold has been adopted by the Navy for takes of all beaked whales (family: Ziphiidae).

If more than one impulsive event involving explosives (i.e., not pile driving) occurs within any given 24-hour period within a training or testing event, criteria are applied to predict the number of animals that may be taken by

Level B Harassment. For multiple impulsive events (with the exception of pile driving) the behavioral threshold used in this analysis is 5 dB less than the TTS onset threshold (in sound exposure level). This value is derived from observed onsets of behavioral response by test subjects (bottlenose dolphins) during non-impulse TTS testing (Schlundt *et al.* 2000). Some multiple impulsive events, such as certain naval gunnery exercises, may be treated as a single impulsive event because a few explosions occur closely spaced within a very short period of time (a few seconds). For single impulses at received sound levels below hearing loss thresholds, the most likely behavioral response is a brief alerting or orienting response. Since no further sounds follow the initial brief impulses, Level B take in the form of behavioral harassment beyond that associated with potential TTS would not be expected to occur. This reasoning was applied to previous shock trials (63 FR 66069; 66 FR 22450; 73 FR 43130). Explosive criteria and thresholds are summarized in Table 6–3 in the LOA application.

Since impulse events can be quite short, it may be possible to accumulate multiple received impulses at sound pressure levels considerably above the energy-based criterion and still not be considered a behavioral take. The Navy treats all individual received impulses as if they were one second long for the purposes of calculating cumulative sound exposure level for multiple impulse events. For example, five air gun impulses, each 0.1 second long, received at 178 dB sound pressure level would equal a 175 dB sound exposure level, and would not be predicted as leading to a take. However, if the five 0.1 second pulses are treated as a 5 second exposure, it would yield an adjusted value of approximately 180 dB, exceeding the threshold. For impulses associated with explosions that have durations of a few microseconds, this assumption greatly overestimates effects based on sound exposure level metrics such as TTS and PTS and behavioral responses. Appropriate weighting values will be applied to the received impulse in one-third octave bands and the energy summed to produce a total weighted sound exposure level value. For impulsive behavioral criteria, the Navy's new weighting functions (detailed in the LOA application) are applied to the received sound level before being compared to the threshold.

TABLE 15—BEHAVIORAL THRESHOLDS FOR IMPULSIVE SOUND

Hearing group	Impulsive behavioral threshold for >2 pulses/24 hrs
Low-Frequency Cetaceans	167 dB SEL (LF_{II}).
Mid-Frequency Cetaceans	167 dB SEL (MF_{II}).
High-Frequency Cetaceans	141 dB SEL (HF_{II}).
Phocid Seals (in water)	172 dB SEL (P_{WI}).

Existing NMFS criteria was applied to sounds generated by pile driving and airguns (Table 16).

TABLE 16—THRESHOLDS FOR PILE DRIVING AND AIRGUNS

Species groups	Underwater vibratory pile driving criteria (sound pressure level, dB re 1 µPa)		Underwater impact pile driving and airgun criteria (sound pressure level, dB re 1 µPa)	
	Level A injury threshold	Level B disturbance threshold	Level A injury threshold	Level B disturbance threshold
Cetaceans (whales, dolphins, porpoises)	180 dB rms	120 dB rms	180 dB rms	160 dB rms.
Pinnipeds (seals)	190 dB rms	120 dB rms	190 dB rms	160 dB rms.

Quantitative Modeling for Impulsive and Non-Impulsive Sound

The Navy performed a quantitative analysis to estimate the number of marine mammals that could be harassed by acoustic sources or explosives used during Navy training and testing activities. Inputs to the quantitative analysis included marine mammal density estimates; marine mammal depth occurrence distributions; oceanographic and environmental data; marine mammal hearing data; and criteria and thresholds for levels of potential effects. The quantitative analysis consists of computer-modeled estimates and a post-model analysis to determine the number of potential mortalities and harassments. The model calculates sound energy propagation from sonars, other active acoustic sources, and explosives during naval activities; the sound or impulse received by animat dosimeters representing marine mammals distributed in the area around the modeled activity; and whether the sound or impulse received by a marine mammal exceeds the thresholds for effects. The model estimates are then further analyzed to consider animal avoidance and implementation of mitigation measures, resulting in final estimates of effects due to Navy training and testing. This process results in a reduction of take numbers and is detailed in Chapter 6 (section 6.1.5) of the Navy's LOA application.

A number of computer models and mathematical equations can be used to predict how energy spreads from a sound source (e.g., sonar or underwater detonation) to a receiver (e.g., dolphin or sea turtle). Basic underwater sound models calculate the overlap of energy and marine life using assumptions that account for the many variables, and often unknown factors that can greatly influence the result. Assumptions in previous and current Navy models have intentionally erred on the side of overestimation when there are unknowns or when the addition of other variables was not likely to substantively change the final analysis. For example,

because the ocean environment is extremely dynamic and information is often limited to a synthesis of data gathered over wide areas and requiring many years of research, known information tends to be an average of a seasonal or annual variation. The Equatorial Pacific El Nino disruption of the ocean-atmosphere system is an example of dynamic change where unusually warm ocean temperatures are likely to redistribute marine life and alter the propagation of underwater sound energy. Previous Navy modeling therefore made some assumptions indicative of a maximum theoretical propagation for sound energy (such as a perfectly reflective ocean surface and a flat seafloor). More complex computer models build upon basic modeling by factoring in additional variables in an effort to be more accurate by accounting for such things as bathymetry and an animal's likely presence at various depths.

The Navy has developed a set of data and new software tools for quantification of estimated marine mammal impacts from Navy activities. This new approach is the resulting evolution of the basic model previously used by the Navy and reflects a more complex modeling approach as described below. Although this more complex computer modeling approach accounts for various environmental factors affecting acoustic propagation, the current software tools do not consider the likelihood that a marine mammal would attempt to avoid repeated exposures to a sound or avoid an area of intense activity where a training or testing event may be focused. Additionally, the software tools do not consider the implementation of mitigation (e.g., stopping sonar transmissions when a marine mammal is within a certain distance of a ship or range clearance prior to detonations). In both of these situations, naval activities are modeled as though an activity would occur regardless of proximity to marine mammals and without any horizontal movement by the animal away from the sound source or human activities (e.g., without accounting for likely animal avoidance). Therefore, the final step of the quantitative analysis of acoustic effects is to consider the implementation of mitigation and the possibility that marine mammals would avoid continued or repeated sound exposures.

The quantified results of the marine mammal acoustic effects analysis presented in the Navy's LOA application differ from the quantified results presented in the AFTT DEIS/OEIS. Presentation of the results in this new manner for MMPA, ESA, and other regulatory analyses is well within the framework of the previous NEPA analyses presented in the DEIS. The differences are due to three main factors: (1) Changes to the tempo or location of certain proposed activities; (2) refinement to the modeling inputs for training and testing; and (3) additional post-model analysis of acoustic effects to include animal avoidance of repeated sound sources, avoidance of areas of activity before use of a sound source or explosive by sensitive species, and implementation of mitigation. The Navy's tempo and location of certain proposed activities has been modified in response to new training and testing requirements developed in response to the ever-evolving security environment requiring an increased use of high frequency mine detection sonar for training and testing, an increased use of mid-frequency ASW sonobuoys for testing, relocation of countermeasure testing from NSWC Panama City to GOMEX, and the elimination of the Submarine Navigation Training at Kings Bay, GA. The proposal also includes refinement of the modeling inputs, including the addition of modeling results for Surface to Surface MISSILEX, which was analyzed but not modeled in the DEIS, and the elimination of over-calculation for several activities which occur only once every five years. This additional post-model analysis of acoustic effects was performed to clarify potential misunderstandings of the numbers presented as modeling results in the AFTT DEIS/OEIS. Some comments indicated that the readers believed the acoustic effects to marine mammals presented in the DEIS/OEIS were representative of the actual expected effects, although the AFTT DEIS/OEIS did not account for animal avoidance of an area prior to commencing sound-producing activities, animal avoidance of repeated explosive noise exposures, and the protections due to standard Navy mitigations. Therefore, the numbers presented in Navy's LOA application, which will be reflected in the AFTT FEIS/OEIS, have been refined to better quantify the expected effects by fully accounting for animal avoidance or movement and implementation of standard Navy mitigations. With the application of the post-modeling assessment process, the net result of these changes is an overall decrease in takes by mortality and Level A takes within the LOA application compared with the DEIS, a net reduction in Level B takes for training, and a net increase in Level B takes for testing. The Navy has advised NMFS that all comments received on the proposed rule that address (1) changes to the tempo or location of certain proposed activities; (2) refinement to the modeling inputs for training and testing; and (3) additional post-model analysis of acoustic effects and implementation of mitigation, will be reviewed and addressed by the Navy in its FEIS/OEIS for AFTT.

The steps of the quantitative analysis of acoustic effects, the values that went into the Navy's model, and the resulting ranges to effects are detailed in Chapter 6 of the Navy's LOA application (*http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*).

Take Request

The AFTT DEIS/OEIS considered all training and testing activities proposed to occur in the Study Area that have the potential to result in the MMPA defined take of marine mammals. The stressors associated with these activities included the following:

- Acoustic (sonar and other active non-impulse sources, explosives, pile driving, swimmer defense airguns, weapons firing, launch and impact noise, vessel noise, aircraft noise)
- Energy (electromagnetic devices)
- Physical disturbance or strikes (vessels, in-water devices, military expended materials, seafloor devices)
- Entanglement (fiber optic cables, guidance wires, parachutes)
- Ingestion (munitions, military expended materials other than munitions)

The Navy determined, and NMFS agrees, that three stressors could potentially result in the incidental taking of marine mammals from training and testing activities within the Study Area: (1) Non-impulsive stressors (sonar and other active acoustic sources), (2) impulsive stressors (explosives, pile driving and removal), and (3) vessel strikes. Non-impulsive and impulsive stressors have the potential to result in incidental takes of marine mammals by harassment, injury, or mortality (explosives only). Vessel strikes have the potential to result in incidental take from direct injury and/or mortality.

Training Activities—Based on the Navy's model and post-model analysis (described in detail in Chapter 6 of its LOA application), Table 17 summarizes the Navy's take request for training activities for an annual maximum year (a notional 12-month period when all annual and non-annual events would occur) and the summation over a 5-year period (with consideration of the varying schedule of non-annual activities). Table 18 summarizes the

Navy's take request (Level A and Level B harassment) for training activities by species.

While the Navy does not anticipate any mortalities would occur from training activities involving explosives, the Navy requests annual authorization for take by mortality of up to 17 small odontocetes (i.e., dolphins) to include any combination of such species that may be present in the Study Area. In addition, the Navy does not anticipate any beaked whale strandings or mortalities from sonar and other active sources, but in order to account for unforeseen circumstances that could lead to such effects the Navy requests the annual take, by mortality, of up to 10 beaked whales in any given year, and no more than 10 beaked whales over the 5-year LOA period, as part of training activities.

Vessel strike to marine mammals is not associated with any specific training activity but rather a limited, sporadic, and accidental result of Navy vessel movement within the Study Area. In order to account for the accidental nature of vessel strikes to large whales in general, and the potential risk from any vessel movement within the Study Area, the Navy requests take authorization in the event a Navy vessel strike does occur while conducting training. The Navy's take authorization request is based on the probabilities of whale strikes suggested by the data from NMFS Northeast Science Center, NMFS Southeast Science Center, the Navy, and the calculations detailed in Chapter 6 of the Navy's LOA application. The number of Navy and commercial whale strikes for which the species has been positively identified suggests that the probability of striking a humpback whale in the Study Area is greater than striking other species. However, since species identification has not been possible in most vessel strike cases, the Navy cannot quantifiably predict what species may be taken. Therefore, the Navy seeks take authorization by mortality from vessel strike for any combined number of marine mammal species to include fin whale, blue whale, humpback whale, Bryde's whale, sei whale, minke whale, sperm whale, Blainville's beaked whale, Cuvier's beaked whale, Gervais' beaked whale, and unidentified whale species. The Navy requests takes of large marine mammals over the course of the 5-year regulations from training activities as discussed below:

- The take by vessel strike during training activities in any given year of no more than three marine mammals total of any combination of species including fin whale, blue whale, humpback whale, Bryde's whale, sei whale, minke whale, sperm whale, Blainville's beaked whale, Cuvier's beaked whale, Gervais' beaked whale, and unidentified whale species.
- The take by vessel strike of no more than 10 marine mammals from training activities over the course of the five years of the AFTT regulations.

Over a period of 18 years from 1995 to 2012 there have been a total of 19 Navy vessel strikes in the Study Area. Eight of the strikes resulted in a confirmed death; but in 11 of the 19 strikes, the fate of the animal was unknown. It is possible that some of the 11 reported strikes resulted in recoverable injury or were not marine mammals at all, but another large marine species (e.g., basking shark). However, it is prudent to consider that all of the strikes could have resulted in the death of a marine mammal. The maximum number of strikes in any given year was three strikes, which occurred in 2001 and 2004. The highest average number of strikes over any five year period was two strikes per year from 2001 to 2005. The average number of strikes for the entire 18-year period is 1.055 strikes per year. Since the implementation of the Navy's Marine Species Awareness Training in 2007, strikes in the Study Area have decreased to an average of 0.5 per year. Over the last five years on the east coast, the Navy was involved in two strikes, with no confirmed marine mammal deaths as a result of the vessel strike. Also as discussed in Chapter 6 of the Navy's LOA application, the probability of striking as many as two large whales in a single year in the AFTT Study Area is only 19 percent.

TABLE 17—SUMMARY OF ANNUAL AND 5-YEAR TAKE REQUESTS FOR TRAINING ACTIVITIES

MMPA category	Source	Annual authorization sought	5-Year authorization sought
		Training activities [4]	Training activities
Mortality	Impulsive	17 mortalities applicable to any small odontocete in any given year.	85 mortalities applicable to any small odontocete over 5 years.
	Unspecified	10 mortalities to beaked whales in any given year. [1]	10 mortalities to beaked whales over 5 years. [1]
	Vessel strike	No more than three large whale mortalities in any given year. [2]	No more than 10 large whale mortalities over 5 years. [2]
Level A	Impulsive and Non-Impulsive.	351	1,753.
Level B	Impulsive and Non-Impulsive.	2,053,473	10,263,631.

[1] Ten Ziphiidae beaked whale to include any combination of Blainville's beaked whale, Cuvier's beaked whale, Gervais' beaked whale, northern bottlenose whale, and Sowerby's beaked whale, and True's beaked whale (not to exceed 10 beaked whales total over the 5-year length of requested authorization).

[2] *For Training:* Because of the number of incidents in which the species of the stricken animal has remained unidentified, Navy cannot predict that proposed takes (either 3 per year or the 10 over the course of 5 years) will be of any particular species, and therefore seeks take authorization for any combination of large whale species (e.g., fin whale, humpback whale, minke whale, sei whale, Bryde's whale, sperm whale, blue whale, Blainville's beaked whale, Cuvier's beaked whale, Gervais' beaked whale, and unidentified whale species), excluding the North Atlantic right whale.

TABLE 18—SPECIES-SPECIFIC TAKE REQUESTS FROM IMPULSIVE AND NON-IMPULSIVE SOURCE EFFECTS FOR ALL TRAINING ACTIVITIES

Species	Annual [1]		Total over 5-year period	
	Level B	Level A	Level B	Level A
Mysticetes:				

TABLE 18—SPECIES-SPECIFIC TAKE REQUESTS FROM IMPULSIVE AND NON-IMPULSIVE SOURCE EFFECTS FOR ALL TRAINING ACTIVITIES—Continued

Species	Annual[1]		Total over 5-year period	
	Level B	Level A	Level B	Level A
Blue Whale *	147	0	735	0
Bryde's Whale	955	0	4,775	0
Minke Whale	60,402	16	302,010	80
Fin Whale *	4,490	1	22,450	5
Humpback Whale *	1,643	1	8,215	5
North Atlantic Right Whale *	112	0	560	0
Sei Whale *	10,188	1	50,940	5
Odontocetes—Delphinids:				
Atlantic Spotted Dolphin	177,570	12	887,550	60
Atlantic White-Sided Dolphin	31,228	3	156,100	15
Bottlenose Dolphin	284,728	8	1,422,938	40
Clymene Dolphin	19,588	1	97,938	5
Common Dolphin	465,014	17	2,325,022	85
False Killer Whale	713	0	3,565	0
Fraser's Dolphin	2,205	0	11,025	0
Killer Whale	14,055	0	70,273	0
Melon-Headed Whale	20,876	0	104,380	0
Pantropical Spotted Dolphin	70,968	1	354,834	5
Pilot Whale	101,252	3	506,240	15
Pygmy Killer Whale	1,487	0	7,435	0
Risso's Dolphin	238,528	3	1,192,618	15
Rough Toothed Dolphin	1,059	0	5,293	0
Spinner Dolphin	20,414	0	102,068	0
Striped Dolphin	224,305	7	1,121,511	35
White-Beaked Dolphin	1,613	0	8,027	0
Odontocetes—Sperm Whales:				
Sperm Whale *	14,749	0	73,743	0
Odontocetes—Beaked Whales:				
Blainville's Beaked Whale	28,179	0	140,893	0
Cuvier's Beaked Whale	34,895	0	174,473	0
Gervais' Beaked Whale	28,255	0	141,271	0
Northern Bottlenose Whale	18,358	0	91,786	0
Sowerby's Beaked Whale	9,964	0	49,818	0
True's Beaked Whale	16,711	0	83,553	0
Odontocetes—Kogia Species and Porpoises:				
Kogia spp.	5,090	15	25,448	75
Harbor Porpoise	142,811	262	711,727	1,308
Phocid Seals:				
Bearded Seal	0	0	0	0
Gray Seal	82	0	316	0
Harbor Seal	83	0	329	0
Harp Seal	4	0	12	0
Hooded Seal	5	0	25	0
Ringed Seal **	0	0	0	0

[1] Predictions shown are for the theoretical maximum year, which would consist of all annual training and one Civilian Port Defense activity. Civilian Port Defense training would occur biennially.
* ESA-Listed Species; ** ESA-proposed; PTS: Permanent threshold shift; TTS: Temporary threshold shift.

Testing Activities

Based on the Navy's model and post-model analysis (described in detail in Chapter 6 of its LOA application), Table 19 summarizes the Navy's take request for testing activities for an annual maximum year (a notional 12-month period when all annual and non-annual events would occur) and the summation over a 5-year period (with consideration of the varying schedule of non-annual activities). Table 20 summarizes the Navy's take request (Level A and Level B harassment) for testing activities by species.

The Navy requests annual authorization for take by mortality of up to 11 small odontocetes (i.e., dolphins) to include any combination of such species with potential presence in the Study Area as part of testing activities using impulsive sources (excluding ship shock trials). Over the 5-year periods of the rule, the Navy requests authorization for take by mortality of up to 25 marine mammals incidental to ship shock trials (10 for aircraft carrier trials and 15 for guided missile destroyer and Littoral Combat Ship trials).

The Navy does not anticipate vessel strikes of marine mammals would occur during testing activities in the Study Area in any given year. Most testing conducted in the Study Area that involves surface ships is conducted on Navy ships during training exercises. Therefore, the vessel strike take request for training activities covers those activities. For the smaller number of testing activities not conducted in conjunction with fleet training, the Navy requests a smaller number of takes resulting incidental to vessel strike. However, in order to account for the accidental nature of vessel strikes to large whales in general, and potential risk from any vessel movement within the Study Area, the Navy is seeking take authorization in the event a Navy vessel strike does occur while conducting

testing during the five year period of NMFS' final authorization as follows:

- The take by vessel strike during testing activities in any given year of no more than one marine mammal of any of the following species including fin whale, blue whale, humpback whale, Bryde's whale, sei whale, minke whale, sperm whale Blainville's beaked whale, Cuvier's beaked whale, Gervais' beaked whale, and unidentified whale species.
- The take by vessel strike of no more than one large whale from testing activities over the course of the 5-year regulations.

TABLE 19—SUMMARY OF ANNUAL AND 5-YEAR TAKE REQUESTS FOR TESTING ACTIVITIES

[Excluding ship shock trials]

MMPA category	Source	Annual authorization sought	5-Year authorization sought
		Testing activities[3]	Testing activities[3]
Mortality	Impulsive	11 mortalities applicable to any small odontocete in any given year[3].	55 mortalities applicable to any small odontocete over 5 years.
	Unspecified	None	None.
	Vessel strike	No more than one large whale mortality in any given year.[2]	No more than one large whale mortality over 5 years.[2]
Level A	Impulsive and non-Impulsive.	375	1,735.
Level B	Impulsive and non-Impulsive.	2,441,640	11,559,236.

[1] Ten Ziphiidae beaked whale to include any combination of Blainville's beaked whale, Cuvier's beaked whale, Gervais' beaked whale, northern bottlenose whale, and Sowerby's beaked whale, and True's beaked whale (not to exceed 10 beaked whales total over the 5-year length of requested authorization).

[2] *For Testing:* Because of the number of incidents in which the species of the stricken animal has remained unidentified, the Navy cannot predict that the proposed takes (one over the course of 5 years) will be of any particular species, and therefore seeks take authorization for any large whale species (e.g., fin whale, humpback whale, minke whale, sei whale, Bryde's whale, sperm whale, blue whale, Blainville's beaked whale, Cuvier's beaked whale, Gervais' beaked whale, and unidentified whale species), excluding the North Atlantic right whale.

[3] Excluding ship shock trials.

TABLE 20—SPECIES-SPECIFIC TAKE REQUESTS FROM IMPULSIVE AND NON-IMPULSIVE SOURCE EFFECTS FOR ALL TESTING ACTIVITIES

Species	Annual[1,2]		Total over 5-year period	
	Level B	Level A	Level B	Level A
Mysticetes:				
Blue Whale*	18	0	82	0
Bryde's Whale	64	0	304	0
Minke Whale	7,756	15	34,505	28
Fin Whale*	599	0	2,784	0
Humpback Whale*	200	0	976	0
North Atlantic Right Whale*	87	0	395	0
Sei Whale*	796	0	3,821	0
Odontocetes—Delphinids:				
Atlantic Spotted Dolphin	24,429	1,854	104,647	1,964
Atlantic White-Sided Dolphin	10,330	147	50,133	166
Bottlenose Dolphin	33,708	149	146,863	190
Clymene Dolphin	2,173	80	10,169	87
Common Dolphin	52,173	2,203	235,493	2,369
False Killer Whale	109	0	497	0
Fraser's Dolphin	171	0	791	0
Killer Whale	1,540	2	7,173	2
Melon-Headed Whale	1,512	28	6,950	30
Pantropical Spotted Dolphin	7,985	71	38,385	92
Pilot Whale	15,701	153	74,614	163
Pygmy Killer Whale	135	3	603	3
Risso's Dolphin	24,356	70	113,682	89
Rough Toothed Dolphin	138	0	618	0
Spinner Dolphin	2,862	28	13,208	34
Striped Dolphin	21,738	2,599	97,852	2,751
White-Beaked Dolphin	1,818	3	8,370	3
Odontocetes—Sperm Whales:				
Sperm Whale*	1,786	5	8,533	6
Odontocetes—Beaked Whales:				
Blainville's Beaked Whale	4,753	3	23,561	3
Cuvier's Beaked Whale	6,144	1	30,472	1
Gervais' Beaked Whale	4,764	4	23,388	4
Northern Bottlenose Whale	12,096	5	60,409	6
Sowerby's Beaked Whale	2,698	0	13,338	0
True's Beaked Whale	3,133	1	15,569	1
Odontocetes—Kogia Species and Porpoises:				

TABLE 20—SPECIES-SPECIFIC TAKE REQUESTS FROM IMPULSIVE AND NON-IMPULSIVE SOURCE EFFECTS FOR ALL TESTING ACTIVITIES—Continued

Species	Annual [1,2]		Total over 5-year period	
	Level B	Level A	Level B	Level A
Kogia spp.	1,163	12	5,536	36
Harbor Porpoise	2,182,872	216	10,358,300	1,080
Phocid Seals:				
Bearded Seal	33	0	161	0
Gray Seal	3,293	14	14,149	46
Harbor Seal	8,668	78	38,860	330
Harp Seal	3,997	14	16,277	30
Hooded Seal	295	0	1,447	0
Ringed Seal **	359	0	1,795	0

[1] Predictions shown are for the theoretical maximum year, which would consist of all annual testing; one CVN ship shock trial and two other ship shock trials (DDG or LCS); and Unmanned Underwater Vehicle (UUV) Demonstrations at each of three possible sites. One CVN, one DDG, and two LCS ship shock trials could occur within the 5-year period. Typically, one UUV Demonstration would occur annually at one of the possible sites.

[2] Ship shock trials could occur in either the VACAPES (year-round, except a CVN ship shock trial would not occur in the winter) or JAX (spring, summer, and fall only) Range Complexes. Actual location and time of year of a ship shock trial would depend on platform development, site availability, and availability of ship shock trial support facilities and personnel. For the purpose of requesting takes, the maximum predicted effects to a species for either location in any possible season are included in the species' total predicted effects.

* ESA-Listed Species; ** ESA-proposed; PTS: Permanent threshold shift; TTS: Temporary threshold shift.

For one aircraft carrier (CVN) ship shock trial, the Navy requests a maximum of 6,591 takes by Level A harassment and 4,607 takes by Level B harassment over the 5-year LOA period. Based on no observed mortalities during previous ship shock trials, the Navy does not anticipate the mortalities predicted by the acoustic analysis, but requests authorization for take by mortality of up to 10 small odontocetes (any combination of species known to be present in the Study Area).

For the guided missile destroyer (DDG) and two Littoral Combat Ship (LCS) ship shock trials (three events total), the Navy requests a maximum of 1,188 takes by Level A harassment and 867 takes by Level B harassment over the course of the 5-year LOA period. Based on no observed mortalities during previous ship shock trials, the Navy does not anticipate the mortalities predicted by the acoustic analysis, but requests authorization for take by mortality of up to 15 small odontocetes (any combination of species known to be present in the Study Area).

TABLE 21—SUMMARY OF ANNUAL AND 5-YEAR TAKE REQUEST FOR AFTT SHIP SHOCK TRIALS

MMPA category	Annual authorization sought [1]	5-Year authorization sought
Mortality	20 mortalities applicable to any small odontocete in any given year.	25 mortalities applicable to any small odontocete over 5 years.
Level A	7,383	7,779.
Level B	5,185	5,474.

[1] Up to three ship shock trials could occur in any one year (one CVN and two DDG/LCS ship shock trials), with one CVN, one DDG, and two LCS ship shock trials over the 5-year period. Ship shock trials could occur in either the VACAPES (year-round, except a CVN ship shock trial would not occur in the winter) or JAX (spring, summer, and fall only) Range Complexes. Actual location and time of year of a ship shock trial would depend on platform development, site availability, and availability of ship shock trial support facilities and personnel. For the purpose of requesting Level A and Level B takes, the maximum predicted effects to a species for either location in any possible season are included in the species' total predicted effects.

Marine Mammal Habitat

The Navy's proposed training and testing activities could potentially affect marine mammal habitat through the introduction of sound into the water column, impacts to the prey species of marine mammals, bottom disturbance, or changes in water quality. Each of these components was considered in the AFTT DEIS/OEIS and was determined by the Navy to have no effect on marine mammal habitat. Based on the information below and the supporting information included in the AFTT DEIS/OEIS, NMFS has preliminarily determined that the proposed training and testing activities would not have adverse or long-term impacts on marine mammal habitat.

Important Marine Mammal Habitat

The only ESA-listed marine mammal with designated critical habitat within the AFTT Study Area is for the North Atlantic right whale. Three critical habitats—Cape Cod Bay, Great South Channel, and the coastal waters of Georgia and Florida—were designated by NMFS in 1994 (59 FR 28805, June 3, 1994). Recently, in a response to a 2009 petition to revise North Atlantic right whale critical habitat, NMFS stated that the revision is appropriate and the ongoing rulemaking process would continue (75 FR 61690, October 6, 2010).

New England waters (where the Cape Cod Bay and Great South Channel critical habitats are located) are an important feeding habitat for right whales, which feed primarily on copepods in this area (largely of the genera *Calanus* and *Pseudocalanus*). Research suggests that right whales must locate and exploit extremely dense patches of zooplankton to feed efficiently (Mayo and Marx, 1990). These dense zooplankton patches are likely a primary characteristic of the spring, summer and fall right whale habitats (Kenney *et al.,* 1986; Kenney *et al.,* 1995). While feeding in the coastal

waters off Massachusetts has been better studied than in other areas, right whale feeding has also been observed on the margins of Georges Bank, in the Great South Channel, in the Gulf of Maine, in the Bay of Fundy, and over the Scotian Shelf. The characteristics of acceptable prey distribution in these areas are beginning to emerge (Baumgartner and Mate, 2003; Baumgartner and Mate, 2005). NMFS and Provincetown Center for Coastal Studies aerial surveys during springs of 1999–2006 found right whales along the northern edge of Georges Bank, in the Great South Channel, in Georges Basin, and in various locations in the Gulf of Maine including Cashes Ledge, Platts Bank and Wilkinson Basin. The consistency with which right whales occur in such locations is relatively high, but these studies also highlight the high interannual variability in right whale use of some habitats.

Since 2004, consistent aerial survey efforts have been conducted during the migration and calving season (15 November to 15 April) in coastal areas of Georgia and South Carolina, to the north of currently defined critical habitat (Glass and Taylor, 2006; Khan and Taylor, 2007; Sayre and Taylor, 2008; Schulte and Taylor, 2010). Results suggest that this region may not only be part of the migratory route but also a seasonal residency area. Results from an analysis by Schick *et al.* (2009) suggest that the migratory corridor of North Atlantic right whales is broader than initially estimated and that suitable habitat exists beyond the 20 nm coastal buffer presumed to represent the primary migratory pathway (NMFS, 2008b). Results were based on data modeled from two females tagged with satellite-monitored radio tags as part of a previous study.

Three right whale observations (four individuals) were recorded during aerial surveys sponsored by the Navy in the vicinity of the planned Undersea Warfare Training Range approximately 50 mi. (80 km) offshore of Jacksonville, Florida in 2009 and 2010, including a female that was observed giving birth (Foley *et al.,* 2011). These sightings occurred well outside existing critical habitat for the right whale and suggest that the calving area may be broader than currently assumed (Foley *et al.,* 2011; U.S. Department of the Navy, 2010). Offshore (greater than 30 mi. [48.3 km]) surveys flown off the coast of northeastern Florida and southeastern Georgia from 1996 to 2001 documented 3 sightings in 1996, 1 in 1997, 13 in 1998, 6 in 1999, 11 in 2000 and 6 in 2001 (within each year, some were repeat sightings of previously recorded individuals). Several of the years that offshore surveys were flown were some of the lowest count years for calves and for numbers of right whales in the southeast recorded since comprehensive surveys in the calving grounds were initiated. Therefore, the frequency with which right whales occur in offshore waters in the southeastern United States remains unclear.

Activities involving sound or energy from sonar and other active acoustic sources will not occur or will be minimized to the maximum extent practicable in designated North Atlantic right whale critical habitat and would have no effect on the primary constituent elements (i.e., water temperature and depth in the southeast and copepods in the northeast).

Expected Effects on Habitat

Training and testing activities may introduce water quality constituents into the water column. Based on the analysis of the AFTT EIS/OEIS, military expended materials (e.g., undetonated explosive materials) would be released in quantities and at rates that would not result in a violation of any water quality standard or criteria. High-order explosions consume most of the explosive material, creating typical combustion products. For example, in the case of Royal Demolition Explosive, 98 percent of the products are common seawater constituents and the remainder is rapidly diluted below threshold effect level. Explosion by-products associated with high order detonations present no secondary stressors to marine mammals through sediment or water. However, low order detonations and unexploded ordnance present elevated likelihood of impacts on marine mammals.

Indirect effects of explosives and unexploded ordnance to marine mammals via sediment is possible in the immediate vicinity of the ordnance. Degradation products of Royal Demolition Explosive are not toxic to marine organisms at realistic exposure levels (Rosen and Lotufo 2010). Relatively low solubility of most explosives and their degradation products means that concentrations of these contaminants in the marine environment are relatively low and readily diluted. Furthermore, while explosives and their degradation products were detectable in marine sediment approximately 6–12 in. (0.15–0.3 m) away from degrading ordnance, the concentrations of these compounds were not statistically distinguishable from background beyond 3–6 ft. (1–2 m) from the degrading ordnance. Taken together, it is possible that marine mammals could be exposed to degrading explosives, but it would be within a very small radius of the explosive (1–6 ft. [0.3–2 m]).

Anthropogenic noise attributable to training and testing activities in the Study Area emanates from multiple sources including low-frequency and hull-mounted mid-frequency active sonar, high-frequency and non-hull mounted mid-frequency active sonar, and explosives and other impulsive sounds. Such sound sources include improved extended echo ranging sonobuoys; anti-swimmer grenades; mine countermeasure and neutralization activities; ordnance testing; gunnery, missile, and bombing exercises; torpedo testing, sinking exercises; ship shock trials; vessels; and aircraft. Sound produced from training and testing activities in the Study Area is temporary and transitory. The sounds produced during training and testing activities can be widely dispersed or concentrated in small areas for varying periods. Any anthropogenic noise attributed to training and testing activities in the Study Area would be temporary and the affected area would be expected to immediately return to the original state when these activities cease. Military expended materials resulting from training and testing activities could potentially result in minor long-term changes to benthic habitat. Military expended materials may be colonized over time by benthic organisms that prefer hard substrate and would provide structure that could attract some species of fish or invertebrates. Overall, the combined impacts of sound exposure, explosions, vessel strikes, and military expended materials resulting from the proposed activities would not be expected to have measurable effects on populations of marine mammal prey species.

Equipment used by the Navy within the Study Area, including ships and other marine vessels, aircraft, and other equipment, may also introduce materials into the marine environment. All equipment is properly maintained in accordance with applicable Navy or legal requirements. All such operating equipment meets federal water quality standards, where applicable.

Effects on Marine Mammal Prey

Invertebrates—Prey sources such as marine invertebrates could potentially be impacted by sound stressors as a result of the proposed activities. However, most marine invertebrates' ability to sense sounds is very limited. In most cases, marine invertebrates would not respond to impulsive and non-impulsive sounds, although they may detect and briefly respond to

nearby low-frequency sounds. These short-term responses would likely be inconsequential to invertebrate populations. Explosions and pile driving would likely kill or injure nearby marine invertebrates. Vessels also have the potential to impact marine invertebrates by disturbing the water column or sediments, or directly striking organisms (Bishop, 2008). The propeller wash (water displaced by propellers used for propulsion) from vessel movement and water displaced from vessel hulls can potentially disturb marine invertebrates in the water column and is a likely cause of zooplankton mortality (Bickel et al., 2011). The localized and short-term exposure to explosions or vessels could displace, injure, or kill zooplankton, invertebrate eggs or larvae, and macro-invertebrates. Therefore, mortality or long-term consequences for a few animals is unlikely to have measurable effects on overall stocks or populations. Long-term consequences to marine invertebrate populations would not be expected as a result of exposure to sounds or vessels in the Study Area.

Fish—If fish are exposed to explosions and impulsive sound sources, they may show no response at all or may have a behavioral reaction. Occasional behavioral reactions to intermittent explosions and impulsive sound sources are unlikely to cause long-term consequences for individual fish or populations. Animals that experience hearing loss (PTS or TTS) as a result of exposure to explosions and impulsive sound sources may have a reduced ability to detect relevant sounds such as predators, prey, or social vocalizations. It is uncertain whether some permanent hearing loss over a part of a fish's hearing range would have long-term consequences for that individual. It is possible for fish to be injured or killed by an explosion. Physical effects from pressure waves generated by underwater sounds (e.g., underwater explosions) could potentially affect fish within proximity of training or testing activities. The shock wave from an underwater explosion is lethal to fish at close range, causing massive organ and tissue damage and internal bleeding (Keevin and Hempen, 1997). At greater distance from the detonation point, the extent of mortality or injury depends on a number of factors including fish size, body shape, orientation, and species (Keevin and Hempen, 1997; Wright, 1982). At the same distance from the source, larger fish are generally less susceptible to death or injury, elongated forms that are round in cross-section are less at risk than deep-bodied forms, and fish oriented sideways to the blast suffer the greatest impact (Edds-Walton and Finneran, 2006; O'Keeffe, 1984; O'Keeffe and Young, 1984; Wiley *et al.,* 1981; Yelverton *et al.,* 1975). Species with gas-filled organs have higher mortality than those without them (Continental Shelf Associates Inc., 2004; Goertner *et al.,* 1994).

Fish not killed or driven from a location by an explosion might change their behavior, feeding pattern, or distribution. Changes in behavior of fish have been observed as a result of sound produced by explosives, with effect intensified in areas of hard substrate (Wright, 1982). Stunning from pressure waves could also temporarily immobilize fish, making them more susceptible to predation. The abundances of various fish and invertebrates near the detonation point could be altered for a few hours before animals from surrounding areas repopulate the area; however these populations would likely be replenished as waters near the detonation point are mixed with adjacent waters. Repeated exposure of individual fish to sounds from underwater explosions is not likely and most acoustic effects are expected to be short-term and localized. Long-term consequences for fish populations would not be expected.

Vessels and in-water devices do not normally collide with adult fish, most of which can detect and avoid them. Exposure of fishes is to vessel strike stressors is limited to those fish groups that are large, slow-moving, and may occur near the surface, such as sturgeon, ocean sunfish, whale sharks, basking sharks, and manta rays. With the exception of sturgeon, these species are distributed widely in offshore portions of the Study Area. Any isolated cases of a Navy vessel striking an individual could injure that individual, impacting the fitness of an individual fish. Vessel strikes would not pose a risk to most of the other marine fish groups, because many fish can detect and avoid vessel movements, making strikes rare and allowing the fish to return to their normal behavior after the ship or device passes. As a vessel approaches a fish, they could have a detectable behavioral or physiological response (e.g., swimming away and increased heart rate) as the passing vessel displaces them. However, such reactions are not expected to have lasting effects on the survival, growth, recruitment, or reproduction of these marine fish groups at the population level.

Marine Mammal Avoidance

Marine mammals may be temporarily displaced from areas where Navy training is occurring, but the area should be utilized again after the activities have ceased. Avoidance of an area can help the animal avoid further acoustic effects by avoiding or reducing further exposure. The intermittent or short duration of many activities should prevent animals from being exposed to stressors on a continuous basis. In areas of repeated and frequent acoustic disturbance, some animals may habituate or learn to tolerate the new baseline or fluctuations in noise level. While some animals may not return to an area, or may begin using an area differently due to training and testing activities, most animals are expected to return to their usual locations and behavior.

Other Expected Effects

Other sources that may affect marine mammal habitat were considered and potentially include the introduction of fuel, debris, ordnance, and chemical residues into the water column. The effects of each of these components were considered in the Navy's AFTT DEIS/OEIS. Based on the detailed review within the AFTT EIS/OEIS, there would be no effects to marine mammals resulting from loss or modification of marine mammal habitat including water and sediment quality, food resources, vessel movement, and expendable material.

Analysis and Negligible Impact Preliminary Determination

NMFS has defined "negligible impact" in 50 CFR 216.103 as "* * * an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival." In making a negligible impact determination, NMFS considers:

(1) The number of anticipated mortalities;

(2) The number and nature of anticipated injuries;

(3) The number, nature, and intensity, and duration of Level B harassment; and

(4) The context in which the takes occur.

As mentioned previously, NMFS estimates that 42 species of marine mammals could be potentially affected by Level A or Level B harassment over the course of the five-year period. In addition, 16 species could potentially be lethally taken over the course of the five-year period from explosives and 11

species could potentially be lethally taken from ship strikes over the course of the five-year period.

Pursuant to NMFS' regulations implementing the MMPA, an applicant is required to estimate the number of animals that will be "taken" by the specified activities (i.e., takes by harassment only, or takes by harassment, injury, and/or death). This estimate informs the analysis that NMFS must perform to determine whether the activity will have a "negligible impact" on the affected species or stock. Level B (behavioral) harassment occurs at the level of the individual(s) and does not assume any resulting population-level consequences, though there are known avenues through which behavioral disturbance of individuals can result in population-level effects (e.g., pink-footed geese (*Anser brachyrhynchus*) in undisturbed habitat gained body mass and had about a 46-percent reproductive success compared with geese in disturbed habitat (being consistently scared off the fields on which they were foraging) which did not gain mass and has a 17-percent reproductive success). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number of Level B harassment takes, alone, is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through behavioral harassment, NMFS must consider other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat. Generally speaking, and especially with other factors being equal, the Navy and NMFS anticipate more severe effects from takes resulting from exposure to higher received levels (though this is in no way a strictly linear relationship throughout species, individuals, or circumstances) and less severe effects from takes resulting from exposure to lower received levels.

The Navy's specified activities have been described based on best estimates of the number of activity hours, items, or detonations that the Navy would conduct. There may be some flexibility in the exact number of hours, items, or detonations may vary from year to year, but totals would not exceed the 5-year totals. Furthermore, the Navy's take request is based on their model and post-model analysis. The requested number of Level B takes does not equate to the number of individual animals the Navy expects to harass (which is lower), but rather to the instances of take (i.e., exposures) that may occur. Depending on the location, duration, and frequency of activities, along with the distribution and movement of marine mammals, individual animals may be exposed multiple times to impulse or non-impulse sounds at or above the Level B harassment threshold. However, the Navy is currently unable to estimate the number of individuals that may be taken during training and testing activities. The model results are over- estimates of the number of takes that may occur to a smaller number of individuals. While the model shows that an increased number of takes may occur (compared to the 2009 rulemakings for AFAST and the east coast range complexes), the types and severity of individual responses to training and testing activities are not expected to change.

Taking the above into account, considering the sections discussed below, and dependent upon the implementation of the proposed mitigation measures, NMFS has preliminarily determined that Navy's proposed training and testing exercises would have a negligible impact on the marine mammal species and stocks present in the Study Area.

Behavioral Harassment

As discussed previously in this document, marine mammals can respond to sound in many different ways, a subset of which qualifies as harassment (see Behavioral Harassment Section). As also discussed earlier, the take estimates do take into account the fact that marine mammals will likely avoid strong sound sources to one extent or another. Although an animal that avoids the sound source will likely still be taken in some instances (such as if the avoidance results in a missed opportunity to feed, interruption of reproductive behaviors, etc.) in other cases avoidance may result in fewer instances of take than were estimated or in the takes resulting from exposure to a lower received level than was estimated, which could result in a less severe response. For sonar and other active acoustic sources, the Navy provided information (Tables 22 and 23) estimating the percentage of behavioral harassment that would occur within the 6-dB bins (without considering mitigation or avoidance). As mentioned above, an animal's exposure to a higher received level is more likely to result in a behavioral response that is more likely to adversely affect the health of the animal. As the table illustrates, the vast majority (~79%, at least for hull-mounted sonar, which is responsible for most of the sonar takes) of calculated takes for mid-frequency sonar result from exposures between 150dB and 162dB. Less than 0.5% of the takes are expected to result from exposures above 180dB.

TABLE 22—NON-IMPULSIVE RANGES IN 6 DB BINS AND PERCENTAGE OF BEHAVIORAL HARASSMENT

[Low-frequency cetaceans]

Received level in 6-dB Bins	Sonar Bin MF1 (e.g., SQS–53; ASW Hull-mounted Sonar)		Sonar Bin MF4 (e.g., AQS–22; ASW Dipping Sonar)		Sonar Bin MF5 (e.g., SSQ–62; ASW Sonobuoy)		Sonar Bin HF4 (e.g., SQQ–32; MIW Sonar)	
	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)
120 ≤ SPL<126	179,213–147,800	0.00	60,983–48,317	0.00	19,750–15,275	0.00	3,338–2,438	0.00
126 ≤ SPL<132	147,800–136,575	0.00	48,317–18,300	0.09	15,275–9,825	0.11	2,438–1,463	0.04
132 ≤ SPL<138	136,575–115,575	0.12	18,300–16,113	0.20	9,825–5,925	2.81	1,463–1,013	0.78
138 ≤ SPL<144	115,575–74,913	2.60	16,113–11,617	4.95	5,925–2,700	18.73	1,013–788	4.16
144 ≤ SPL<150	74,913–66,475	2.94	11,617–5,300	31.26	2,700–1,375	26.76	788–300	40.13
150 ≤ SPL<156	66,475–37,313	34.91	5,300–2,575	29.33	1,375–388	40.31	300–150	23.87
156 ≤ SPL<162	37,313–13,325	43.82	2,575–1,113	23.06	388–100	10.15	150–100	13.83
162 ≤ SPL<168	13,325–7,575	8.98	1,113–200	10.60	100–<50	1.13	100–<50	17.18
168 ≤ SPL<174	7,575–3,925	4.59	200–100	0.39	<50	0.00	<50	0.00
174 ≤ SPL<180	3,925–1,888	1.54	100–<50	0.12	<50	0.00	<50	0.00
180 ≤ SPL<186	1,888–400	0.48	<50	0.00	<50	0.00	<50	0.00

TABLE 22—NON-IMPULSIVE RANGES IN 6 DB BINS AND PERCENTAGE OF BEHAVIORAL HARASSMENT—Continued
[Low-frequency cetaceans]

Received level in 6-dB Bins	Sonar Bin MF1 (e.g., SQS–53; ASW Hull-mounted Sonar)		Sonar Bin MF4 (e.g., AQS–22; ASW Dipping Sonar)		Sonar Bin MF5 (e.g., SSQ–62; ASW Sonobuoy)		Sonar Bin HF4 (e.g., SQQ–32; MIW Sonar)	
	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)
186 ≤ SPL<192	400–200	0.02	<50	0.00	<50	0.00	<50	0.00
192 ≤ SPL<198	200–100	0.00	<50	0.00	<50	0.00	<50	0.00

TABLE 23—NON-IMPULSIVE RANGES IN 6 DB BINS AND PERCENTAGE OF BEHAVIORAL HARASSMENT
[Mid-frequency cetaceans]

Received level in 6-dB Bins	Sonar Bin MF1 (e.g., SQS–53; ASW Hull-mounted Sonar)		Sonar Bin MF4 (e.g., AQS–22; ASW Dipping Sonar)		Sonar Bin MF5 (e.g., SSQ–62; ASW Sonobuoy)		Sonar Bin HF4 (e.g., SQQ–32; MIW Sonar)	
	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)	Distance over which levels occur (m)	Percentage of behavioral harassments occurring at given levels (percent)
120 <= SPL < 126	179,525–147,875	0.00	61,433–48,325	0.00	20,638–16,350	0.00	4,388–4,050	0.00
126 <= SPL < 132	147,875–136,625	0.00	48,325–18,350	0.09	16,350–10,883	0.07	4,050–3,150	0.01
132 <= SPL < 138	136,625–115,575	0.12	18,350–16,338	0.18	10,883–7,600	1.68	3,150–2,163	0.38
138 <= SPL < 144	115,575–74,938	2.58	16,338–11,617	5.11	7,600–3,683	18.02	2,163–1,388	2.97
144 <= SPL < 150	74,938–66,525	2.92	11,617–5,425	30.08	3,683–1,738	31.66	1,388–1,013	7.15
150 <= SPL < 156	66,525–37,325	34.71	5,425–2,625	30.03	1,738–425	39.81	1,013–725	18.55
156 <= SPL < 162	37,325–13,850	43.02	2,625–1,125	23.44	425–150	6.94	725–250	53.79
162 <= SPL < 168	13,850–7,750	9.77	1,125–200	10.58	150–<50	1.82	250–150	9.62
168 <= SPL < 174	7,750–4,088	4.70	200–100	0.38	<50	0.00	150–100	4.40
174 <= SPL < 180	4,088–1,888	1.69	100–<50	0.11	<50	0.00	100–<50	3.13
180 <= SPL < 186	1,888–450	0.47	<50	0.00	<50	0.00	<50	0.00
186 <= SPL < 192	450–200	0.02	<50	0.00	<50	0.00	<50	0.00
192 <= SPL < 198	200–100	0.00	<50	0.00	<50	0.00	<50	0.00

ASW: anti-submarine warfare; MIW: mine warfare; m: meter; SPL: sound pressure level.

Although the Navy has been monitoring to discern the effects of sonar and other active acoustic sources on marine mammals since approximately 2006, and research on the effects of sonar and other active acoustic sources is advancing, our understanding of exactly how marine mammals in the Study Area will respond to sonar and other active acoustic sources is still limited. The Navy has submitted reports from more than 60 major exercises conducted in the HRC and SOCAL, and off the Atlantic Coast, that indicate no behavioral disturbance was observed. One cannot conclude from these results that marine mammals were not harassed from sonar and other active acoustic sources, as a portion of animals within the area of concern were not seen (especially those more cryptic, deep-diving species, such as beaked whales or *Kogia* spp.) and the full series of behaviors that would more accurately show an important change is not typically seen (i.e., only the surface behaviors are observed). Plus, some of the non-biologist lookouts might not be well-qualified to characterize behaviors. However, one can say that the animals that were observed did not respond in any of the obviously more severe ways, such as panic, aggression, or anti-predator response.

Diel Cycle

As noted previously, many animals perform vital functions, such as feeding, resting, traveling, and socializing on a diel cycle (24-hr cycle). Behavioral reactions to noise exposure (when taking place in a biologically important context, such as disruption of critical life functions, displacement, or avoidance of important habitat) are more likely to be significant if they last more than one diel cycle or recur on subsequent days (Southall *et al.,* 2007). Consequently, a behavioral response lasting less than one day and not recurring on subsequent days is not considered severe unless it could directly affect reproduction or survival (Southall *et al.,* 2007).

In the previous section, we discussed the fact that potential behavioral responses to sonar and other active acoustic sources that fall into the category of harassment could range in severity. By definition, for military readiness activities, takes by behavioral harassment involve the disturbance or likely disturbance of a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns (such as migration, surfacing, nursing, breeding, feeding, or sheltering) to a point where such behavioral patterns are abandoned or significantly altered. These reactions would, however, be more of a concern if they were expected to last over 24 hours or be repeated in subsequent days. However, vessels with hull-mounted active sonar are typically moving at speeds of 10–15 knots, which would make it unlikely that the same animal would remain in the immediate vicinity of the ship for the entire duration of the exercise. Animals may be exposed to sonar and other active acoustic sources for more than one day or on successive days. However, because neither the vessels nor the animals are stationary, significant long-term effects are not expected.

Most planned explosive exercises are of a short duration (1–6 hours). Although explosive exercises may sometimes be conducted in the same general areas repeatedly, because of their short duration and the fact that

they are in the open ocean and animals can easily move away, it is similarly unlikely that animals would be exposed for long, continuous amounts of time.

TTS

As mentioned previously, TTS can last from a few minutes to days, be of varying degree, and occur across various frequency bandwidths, all of which determine the severity of the impacts on the affected individual, which can range from minor to more severe. The TTS sustained by an animal is primarily classified by three characteristics:

(1) Frequency—Available data (of mid-frequency hearing specialists exposed to mid- or high-frequency sounds; Southall *et al.,* 2007) suggest that most TTS occurs in the frequency range of the source up to one octave higher than the source (with the maximum TTS at ½ octave above). The more powerful MF sources used have center frequencies between 3.5 and 8 kHz and the other unidentified MF sources are, by definition, less than 10 kHz, which suggests that TTS induced by any of these MF sources would be in a frequency band somewhere between approximately 2 and 20 kHz. There are fewer hours of HF source use and the sounds would attenuate more quickly, plus they have lower source levels, but if an animal were to incur TTS from these sources, it would cover a higher frequency range (sources are between 10 and 100 kHz, which means that TTS could range up to 200 kHz; however, HF systems are typically used less frequently and for shorter time periods than surface ship and aircraft MF systems, so TTS from these sources is even less likely). TTS from explosives would be broadband. Vocalization data for each species was provided in the Navy's LOA application.

(2) Degree of the shift (i.e., how many dB is the sensitivity of the hearing reduced by)—Generally, both the degree of TTS and the duration of TTS will be greater if the marine mammal is exposed to a higher level of energy (which would occur when the peak dB level is higher or the duration is longer). The threshold for the onset of TTS was discussed previously in this document. An animal would have to approach closer to the source or remain in the vicinity of the sound source appreciably longer to increase the received SEL, which would be difficult considering the lookouts and the nominal speed of an active sonar vessel (10–15 knots). In the TTS studies, some using exposures of almost an hour in duration or up to 217 SEL re 1 μPa^2sec, most of the TTS induced was 15 dB or less, though Finneran *et al.* (2007) induced 43 dB of TTS with a 64-sec exposure to a 20 kHz source. However, MFAS emits a 1-second ping 2 times/minute and incurring those levels of TTS is highly unlikely.

(3) Duration of TTS (recovery time)—In the TTS laboratory studies, some using exposures of almost an hour in duration or up to 217 SEL re 1 μPa^2sec, almost all individuals recovered within 1 day (or less, often in minutes), though in one study (Finneran *et al.,* 2007), recovery took 4 days.

Based on the range of degree and duration of TTS reportedly induced by exposures to non-pulse sounds of energy higher than that to which free-swimming marine mammals in the field are likely to be exposed during training exercises using sonar and other active acoustic sources in the Study Area, it is unlikely that marine mammals would ever sustain a TTS from MFAS that alters their sensitivity by more than 20 dB for more than a few days (and any incident of TTS would likely be far less severe due to the short duration of the majority of the exercises and the speed of a typical vessel), if that. Also, for the same reasons discussed in the Diel Cycle section, and because of the short distance within which animals would need to approach the sound source, it is unlikely that animals would be exposed to the levels necessary to induce TTS in subsequent time periods such that their recovery is impeded. Additionally, though the frequency range of TTS that marine mammals might sustain would overlap with some of the frequency ranges of their vocalization types, the frequency range of TTS from MFAS (the source from which TTS would most likely be sustained because the higher source level make it more likely that an animal would be exposed to a higher received level) would not usually span the entire frequency range of one vocalization type, much less span all types of vocalizations. If impaired, marine mammals would implement behaviors to compensate (see Acoustic Masking or Communication Impairment Section), though these compensations may incur energetic costs.

Acoustic Masking or Communication Impairment

Masking only occurs during the time of the signal (and potential secondary arrivals of indirect rays), versus TTS, which continues beyond the duration of the signal. Standard MFAS nominally pings every 50 seconds for hull-mounted sources. For the sources for which we know the pulse length, most are significantly shorter than hull-mounted active sonar, on the order of several microseconds to tens of microseconds. For hull-mounted active sonar, though some of the vocalizations that marine mammals make are less than one second long, there is only a 1 in 50 chance that they would occur exactly when the ping was received, and when vocalizations are longer than one second, only parts of them are masked. Alternately, when the pulses are only several microseconds long, the majority of most animals' vocalizations would not be masked. Masking effects from sonar and other active acoustic sources are expected to be minimal. If masking or communication impairment were to occur briefly, it would be in the frequency range of MFAS, which overlaps with some marine mammal vocalizations; however, it would likely not mask the entirety of any particular vocalization or communication series because the signal length, frequency, and duty cycle of the sonar signal does not perfectly mimic the characteristics of any marine mammal's vocalizations.

PTS, Injury, or Mortality

NMFS believes that many marine mammals would deliberately avoid exposing themselves to the received levels of sound necessary to induce injury by moving away from or at least modifying their path to avoid a close approach. Additionally, in the unlikely event that an animal approaches the sound source at a close distance, NMFS believes that the mitigation measures (i.e., shutdown/powerdown zones for sonar and other active acoustic sources) would typically ensure that animals would not be exposed to injurious levels of sound. As discussed previously, the Navy utilizes both aerial (when available) and passive acoustic monitoring (during all ASW exercises) in addition to Lookouts on vessels to detect marine mammals for mitigation implementation.

If a marine mammal is able to approach a surface vessel within the distance necessary to incur PTS, the likely speed of the vessel (nominal 10–15 knots) would make it very difficult for the animal to remain in range long enough to accumulate enough energy to result in more than a mild case of PTS. As mentioned previously and in relation to TTS, the likely consequences to the health of an individual that incurs PTS can range from mild to more serious dependent upon the degree of PTS and the frequency band it is in, and many animals are able to compensate for the shift, although it may include energetic costs.

Recovery from a threshold shift (i.e., partial hearing loss) can take a few minutes to a few days, depending on the severity of the initial shift. PTS would not fully recover. Threshold shifts do

not necessarily affect all hearing frequencies equally, so some threshold shifts may not interfere with an animal hearing biologically relevant sounds. It is uncertain whether some permanent hearing loss over a part of a marine mammal's hearing range would have long-term consequences for that individual, although many mammals lose hearing ability as they age. Mitigation measures would further reduce the predicted impacts. Long-term consequences to populations would not be expected.

As discussed previously, marine mammals (especially beaked whales) could potentially respond to MFAS at a received level lower than the injury threshold in a manner that indirectly results in the animals stranding. The exact mechanisms of this potential response, behavioral or physiological, are not known. When naval exercises have been associated with strandings in the past, it has typically been when three or more vessels are operating simultaneously, in the presence of a strong surface duct, and in areas of constricted channels, semi-enclosed areas, and/or steep bathymetry. Based on the number of occurrences where strandings have been definitively associated with military active sonar versus the number of hours of active sonar training that have been conducted, we suggest that the probability is small that this will occur. Lastly, an active sonar shutdown protocol for strandings involving live animals milling in the water minimizes the chances that these types of events turn into mortalities.

Onset mortality and onset slight lung injury criteria use conservative thresholds to predict the onset of effect as discussed section "Take Criteria." The thresholds are based upon newborn calf masses, and therefore these effects are over-estimated by the acoustic model assuming most animals within the population are larger than a newborn calf. The threshold for onset mortality and onset slight lung injury is the impulse at which one percent of animals exposed would be expected to actually be injured or killed, with the likelihood of the effect increasing with proximity to the explosion. Considering these factors, these impacts would rarely be expected to actually occur. Nevertheless, it is possible for marine mammals to be injured or killed by an explosion. Small odontocetes are the marine mammal group most likely to be injured or killed by explosives (although mitigation measures are in place to prevent this, and only 3 deaths have been documented from explosives and these occurred prior to a modification in mitigation to improve protection during the use of time-delay firing devices). Most odontocete species have populations in the tens of thousands, so that even if a few individuals in the population were removed, long-term consequences for the population would not be expected.

While NMFS does not expect any mortalities from impulsive sources to occur, we propose to authorize takes by mortality of a limited number of small odontocetes from training and testing activities. Based on previous vessel strikes in the Study Area, NMFS also proposes to authorize takes by mortality of a limited number of marine mammals from vessel strikes. As described previously, although we have a good sense of how many marine mammals the Navy may strike over the course of five years (and it is much smaller than 10 large marine mammals and one large marine mammal as a result of training and testing, respectively), the species distribution is unpredicatable. Thus, we have analyzed the possibility that all the large whale takes requested in one year may be of the same species. However, if this happened to any given species in a given year—the number of takes authorized of that same species over the other 4 years of the rule is highly limited (for example, no more than the following number of ESA-listed marine mammals in any given year: three humpback whales, two fin whales, one sei whale, one blue whale, and one sperm whale from training activities). Over the last five years on the east coast, the Navy was involved in two ship strikes, with no confirmed marine mammal deaths as a result. The number of mortalities from vessel strikes are not expected to be an increase over the past decade, but are being addressed under this proposed incidental take authorization for the first time.

Species Specific Analysis

In the discussions below, the "acoustic analysis" refers to the Navy's model results and post-model analysis. The Navy performed a quantitative analysis to estimate the number of marine mammals that could be harassed by acoustic sources or explosives used during Navy training and testing activities. Inputs to the quantitative analysis included marine mammal density estimates; marine mammal depth occurrence distributions; oceanographic and environmental data; marine mammal hearing data; and criteria and thresholds for levels of potential effects. Marine mammal densities used in the model may overestimate actual densities when species data is limited and for species with seasonal migrations (e.g., North Atlantic right whales, humpbacks, blue whales, fin whales, sei whales). The quantitative analysis consists of computer modeled estimates and a post-model analysis to determine the number of potential mortalities and harassments. The model calculates sound energy propagation from sonars, other active acoustic sources, and explosives during naval activities; the sound or impulse received by animat dosimeters representing marine mammals distributed in the area around the modeled activity; and whether the sound or impulse received by a marine mammal exceeds the thresholds for effects. The model estimates are then further analyzed to consider animal avoidance and implementation of mitigation measures, resulting in final estimates of effects due to Navy training and testing. It is important to note that the Navy's take estimates represent the total number of takes and not the number of individuals taken, as a single individual may be taken multiple times over the course of a year.

Although this more complex computer modeling approach accounts for various environmental factors affecting acoustic propagation, the current software tools do not consider the likelihood that a marine mammal would attempt to avoid repeated exposures to a sound or avoid an area of intense activity where a training or testing event may be focused. Additionally, the software tools do not consider the implementation of mitigation (e.g., stopping sonar transmissions when a marine mammal is within a certain distance of a ship or range clearance prior to detonations). In both of these situations, naval activities are modeled as though an activity would occur regardless of proximity to marine mammals and without any horizontal movement by the animal away from the sound source or human activities (e.g., without accounting for likely animal avoidance). The initial model results overestimate the number of takes (as described previously), primarily by behavioral disturbance. The final step of the quantitative analysis of acoustic effects is to consider the implementation of mitigation and the possibility that marine mammals would avoid continued or repeated sound exposures. NMFS provided input to the Navy on this process and the Navy's qualitative analysis is described in detail in Chapter 6 of their LOA application (*http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*).

North Atlantic Right Whale

North Atlantic right whales may be exposed to sonar or other active acoustic stressors associated with training and testing activities throughout the year. Exposures may occur in feeding grounds off the New England coast, on migration routes along the east coast, and on calving grounds in the southeast off the coast of Florida and Georgia; however, mitigation areas would be established in these areas with specific measures to further reduce impacts to North Atlantic right whales. Acoustic modeling predicts that North Atlantic right whales could be exposed to sound that may result in 60 TTS and 51 behavioral reactions per year from annually recurring training activities. The majority of these impacts are predicted within the JAX Range Complex where animals spend winter months calving. Annually recurring testing activities could expose North Atlantic right whales to sound that may result in 11 TTS and 66 behavioral reactions per year. These impacts are predicted in Rhode Island inland waters and within the Northeast Range Complexes. North Atlantic right whales may be exposed to sound or energy from explosions associated with training activities throughout the year. The acoustic analysis predicts one TTS exposure to a North Atlantic right whale annually from recurring training activities, but no impacts on North Atlantic right whales due to annually recurring testing activities or ship shock trials. Testing activities that use explosives would not occur in the North Atlantic right whale mitigation areas, although the sound and energy from explosions associated with testing activities may be detectable within the mitigation areas.

The Navy and NMFS do not anticipate that a North Atlantic right whale would be struck by a vessel during training or testing activities because of the extensive measures in place to reduce the risk of a vessel strike to the species. For example, the Navy would receive information about recent North Atlantic right whale sightings before transiting through or conducting training or testing activities in the mitigation areas. During transits, vessels would exercise extreme caution and proceed at the slowest speed that is consistent with safety, mission, training, and operations. In the southeast North Atlantic right whale mitigation area, vessels will reduce speed when the observe a North Atlantic right whale, when they are within 5 nm (9 km) of a sighting reported in the past 12 hours, or when operating at night or during periods of poor visibility. The Navy would also minimize to the maximum extent practicable north-south transits through the southeast North Atlantic right whale mitigation area. Similar measures to reduce the risk of ship strikes would be implemented in the northeast and mid-Atlantic mitigation areas.

Due to the importance of North Atlantic right whale critical habitat for feeding and reproductive activities, takes that occur in those areas may have more severe effects than takes that occur while whales are just transiting and not involved in feeding or reproductive behaviors. To address these potentially more severe effects, NMFS and the Navy have included mitigation measures to minimize impacts (both number and severity) in both the northeast and southeast designated right whale critical habitat as well as the migratory corridor which connects them. Additional mitigation measures pertaining to training and testing activities within the mitigation areas are described below.

In the southeast North Atlantic right whale mitigation area, no training activities using sonar or other active acoustic sources would occur with the exception of object detection/navigational sonar training and maintenance activities for surface ships and submarines while entering/exiting Mayport, Florida. Training activities involving helicopter dipping sonar would occur off of Mayport, Florida within the right whale mitigation area; however, the majority of active sonar activities would occur outside the southeast mitigation area. In the northeast North Atlantic right whale mitigation area, hull-mounted sonar would not be used. However, a limited number of torpedo exercises would be conducted in August and September when many North Atlantic right whales have migrated south out of the area. Of course, North Atlantic right whales can be found outside of designated mitigation areas and sound from nearby activities may be detectable within the mitigation areas. Acoustic modeling predictions consider these potential circumstances.

Training activities that use explosives, with the exception of training with explosive sonobuoys, are not conducted in the southeast North Atlantic right whale mitigation area. Training activities that use explosives would not occur in the northeast North Atlantic right whale mitigation area. Although, the sound and energy from explosions associated with training activities may be detectable within the mitigation areas.

The western North Atlantic minimum stock size is based on a census of individual whales identified using photo-identification techniques. Review of the photo-identification recapture database in July 2010 indicated that 396 individually recognized whales in the catalogue were known to be alive in 2007. This value is a minimum and does not include animals alive prior to 2007, but not recorded in the individual sightings database as seen during December 1, 2004 to July 6, 2010 (note that matching of photos taken during 2008–2010 was not complete at the time the data were received). It also does not include some calves known to be born during 2007, or any other individual whales seen during 2007, but not yet entered into the catalogue. In addition, this estimate has no associated coefficient of variation.

Acoustic analysis indicates that no North Atlantic right whales will be exposed to sound levels likely to result in Level A harassment. In addition, modeling predicts no potential for serious injury or mortality to North Atlantic right whales. Moreover, NMFS believes that Navy Lookouts would detect right whales and implement the appropriate mitigation measure before an animal could approach to within a distance necessary to result in injury. Any takes that do occur would likely be short term and at a lower received level and would likely not affect annual rates of recruitment or survival.

Humpback Whale

The acoustic analysis predicts that humpback whales could be exposed to sound associated with training activities that may result in 1 PTS, 1,128 TTS and 514 behavioral reactions per year. The majority of these impacts are predicted in the JAX, Navy Cherry Point, VACAPES, and Northeast Range Complexes. Further, the analysis predicts that humpback whales could be exposed to sound associated with testing activities that may result in 94 TTS and 100 behavioral reactions per year as a result of annually recurring testing activities. Humpback whales may be exposed to sound or energy from explosions associated with training and testing activities throughout the year. The acoustic analysis predicts that humpback whales could be exposed to sound or energy from explosions that may result in 1 TTS per year as a result of annually recurring training activities and 1 TTS to a humpback whale due to ship shock trials over a 5-year period. All predicted impacts would be to the Gulf of Maine stock because this is the only humpback whale stock present within the Study Area.

Research and observations show that if mysticetes are exposed to sonar or

other active acoustic sources they may react in a number of ways depending on the characteristics of the sound source, their experience with the sound source, and whether they are migrating or on seasonal grounds (i.e., breeding or feeding). Reactions may include alerting, breaking off feeding dives and surfacing, diving or swimming away, or no response at all. Additionally, migrating animals may ignore a sound source, or divert around the source if it is in their path. In the ocean, the use of sonar and other active acoustic sources is transient and is unlikely to repeatedly expose the same population of animals over a short period. Around heavily trafficked Navy ports and on fixed ranges, the possibility is greater for animals that are resident during all or part of the year to be exposed multiple times to sonar and other active acoustic sources. A few behavioral reactions per year, even from a single individual, are unlikely to produce long-term consequences for that individual or the population. Furthermore, the implementation of mitigation measures and sightability of humpback whales (due to their large size) would further reduce the potential impacts.

Mysticetes exposed to the sound from explosions may react in a number of ways which may include alerting; startling; breaking off feeding dives and surfacing; diving or swimming away; or showing no response at all. Occasional behavioral reactions to intermittent explosions are unlikely to cause long-term consequences for individual mysticetes or populations. Furthermore, the implementation of mitigation measures and sightability of humpback whales (due to their large size) would further reduce the potential impacts in addition to reducing the potential for injury.

The Navy estimates it may strike and take, by injury or mortality, an average of two marine mammals per year as a result of training activities, with a maximum of three in any given year. Of the ESA-listed species in the Study Area, the Navy anticipates no more than three humpback whales would be struck over a 5-year period based on the percentages that those species have been involved in vessel collisions. The Navy provided a detailed analysis of strike data in section 6.1.9 of its LOA application. Marine mammal mortalities were not previously analyzed by NMFS in the 2009 rulemakings for AFAST and the east coast range complexes. However, between 1995 and 2012, there have been 19 Navy vessel strikes in the Study Area. Eight of the strikes resulted in a confirmed death, but in 11 of the 19 strikes the fate of the animal was undetermined. The mortalities from vessel strike are not expected to be an increase over the past decade, but rather NMFS proposes to authorize these takes for the first time in the AFTT Study Area.

Of the 19 reported Navy vessel strikes since 1995, only one strike was attributed to a testing event in 2001. Therefore, for testing events that will not occur on a training platform, the Navy estimates it could potentially take one marine mammal by injury or mortality over the course of the 5-year AFTT regulations. A number of the reported whale strikes were unidentified to species; therefore, the Navy cannot quantifiably predict that the proposed takes will be of any particular species.

Important feeding areas for humpbacks are located in the Northeast. Stellwagen Bank National Marine Sanctuary contains some of this important area and the Navy does not plan to conduct any activities within Stellwagen Bank. The Navy has designated several planning awareness areas (PAAs) based on locations of high productivity that have been correlated with high concentrations of marine mammals, including important feeding areas in the Northeast, and would avoid conducting major training exercises involving active sonar in PAAs.

Sei Whale

The acoustic analysis predicts that sei whales could be exposed to sound associated with training activities that may result in 1 PTS, 6,604 TTS, and 3,582 behavioral reactions per year from annually recurring training activities. The majority of these impacts are predicted in the VACAPES, Navy Cherry Point, and JAX Range Complexes, with a relatively small percent predicted in the GOMEX and Northeast Range Complexes and in areas outside of OPAREAS and range complexes. Sei whales could be exposed to sound associated with testing activities that may result in 439 TTS and 316 behavioral reactions per year as a result of annually recurring testing activities. Sei whales may be exposed to sound and energy from explosions associated with training and testing activities throughout the year. The acoustic analysis predicts that one sei whale could be exposed annually to sound from explosions associated with training activities that may cause TTS and one sei whale could exhibit a behavioral reaction. Annually recurring testing activities involving explosives may result in 1 TTS for a sei whale per year and 7 TTS due to exposure to explosive sound and energy from ship shock trials over a 5-year period. All predicted impacts would be to the Nova Scotia stock because this is the only sei whale stock present within the Study Area.

Research and observations show that if mysticetes are exposed to sonar or other active acoustic sources they may react in a number of ways depending on the characteristics of the sound source, their experience with the sound source, and whether they are migrating or on seasonal grounds (i.e., breeding or feeding). Reactions may include alerting, breaking off feeding dives and surfacing, diving or swimming away, or no response at all. Additionally, migrating animals may ignore a sound source, or divert around the source if it is in their path. In the ocean, the use of sonar and other active acoustic sources is transient and is unlikely to repeatedly expose the same population of animals over a short period. Around heavily trafficked Navy ports and on fixed ranges, the possibility is greater for animals that are resident during all or part of the year to be exposed multiple times to sonar and other active acoustic sources. A few behavioral reactions per year, even from a single individual, are unlikely to produce long-term consequences for that individual or the population. Furthermore, the implementation of mitigation measures and sightability of sei whales (due to their large size) would further reduce the potential impacts.

Mysticetes exposed to the sound from explosions may react in a number of ways, which may include alerting; startling; breaking off feeding dives and surfacing; diving or swimming away; or showing no response at all. Occasional behavioral reactions to intermittent explosions are unlikely to cause long-term consequences for individual mysticetes or populations. Furthermore, the implementation of mitigation measures and sightability of sei whales (due to their large size) would further reduce the potential impacts in addition to reducing the potential for injury.

The Navy estimates it may strike and take, by injury or mortality, an average of two marine mammals per year as a result of training activities, with a maximum of three in any given year. Of the ESA-listed species in the Study Area, the Navy anticipates no more than one sei whale would be struck over a 5-year period based on the percentages that those species have been involved in vessel collisions.

Of the 19 reported Navy vessel strikes since 1995, only one strike was attributed to a testing event in 2001. Therefore, for testing events that will not occur on a training platform, the

Navy estimates it could potentially take one marine mammal by injury or mortality over the course of the 5-year AFTT regulations. A number of the reported whale strikes were unidentified to species; therefore, the Navy cannot quantifiably predict that the proposed takes will be of any particular species.

No areas of specific importance for reproduction or feeding for sei whales have been identified in the AFTT Study Area. Sei whales in the North Atlantic belong to three stocks: Nova Scotia; Iceland-Denmark Strait; and Northeast Atlantic. The Nova Scotia stock occurs in the U.S. Atlantic waters. The best available abundance estimate for the Nova Scotia stock is 386 individuals.

Fin Whale

The acoustic analysis predicts that fin whales could be exposed to sound associated with training activities that may result in 1 PTS, 2,880 TTS and 1,608 behavioral reactions per year. The majority of these impacts are predicted in the VACAPES, Navy Cherry Point, and JAX Range Complexes, with a relatively small percent of impacts predicted in the GOMEX and Northeast Range Complexes. Fin whales could be exposed to sound associated with testing activities that may result in 263 TTS and 282 behavioral reactions per year as a result of annually recurring testing activities. The majority of these impacts are predicted within the Northeast Range Complexes with lesser impacts in the VACAPES, Navy Cherry Point, JAX, and GOMEX Range Complexes. Fin whales may be exposed to sound or energy from explosions associated with training and testing activities throughout the year. The acoustic analysis predicts one TTS and one behavioral response for fin whales annually from training activities, 1 TTS to fin whales per year from annually recurring testing activities, and 6 TTS per 5-year period due to ship shock trials. All predicted impacts would be to the Western North Atlantic stock because this is the only fin whale stock present within the Study Area.

Research and observations show that if mysticetes are exposed to sonar or other active acoustic sources they may react in a number of ways depending on the characteristics of the sound source, their experience with the sound source, and whether they are migrating or on seasonal grounds (i.e., breeding or feeding). Reactions may include alerting, breaking off feeding dives and surfacing, diving or swimming away, or no response at all. Additionally, migrating animals may ignore a sound source, or divert around the source if it is in their path. In the ocean, the use of sonar and other active acoustic sources is transient and is unlikely to repeatedly expose the same population of animals over a short period. Around heavily trafficked Navy ports and on fixed ranges, the possibility is greater for animals that are resident during all or part of the year to be exposed multiple times to sonar and other active acoustic sources. A few behavioral reactions per year, even from a single individual, are unlikely to produce long-term consequences for that individual or the population. Furthermore, the implementation of mitigation measures and sightability of fin whales (due to their large size) would further reduce the potential impacts.

Mysticetes exposed to the sound from explosions may react in a number of ways, which may include alerting; startling; breaking off feeding dives and surfacing; diving or swimming away; or showing no response at all. Occasional behavioral reactions to intermittent explosions are unlikely to cause long-term consequences for individual mysticetes or populations. Furthermore, the implementation of mitigation measures and sightability of fin whales (due to their large size) would further reduce the potential impacts in addition to reducing the potential for injury.

The Navy estimates it may strike and take, by injury or mortality, an average of two marine mammals per year as a result of training activities, with a maximum of three in any given year. Of the ESA-listed species in the Study Area, the Navy anticipates no more than two fin whales would be struck over a 5-year period based on the percentages that those species have been involved in vessel collisions.

Of the 19 reported Navy vessel strikes since 1995, only one strike was attributed to a testing event in 2001. Therefore, for testing events that will not occur on a training platform, the Navy estimates it could potentially take one marine mammal by injury or mortality over the course of the 5-year AFTT regulations. A number of the reported whale strikes were unidentified to species; therefore, the Navy cannot quantifiably predict that the proposed takes will be of any particular species.

New England waters are considered a major feeding ground for fin whales, and there is evidence the females continually return to this area (Waring *et al.,* 2010). The Navy has designated PAAs in the Northeast that include some of these important feeding areas and would avoid conducting major training exercises involving active sonar in PAAs. Fin whales in the North Atlantic belong to the western North Atlantic stock. The best abundance estimate for the western North Atlantic stock of fin whales is 3,985.

Blue Whale

Blue whales may be exposed to sonar or other active acoustic stressors associated with training and testing activities throughout the year. The acoustic analysis predicts that blue whales could be exposed to sound associated with training activities that may result in 97 TTS and 50 behavioral reactions per year. The majority of these impacts are predicted in the VACAPES, Navy Cherry Point, and JAX Range Complexes, with a relatively small percent of impacts predicted in the GOMEX and Northeast Range Complexes. The acoustic analysis predicts that 10 TTS and 6 behavioral reactions may result from annual testing activities that use sonar and other active acoustic sources per year as a result of annually recurring testing activities. Blue whales may be exposed to sound or energy from explosions associated with training and testing activities throughout the year; however, the acoustic analysis predicts that no individuals would be impacted. All predicted impacts would be to the Western North Atlantic stock because this is the only blue whale stock present within the Study Area.

Research and observations show that if mysticetes are exposed to sonar or other active acoustic sources they may react in a number of ways depending on the characteristics of the sound source, their experience with the sound source, and whether they are migrating or on seasonal grounds (i.e., breeding or feeding). Reactions may include alerting, breaking off feeding dives and surfacing, diving or swimming away, or no response at all. Additionally, migrating animals may ignore a sound source, or divert around the source if it is in their path. In the ocean, the use of sonar and other active acoustic sources is transient and is unlikely to repeatedly expose the same population of animals over a short period. Around heavily trafficked Navy ports and on fixed ranges, the possibility is greater for animals that are resident during all or part of the year to be exposed multiple times to sonar and other active acoustic sources. A few behavioral reactions per year, even from a single individual, are unlikely to produce long-term consequences for that individual or the population. Furthermore, the implementation of mitigation measures and sightability of blue whales (due to their large size) would further reduce the potential impacts.

Mysticetes exposed to the sound from explosions may react in a number of ways, which may include alerting; startling; breaking off feeding dives and surfacing; diving or swimming away; or showing no response at all. Occasional behavioral reactions to intermittent explosions are unlikely to cause long-term consequences for individual mysticetes or populations. Furthermore, the implementation of mitigation measures and sightability of blue whales (due to their large size) would further reduce the potential impacts in addition to reducing the potential for injury.

The Navy estimates it may strike and take, by injury or mortality, an average of two marine mammals per year as a result of training activities, with a maximum of three in any given year. Of the ESA-listed species in the Study Area, the Navy anticipates no more than one blue whale would be struck over a 5-year period based on the percentages that those species have been involved in vessel collisions.

Of the 19 reported Navy vessel strikes since 1995, only one strike was attributed to a testing event in 2001. Therefore, for testing events that will not occur on a training platform, the Navy estimates it could potentially take one marine mammal by injury or mortality over the course of the 5-year AFTT regulations. A number of the reported whale strikes were unidentified to species; therefore, the Navy cannot quantifiably predict that the proposed takes will be of any particular species.

No areas of specific importance for reproduction or feeding for blue whales have been identified in the AFTT Study Area. Blue whales in the western North Atlantic are classified as a single stock. The photo identification catalogue count of 440 recognizable individuals from the Gulf of St. Lawrence is considered a minimum population estimate for the western North Atlantic stock.

Minke Whale

The acoustic analysis predicts that minke whales could be exposed to sound associated with training activites that may result in 10 PTS, 40,866 TTS, and 19,497 behavioral reactions per year. The majority of these impacts are predicted in the VACAPES, Navy Cherry Point, and JAX Range Complexes, with a relatively small percent of effects predicted in the Northeast and GOMEX Range Complexes. The acoustic analysis predicts that minke whales could be exposed to sound that may result in 1 PTS, 3,571 TTS, and 3,100 behavioral reactions per year as a result of annually recurring testing activities. Minke whales may be exposed to sound or energy from explosions associated with training and testing activities throughout the year. The acoustic analysis predicts that minke whales could be exposed to sound annually from training activities that may result in 9 behavioral responses, 30 TTS, 4 PTS, 1 GI tract injury, and 1 slight lung injury (see Table 6–26 for predicted numbers of effects). As with mysticetes overall, effects are primarily predicted within the VACAPES Range Complex, followed by JAX, and Navy Cherry Point Range Complexes. Minke whales could be exposed to sound and energy from annual testing activities involving explosives that may result in 4 behavioral responses, 11 TTS, and 2 PTS, in addition to 41 TTS, 11 slight lung injury, and 3 mortalities due to exposure to explosive sound and energy from ship shock trials over a 5-year period. Based on conservativeness of the onset mortality criteria and impulse modeling and past observations of no marine mammal mortalities associated with ship shock trials, the predicted minke whale mortalities for CVN Ship Shock Trial are considered overestimates and highly unlikely to occur. All predicted effects on minke whales would be to the Canadian East Coast stock because this is the only stock present within the Study Area.

Research and observations show that if mysticetes are exposed to sonar or other active acoustic sources they may react in a number of ways depending on the characteristics of the sound source, their experience with the sound source, and whether they are migrating or on seasonal grounds (i.e., breeding or feeding). Reactions may include alerting, breaking off feeding dives and surfacing, diving or swimming away, or no response at all. Additionally, migrating animals may ignore a sound source, or divert around the source if it is in their path. In the ocean, the use of sonar and other active acoustic sources is transient and is unlikely to repeatedly expose the same population of animals over a short period. Around heavily trafficked Navy ports and on fixed ranges, the possibility is greater for animals that are resident during all or part of the year to be exposed multiple times to sonar and other active acoustic sources. A few behavioral reactions per year, even from a single individual, are unlikely to produce long-term consequences for that individual or the population. Furthermore, the implementation of mitigation measures and sightability of minke whales (due to their large size) would further reduce the potential impacts.

Mysticetes exposed to the sound from explosions may react in a number of ways, which may include alerting; startling; breaking off feeding dives and surfacing; diving or swimming away; or showing no response at all. Occasional behavioral reactions to intermittent explosions are unlikely to cause long-term consequences for individual mysticetes or populations. Furthermore, the implementation of mitigation measures and sightability of minke whales (due to their large size) would further reduce the potential impacts in addition to reducing the potential for injury.

Bryde's Whale

The acoustic analysis predicts that Bryde's whales could be exposed to sound associated with training activities that may result in 629 TTS and 326 behavioral reactions. The majority of these impacts are predicted in the VACAPES, Navy Cherry Point, and JAX Range Complexes, with a relatively small percent of effects predicted in the Northeast Range Complex. Bryde's whales could be exposed to sound that may result in 39 TTS and 21 behavioral reactions per year as a result of annually recurring testing activities. Bryde's whales may be exposed to sound or energy from explosions associated with training and testing activities throughout the year; however, the acoustic analysis predicts that no individuals would be impacted. All predicted effects on Bryde's whales would be to the Gulf of Mexico Oceanic stock because this is the only stock present within the Study Area.

Sperm Whale

Sperm whales may be exposed to sonar or other active acoustic stressors associated with training and testing activities throughout the year. The acoustic analysis predicts that sperm whales could be exposed to sound associated with training activities that may result in 435 TTS and 14,311 behavioral reactions annually from annually recurring training activities; and a maximum of one behavioral reactions from each biennial training activity civilian port defense. Sperm whales could be exposed to sound from annually recurring testing activities that may result in 584 TTS and 1,101 behavioral reactions per year. Sperm whales may be exposed to sound and energy from explosions associated with training and testing activities throughout the year. The acoustic analysis predicts one TTS and one behavioral response for sperm whales

per year from explosions associated with training activities, one sperm whale behavioral response for per year due to annually recurring testing activities, and up to 20 TTS, 6 slight lung injuries, and 2 mortalities for sperm whales over a 5-year period as a result of ship shock trials in the VACAPES or JAX Range Complex. Based on conservativeness of the onset mortality criteria and impulse modeling and past observations of no marine mammal mortalities associated with ship shock trials, the predicted sperm whale mortalities for CVN ship shock trial are considered overestimates and highly unlikely to occur. Predicted effects on sperm whales within the Gulf of Mexico are presumed to primarily impact the Gulf of Mexico Oceanic stock, whereas the majority of impacts predicted offshore of the east coast would impact the North Atlantic stock.

Research and observations show that if sperm whales are exposed to sonar or other active acoustic sources they may react in a number of ways depending on their experience with the sound source and what activity they are engaged in at the time of the acoustic exposure. Sperm whales have shown resilience to acoustic and human disturbance, although they may react to sound sources and activities within a few kilometers. Sperm whales that are exposed to activities that involve the use of sonar and other active acoustic sources may alert, ignore the stimulus, avoid the area by swimming away or diving, or display aggressive behavior. Some (but not all) sperm whale vocalizations might overlap with the MFAS/HFAS TTS frequency range, which could potentially temporarily decrease an animal's sensitivity to the calls of conspecifics or returning echolocation signals. However, as noted previously, NMFS does not anticipate TTS of a long duration or severe degree to occur as a result of exposure to sonar and other active acoustic sources. The majority of Level B takes are expected to be in the form of mild responses. The implementation of mitigation measures and the large size of sperm whales (i.e., increased sightability) are expected to prevent any significant behavioral reactions. Therefore, long-term consequences for individuals or populations would not be expected.

The Navy estimates it may strike and take, by injury or mortality, an average of two marine mammals per year as a result of training activities, with a maximum of three in any given year. Of the ESA-listed species in the Study Area, the Navy anticipates no more than one sperm whale would be struck over a 5-year period based on the percentages that those species have been involved in vessel collisions.

Of the 19 reported Navy vessel strikes since 1995, only one strike was attributed to a testing event in 2001. Therefore, for testing events that will not occur on a training platform, the Navy estimates it could potentially take one marine mammal by injury or mortality over the course of the 5-year AFTT regulations. A number of the reported whale strikes were unidentified to species; therefore, the Navy cannot quantifiably predict that the proposed takes will be of any particular species.

The region of the Mississippi River Delta (Desoto Canyon) has been recognized for high densities of sperm whales and may represent an important calving and nursing or feeding area for these animals. Sperm whales typically exhibit a strong affinity for deep waters beyond the continental shelf, though in the area of the Mississippi Delta they also occur on the outer continental shelf break. However, there is a PAA designated immediately seaward of the continental shelf associated with the Mississippi Delta, in which the Navy plans to conduct no more than one major exercise and which they plan to take into consideration in the planning of unit-level exercises. Therefore, NMFS does not expect that impacts will be focuses, extensive, or severe in the sperm whale calving area.

Sperm whales within the Study Area belong to one of three stocks: North Atlantic; Gulf of Mexico Oceanic; or Puerto Rico and U.S. Virgin Islands. The best abundance estimate for sperm whales in the western North Atlantic is 4,804. The best abundance estimate for sperm whales in the northern Gulf of Mexico is 1,665.

Pygmy and Dwarf Sperm Whales

Pygmy and dwarf sperm whales may be exposed to sonar or other active acoustic stressors associated with training and testing activities throughout the year. The acoustic analysis predicts that pygmy and dwarf sperm whales could be exposed to sound that may result in 13 PTS, 4,914 TTS, and 169 behavioral reactions from annually recurring training activities; and a maximum of 1 TTS from the biennial training activity civilian port defense. The majority of predicted impacts on these species are within the JAX and GOMEX Range Complexes. Pygmy and dwarf sperm whales could be exposed to sound that may result in 5 PTS, 1,061 TTS and 29 behavioral reactions per year from annually recurring activities. Pygmy and dwarf sperm whales may be exposed to sound and energy from explosions associated with training and testing activities throughout the year. The acoustic analysis predicts that pygmy and dwarf sperm whales could be exposed to sound from annual training activities involving explosions that may result in 1 behavioral response, 5 TTS, and 2 PTS (see Table 6–26 in the LOA application for predicted numbers of effects). The majority of these exposures occur within the VACAPES and GOMEX Range Complexes. Pygmy or dwarf sperm whales could be exposed to energy or sound from underwater explosions that may result in 1 behavioral response, 2 TTS, and 1 PTS per year as a result of annually recurring testing activities. These impacts could happen anywhere throughout the Study Area where testing activities involving explosives occur. Additionally, the acoustic analysis predicts 6 TTS, 1 PTS, and 3 slight lung injury to a *Kogia* species over a 5-year period due to ship shock trials either in the VACAPES or JAX Range Complex. Predicted effects on pygmy and dwarf sperm whales within the Gulf of Mexico are presumed to primarily impact the Gulf of Mexico stocks, whereas the majority of effects predicted offshore of the east coast would impact the Western North Atlantic stocks.

Research and observations on *Kogia* species are limited. However, these species tend to avoid human activity and presumably anthropogenic sounds. Pygmy and dwarf sperm whales may startle and leave the immediate area of the anti-submarine warfare training exercise. Significant behavioral reactions seem more likely than with most other odontocetes, however it is unlikely that animals would receive multiple exposures over a short time period allowing animals time to recover lost resources (e.g., food) or opportunities (e.g., mating). Therefore, long-term consequences for individual *Kogia* or their respective populations are not expected.

No areas of specific importance for reproduction or feeding for *Kogia* species have been identified in the AFTT Study Area. *Kogia* species are separated into two stocks within the Study Area: The Western North Atlantic and Gulf of Mexico Oceanic. The best estimate for both species in the U.S. Atlantic is 395 individuals. The best estimate for both species in the northern Gulf of Mexico is 453.

Beaked Whales

Beaked whales (six species total) may be exposed to sonar or other active acoustic stressors associated with training and testing activities

throughout the year. The acoustic analysis predicts that beaked whales could be exposed to sound that may result in 781 TTS and 135,573 behavioral reactions per year from annually recurring training activities; and a maximum of 8 behavioral reactions from each biennial training activity civilian port defense. Beaked whales could be exposed to sound that may result in 592 TTS and 32,695 behavioral reactions per year from annually recurring testing activities. The majority of these impacts happen within the Northeast Range Complexes, with lesser effects in the VACAPES, Navy Cherry Point, JAX, Key West and GOMEX Range Complexes. Beaked whales may be exposed to sound and energy from explosions associated with training and testing activities throughout the year; however, acoustic modeling predicts that no beaked whales would be impacted from annually recurring training and testing activities. The acoustic analysis predicts 7 TTS and 15 slight lung injuries to beaked whale species over a 5-year period due to ship shock trials. Predicted effects on beaked whales within the Gulf of Mexico are presumed to primarily impact the Gulf of Mexico stocks, whereas the majority of effects predicted offshore of the east coast would impact the Western North Atlantic stocks.

The Navy designated several planning awareness areas based on locations of high productivity that have been correlated with high concentrations of marine mammals and areas with steep bathymetric contours that are frequented by deep diving marine mammals such as beaked whales. For activities involving active sonar, the Navy would avoid planning major exercises in the planning awareness areas where feasible. In addition, to the extent operationally feasible, the Navy would not conduct more than one of the four major training exercises or similar scale events per year in the Gulf of Mexico planning awareness area. The best abundance estimate for the undifferentiated complex of beaked whales (*Ziphius* and *Mesoplodon* species) in the northwest Atlantic is 3,513. The best abundance estimate available for Cuvier's beaked whales in the northern Gulf of Mexico is 65. The best abundance estimate available for Mesoplodon species is a combined estimate for Blainville's beaked whale and Gervais' beaked whale in the oceanic waters of the Gulf of Mexico is 57. The current abundance estimate for the northern bottlenose whale in the eastern North Atlantic is 40,000, but population estimates for this species along the eastern U.S. coast are unknown.

Research and observations show that if beaked whales are exposed to sonar or other active acoustic sources they may startle, break off feeding dives, and avoid the area of the sound source to levels of 157 dB (McCarthy *et al.,* 2011). However, in research done at the Navy's instrumented tracking range in the Bahamas, animals leave the immediate area of the anti-submarine warfare training exercise, but return within a few days after the event ends. At the Bahamas range, populations of beaked whales appear to be stable. The analysis also indicates that no exposures to sound levels likely to result in Level A harassment would occur. However, while the Navy's model did not quantitatively predict any mortalities of beaked whales, the Navy requests a limited number of takes by mortality given the sensitivities these species may have to anthropogenic activities. Almost 40 years of conducting similar exercises in the AFTT Study Area without observed incident indicates that injury or motality are not expected to occur as a result of Navy activities.

Some beaked whale vocalizations might overlap with the MFAS/HFAS TTS frequency range (2–20 kHz), which could potentially temporarily decrease an animal's sensitivity to the calls of conspecifics or returning echolocation signals. However, NMFS does not anticipate TTS of a long duration or severe degree to occur as a result of exposure to sonar and other active acoustic sources. No beaked whales are predicted to be exposed to sound levels associated with PTS or injury.

As discussed previously, scientific uncertainty exists regarding the potential contributing causes of beaked whale strandings and the exact behavioral or physiological mechanisms that can potentially lead to the ultimate physical effects (stranding and/or death) that have been documented in a few cases. Although NMFS does not expect injury or mortality of any of these species to occur as a result of the training exercises involving the use of sonar and other active acoustic sources, there remains the potential for the operation of sonar and other active acoustic sources to contribute to the mortality of beaked whales. Consequently, NMFS proposes to authorize mortality and we consider the 10 potential mortalities from across the seven species potentially effected over the course of 5 years in our negligible impact determination (NMFS only intends to authorize a total of 10 beaked whale mortality takes, but since they could be of any of the species, we consider the effects of 10 mortalities of any of the six species).

Dolphins and Small Whales

Delphinids (dolphins and small whales) may be exposed to sonar or other active acoustic stressors associated with training and testing activities throughout the year. The acoustic analysis predicts that annually recurring training activities could expose 17 species of delphinids (Atlantic spotted dolphin, Atlantic white-sided dolphin, bottlenose dolphin, clymene dolphin, common dolphin, false killer whale, Fraser's dolphin, killer whale, melon-headed whale, pantropical spotted dolphin, pilot whale, pygmy killer whale, Risso's dolphin, rough-toothed dolphin, spinner dolphin, striped dolphin, and white-beaked dolphin) to sound that may result in 132,026 TTS and 1,542,713 behavioral reactions per year; and a maximum of 7 TTS and 592 behavioral reactions from each biennial training activity civilian port defense. The high take numbers are due in part to an increase in expended materials. However, many of these species generally travel in large pods and should be visible from a distance in order to implement mitigation measures and reduce potential impacts. In addition, the majority of takes are anticipated to be by behavioral harassment in the form of mild responses. Behavioral responses can range from alerting, to changing their behavior or vocalizations, to avoiding the sound source by swimming away or diving. Annually recurring testing activities involving sonar and other active acoustic sources could expose delphinids to sound that may result in 63,784 TTS and 113,169 behavioral reactions per year. Delphinids may be exposed to sound and energy from explosions associated with training and testing activities throughout the year. The acoustic analysis predicts that delphinids could be exposed to sound that may result in mortality, injury, temporary hearing loss and behavioral responses (see Table 6–26 in the LOA application for predicted numbers of effects). A total of 15 mortalities, 41 slight lung injuries, and 1 gastrointestinal tract injury, 13 PTS, 174 TTS, 91 behavioral responses are predicted per year for delphinids from explosions associated with training activities. The acoustic analysis of annually recurring testing activities predicts that delphinids could be exposed to sound that may result in 10 mortalities, 39 slight lung injuries, 1 PTS, 124 TTS, and 53 behavioral responses per year (see Table 6–27 in

the LOA application for predicted numbers of effects). These predicted impacts would occur primarily in the VACAPES Range Complex, as well as the Naval Surface Warfare Center, Panama City Division Testing Range, but a few impacts could occur throughout the Study Area. While the Navy does not anticipate delphinid mortalities from underwater detonations during mine neutralization activities involving time-delay diver placed charges, there is a possibility of a marine mammal approaching too close to an underwater detonation when there is insufficient time to delay or stop without jeopardizing human safety. During ship shock trials, the acoustic analysis predicts that delphinids could be exposed to sound that may result in 5,386 TTS, 7,743 slight lung injuries, and 527 mortalities over a 5-year period, which would take place in either the VACAPES or JAX Range Complex (Tables 6–25 and 6–26 in the LOA application). Based on conservativeness of the onset mortality criteria and impulse modeling, past observations of no marine mammal mortalities associated with ship shock trials, and implementation of mitigation, the mortality results predicted by the acoustic analysis are over-estimated are not expected to occur. Therefore, the Navy conservatively estimates that 10 small odontocetes mortalities could occur during the CVN Ship Shock Trial and 5 small odontocetes mortalities could occur due to each DDG or LCS Ship Shock Trial. The majority of these exposures would occur within the VACAPES and GOMEX Range Complexes. Bottlenose dolphins may be exposed to sound and energy from pile driving associated with training activities throughout the year. The acoustic analysis predicts that bottlenose dolphins could be exposed to sound that may result in up to 747 behavioral responses per year. These exposures occur within the VACAPES and Cherry Point Range Complexes. Most delphinid species are separated into two stocks within the Study Area: The Western North Atlantic and Gulf of Mexico. Predicted effects on delphinids within the Gulf of Mexico are presumed to primarily impact the Gulf of Mexico stocks, whereas the majority of effects predicted offshore of the east coast would impact the Western North Atlantic stocks. Bottlenose dolphins are divided into one Oceanic and many Coastal stocks along the east coast. The majority of exposures to bottlenose dolphins are likely to the Oceanic stock with the exception of nearshore and inport events that could expose animals in Coastal stocks.

Table 9 provides the abundance estimates for the different dolphin stocks. No areas of specific importance for reproduction or feeding for dolphins have been identified in the AFTT Study Area.

Harbor Porpoises

Harbor porpoises may be exposed to sonar or other active acoustic stressors associated with training and testing activities throughout the year. The acoustic analysis predicts that harbor porpoises could be exposed to sound that may result in 62 PTS, 20,161 TTS, and 120,895 behavioral reactions from annually recurring training activities; and a maximum of 432 TTS and 725 behavioral reactions from the biennial training activity civilian port defense. Annual testing activities could expose harbor porpoises to level of sonar and other active acoustic source sound resulting in 99 PTS, 78,250 TTS, and 1,964,774 behavioral responses per year. The high take numbers are due in part to an increase in expended materials. In addition, the majority of takes are anticipated to be by behavioral harassment in the form of mild responses. Behavioral responses can range from alerting, to changing their behavior or vocalizations, to avoiding the sound source by swimming away or diving. Predicted impacts on these species are within the VACAPES and Northeast Range Complexes primarily within inland waters and along the Northeast U.S. Continental Shelf Large Marine Ecosystem. The behavioral response function is not used to estimate behavioral responses by harbor porpoises; rather, a single threshold is used. Because of this very low behavioral threshold (120 dB re 1 µPa) for harbor porpoises, animals at distances exceeding 200 km in some cases are predicted to have a behavioral reaction in this acoustic analysis. Although this species is known to be more sensitive to these sources at lower received levels, it is not known whether animals would actually react to sound sources at these ranges, regardless of the received sound level. Harbor porpoises may be exposed to sound and energy from explosions associated with training and testing activities throughout the year. The acoustic analysis predicts that harbor porpoises could be exposed to sound that may result in 94 behavioral responses, 497 TTS, 177 PTS, 1 gastrointestinal tract injury, 21 slight lung injuries, and 2 mortalities annually; and 7 TTS and 1 PTS biannually for civilian port defense activities (see Table 6–26 and Table 6–28 in the LOA application for predicted numbers of effects). The acoustic analysis predicts that harbor porpoises could be exposed to sound that may result in 484 behavioral responses, 348 TTS, 110 PTS, 7 slight lung injuries, and 1 mortality per year due to annually recurring testing activities. The acoustic analysis predicts no impacts on harbor porpoises as a result of ship shock trials. Predicted impacts on this species are mostly in the VACAPES Range Complex, with a few impacts in the Northeast Range Complex, generally within the Northeast U.S. Continental Shelf Large Marine Ecosystem.

Research and observations of harbor porpoises show that this species is wary of human activity and will avoid anthropogenic sound sources in many situations at levels down to 120 dB. This level was determined by observing harbor porpoise reactions to acoustic deterrent and harassment devices used to drive away animals from around fishing nets and aquaculture facilities. Avoidance distances were on the order of a kilometer or more, but it is unknown if animals would react similarly if the sound source was located at a greater distance of tens or hundreds of kilometers. Since a large proportion of testing activities happen within harbor porpoise habitat in the northeast, predicted effects on this species are greater relative to other marine mammals. Nevertheless, it is not known whether or not animals would actually react to sound sources at these ranges, regardless of the received sound level. Harbor porpoises may startle and leave the immediate area of the testing event, but may return after the activity has ceased. Therefore, these animals could avoid more significant impacts, such as hearing loss, injury, or mortality. Significant behavioral reactions seem more likely than with most other odontocetes, especially at closer ranges (within a few kilometers). Since these species are typically found in nearshore and inshore habitats, resident animals that are present throughout the year near Navy ports of fixed ranges in the northeast could receive multiple exposures over a short period of time year round. Animals that do not exhibit a significant behavioral reaction would likely recover from any incurred costs, which reduce the likelihood of long-term consequences, such as reduced fitness, for the individual or population.

All harbor porpoises within the Study Area belong to the Gulf of Maine/Bay of Fundy Stock and therefore, all predicted impacts would be to this stock. No areas of specific importance for reproduction or feeding for harbor porpoises have

been identified in the AFTT Study Area. The best abundance estimate for the Gulf of Maine/Bay of Fundy stock is 89,054 individuals.

Pinnipeds

Predicted effects on pinnipeds from annual training activities from sonar and other active acoustic sources indicate that three species (gray, harbor, and hooded seals) could be exposed to sound that may result in 77 behavioral reactions per year from annually recurring training activities and a maximum of 94 behavioral reactions per event for the biennial training activity, civilian port defense. Predicted effects on pinnipeds from annual testing activities from sonar and other active acoustic sources indicate that exposure to sound may result in 73 PTS, 7,494 TTS, and 6,489 behavioral reactions per year. These predicted impacts would occur almost entirely within the Northeast Range Complexes. Pinnipeds may be exposed to sound and energy from explosions associated with training and testing activities throughout the year. The acoustic analysis predicts 2 TTS and 1 behavioral reaction per year from explosions associated with annually recurring training activities and 15 behavioral responses, 15 TTS, and 2 PTS per year from explosions associated with annually recurring testing activities. The model predicts no impacts to pinnipeds from exposure to explosive energy and sound associated with ship shock trials. The predicted impacts would occur in the Northeast Range Complexes within the Northeast U.S. Continental Shelf Large Marine Ecosystem.

Research and observations show that pinnipeds in the water are tolerant of anthropogenic noise and activity. If seals are exposed to sonar or other active acoustic sources and explosives they may not react at all until the sound source is approaching within a few hundred meters and then may alert, ignore the stimulus, change their behaviors, or avoid the immediate area by swimming away or diving. Significant behavioral reactions would not be expected in most cases and long-term consequences for individual seals or populations are unlikely. Overall, predicted effects are low and the implementation of mitigation measures would further reduce potential impacts. Therefore, occasional behavioral reactions to intermittent anthropogenic noise are unlikely to cause long-term consequences for individual animals or populations.

No areas of specific importance for reproduction or feeding for pinnipeds have been identified in the AFTT Study Area. The acoustic analysis predicts that no pinnipeds will be exposed to sound levels or explosive detonations likely to result in mortality. Best estimates for the hooded and harp seals are 592,100 and 6.9 million, respectively. The best estimate for the western north Atlantic stock of harbor seals is 99,340. There is no best estimate available for gray seal, but a survey of the Canadian population ranged between 208,720 and 223,220. The North Atlantic Marine Mammal Commission Scientific Committee derived a rough estimate of the abundance of ringed seals in the northern extreme of the AFTT Study Area of approximately 1.3 million. There are no estimates available for bearded seals in the western Atlantic, the best available global population is 450,000 to 500,000, half of which inhabit the Bering and Chukchi Seas.

Preliminary Determination

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat and dependent upon the implementation of the mitigation and monitoring measures, NMFS preliminarily finds that the total taking from Navy training and testing exercises in the AFTT Study Area will have a negligible impact on the affected species or stocks. NMFS has proposed regulations for these exercises that prescribe the means of effecting the least practicable adverse impact on marine mammals and their habitat and set forth requirements pertaining to the monitoring and reporting of that taking.

Subsistence Harvest of Marine Mammals

NMFS has preliminarily determined that the issuance of 5-year regulations and subsequent LOAs for Navy training and testing exercises in the AFTT Study Area would not have an unmitigable adverse impact on the availability of the affected species or stocks for subsistence use, since there are no such uses in the specified area.

ESA

There are six marine mammal species under NMFS jurisdiction included in the Navy's incidental take request that are listed as endangered under the ESA with confirmed or possible occurrence in the Study Area: blue whale, humpback whale, fin whale, sei whale, sperm whale, and North Atlantic right whale. The Navy will consult with NMFS pursuant to section 7 of the ESA, and NMFS will also consult internally on the issuance of LOAs under section 101(a)(5)(A) of the MMPA for AFTT activities. Consultation will be concluded prior to a determination on the issuance of the final rule and an LOA.

NMSA

Some Navy activities may potentially affect resources within National Marine Sanctuaries. The Navy will continue to analyze potential impacts to sanctuary resources and has provided the analysis in Navy's Draft Environmental Impact Statement/Overseas Environmental Impact Statement for AFTT to NOAA's Office of National Marine Sanctuaries. Navy will initiate consultation with NOAA's Office of National Marine Sanctuaries pursuant to the requirements of the National Marine Sanctuaries Act as warranted by ongoing analysis of the activities and their effects on sanctuary resources.

NEPA

NMFS has participated as a cooperating agency on the AFTT DEIS/OEIS, which was published on May 11, 2012. The AFTT DEIS/OEIS is posted on NMFS' Web site: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*. NMFS intends to adopt the Navy's final EIS/OEIS (FEIS/OEIS), if adequate and appropriate. Currently, we believe that the adoption of the Navy's FEIS/OEIS will allow NMFS to meet its responsibilities under NEPA for the issuance of regulations and LOAs for AFTT. If the Navy's FEIS/OEIS is deemed inadequate, NMFS would supplement the existing analysis to ensure that we comply with NEPA prior to the issuance of the final rule or LOA.

Classification

The Office of Management and Budget has determined that this proposed rule is not significant for purposes of Executive Order 12866.

Pursuant to the Regulatory Flexibility Act (RFA), the Chief Counsel for Regulation of the Department of Commerce has certified to the Chief Counsel for Advocacy of the Small Business Administration that this proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities. The RFA requires federal agencies to prepare an analysis of a rule's impact on small entities whenever the agency is required to publish a notice of proposed rulemaking. However, a federal agency may certify, pursuant to 5 U.S.C. 605(b), that the action will not have a significant economic impact on a substantial number of small entities. The Navy is the sole entity that will be affected by this rulemaking, not a small governmental jurisdiction, small

organization, or small business, as defined by the RFA. Any requirements imposed by an LOA issued pursuant to these regulations, and any monitoring or reporting requirements imposed by these regulations, would be applicable only to the Navy. NMFS does not expect the issuance of these regulations or the associated LOAs to result in any impacts to small entities pursuant to the RFA. Because this action, if adopted, would directly affect the Navy and not a small entity, NMFS concludes the action would not result in a significant economic impact on a substantial number of small entities.

List of Subjects in 50 CFR Part 218

Exports, Fish, Imports, Incidental take, Indians, Labeling, Marine mammals, Navy, Penalties, Reporting and recordkeeping requirements, Seafood, Sonar, Transportation.

Dated: January 23, 2013.

Alan D. Risenhoover,

Director, Office of Sustainable Fisheries, performing the functions and duties of the Deputy Assistant Administrator for Regulatory Programs.

For reasons set forth in the preamble, 50 CFR part 218 is proposed to be amended as follows:

PART 218—REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS

■ 1. The authority citation for part 218 continues to read as follows:

Authority: 16 U.S.C. 1361 *et seq.*

■ 2. Subpart I is added to part 218 to read as follows:

Subpart I—Taking and Importing Marine Mammals; U.S. Navy's Atlantic Fleet Training and Testing (AFTT)

Sec.

Subpart I—Taking and Importing Marine Mammals; U.S. Navy's Atlantic Fleet Training and Testing (AFTT)

§ 218.80 Specified activity and specified geographical region.

(a) Regulations in this subpart apply only to the U.S. Navy for the taking of marine mammals that occurs in the area outlined in paragraph (b) of this section and that occurs incidental to the activities described in paragraph (c) of this section.

(b) The taking of marine mammals by the Navy is only authorized if it occurs within the AFTT Study Area, which is comprised of established operating and warning areas across the North Atlantic Ocean and the Gulf of Mexico (see Figure 1–1 in the Navy's application). In addition, the Study Area also includes U.S. Navy pierside locations where sonar maintenance and testing occurs within the Study Area, and areas on the high seas that are not part of the range complexes, where training and testing may occur during vessel transit.

(c) The taking of marine mammals by the Navy is only authorized if it occurs incidental to the following activities within the designated amounts of use identified in paragraphs (c)(5) through (c)(11) of this section:

(1) Training events:

(i) Amphibious Warfare:

(A) Fire Support Exercise (FIREX) at Sea—up to 50 per year.

(B) Elevated Causeway System (ELCAS)—up to 1 event per year.

(ii) Anti-Surface Warfare:

(A) Gunnery Exercise (GUNEX) (Surface-to-Surface) Ship—Medium-caliber—up to 827 events per year.

(B) GUNEX (Surface-to-Surface) Ship—Large-caliber—up to 294 events per year.

(C) GUNEX (Surface-to-Surface) Boat—Medium-caliber—up to 434 events per year.

(D) Missile Exercise (MISSILEX) (Surface-to-Surface)—up to 20 events per year.

(E) GUNEX (Air-to-Surface)—up to 715 events per year.

(F) MISSILEX (Air-to-Surface) Rocket—up to 210 events per year.

(G) MISSILEX (Air-to-Surface)—up to 248 events per year.

(H) Bombing Exercise (BOMBEX) (Air-to-Surface)—up to 930 events per year.

(I) Sinking Exercise (SINKEX)—up to 1 event per year.

(J) Maritime Security Operations (MSO)—Anti-swimmer Grenades—up to 12 events per year.

(iii) Anti-Submarine Warfare:

(A) Tracking Exercise/Torpedo Exercise (TRACKEX/TORPEX)-Submarine—up to 102 events per year.

(B) TRACKEX/TORPEX-Surface– up to 764 events per year.

(C) TRACKEX/TORPEX-Helicopter—up to 432 events per year.

(D) TRACKEX/TORPEX-Maritime Patrol Aircraft—up to 752 events per year.

(E) TRACKEX-Maritime Patrol Aircraft Extended Echo Ranging Sonobuoys—up to 160 events per year.

(iv) Major Training Events:

(A) Anti-Submarine Warfare Tactical Development Exercise—up to 4 events in per year.

(B) Composite Training Unit Exercise—up to 5 events per year.

(C) Joint Task Force Exercise/ Sustainment Exercise—up to 4 events per year.

(D) Integrated Anti-Submarine Warfare Course—up to 5 events per year.

(E) Group Sail—up to 20 events per year.

(v) Mine Warfare:

(A) Mine Countermeasures Exercise-MCM Sonar-Ship—up to 116 events per year.

(B) Mine Countermeasures—Mine Detection—up to 2,538 events per year.

(C) Mine Neutralization-Explosive Ordnance Disposal (EOD)—up to 618 events per year.

(D) Mine Neutralization—Remotely Operated Vehicle—up to 508 events per year.

(E) Coordinated Unit Level Helicopter Airborne Mine Countermeasure Exercises—up to 8 events per year.

(F) Civilian Port Defense—up to 1 event every other year.

(vi) Other Training Activities:

(A) Submarine Navigation—up to 284 events per year.

(B) Submarine Navigation Under Ice Certification—up to 24 events per year.

(C) Surface Ship Object Detection—up to 144 events per year.

(D) Surface Ship Sonar Maintenance—up to 824 events per year.

(D) Submarine Sonar Maintenance—up to 220 events per year.

(2) Naval Air Systems Command Testing Events:

(i) Anti-Surface Warfare (ASUW):

(A) Air-to-Surface Missile Test—up to 239 events per year.

(B) Air-to-Surface Gunnery Test—up to 165 events per year.

(C) Rocket Test—up to 332 events per year.

(ii) Anti-Submarine Warfare (ASW):

(A) Anti-Submarine Warfare Torpedo Test—up to 242 events per year.

(B) Kilo Dip—up to 43 events per year.

(C) Sonobuoy Lot Acceptance Test—up to 39 events per year.

(D) Anti-Submarine Warfare Tracking Test—Helicopter—up to 428 events per year.

(E) Anti-Submarine Warfare Tracking Test—Maritime Patrol Aircraft—up to 75 events per year.

(iii) Mine Warfare (MIW):

(A) Airborne Towed Minehunting Sonar System Test—up to155 events per year.
(B) Airborne Mine Neutralization System Test—up to 165 events per year.
(C) Airborne Projectile-based Mine Clearance System—up to 237 events per year.
(D) Airborne Towed Minesweeping Test—up to 72 events per year.
(3) Naval Sea Systems Command Testing Events:
(i) New Ship Construction:
(A) Surface Combatant Sea Trials—Pierside Sonar Testing—up to 12 events per year.
(B) Surface Combatant Sea Trials—ASW Testing—up to 10 events per year.
(C) Submarine Sea Trials—Pierside Sonar Testing—up to 6 events per year.
(D) Submarine Sea Trials—ASW Testing—up to 12 events per year.
(D) Mission Package Testing—ASW—up to 24 events per year.
(E) Mission Package Testing—Mine Countermeasures—up to 8 events per year.
(ii) Life Cycle Activities:
(A) Surface Ship Sonar Testing/Maintenance—up to 16 events per year.
(B) Submarine Sonar Testing/Maintenance—up to 28 events per year.
(C) Combat System Ship Qualification Trial (CSSQT)—In-Port Maintenance Period—up to 12 events per year.
(D) Combat System Ship Qualification (CSSQT)—Undersea Warfare (USW)—up to 9 events per year.
(iii) NAVSEA Range Activities:
(A) Unmanned Underwater Vehicles Demonstration—up to 3 events per 5 year period.
(B) Mine Detection and Classification Testing—up to 81 events per year.
(C) Stationary Source Testing—up to 11 events per year.
(D) Special Warfare Testing—up to 110 events per year.
(E) Unmanned Underwater Vehicle Testing—up to 211 events per year.
(F) Torpedo Testing (non-explosive)—up to 30 events per year.
(G) Towed Equipment Testing—up to 33 events per year.
(H) Semi-Stationary Equipment Testing—up to 154 events per year.
(I) Pierside Integrated Swimmer Defense Testing—up to 6 events per year.
(J) Signature Analysis Activities—up to 18 events per year.
(K) Mine Testing—up to 33 events per year.
(L) Surface Testing—up to 33 events per year.
(M) Mine Countermeasure/Neutralization Testing—up to 15 events per year.
(N) Ordnance Testing—up to 37 events per year.
(iv) Additional Activities Outside of NAVSEA Ranges:
(A) Torpedo (non-explosive) Testing—up to 26 events per year.
(B) Torpedo (explosive) Testing—up to 4 events per year.
(C) Countermeasure Testing—up to 3 events per year.
(D) Pierside Sonar Testing—up to 23 events per year.
(E) At-sea Sonar Testing—up to 15 events per year.
(F) Mine Detection and Classification Testing—up to 66 events per year.
(G) Mine Countermeasure/Neutralization Testing—up to 28 events per year.
(H) Pierside Integrated Swimmer Defense Testing—up to 3 events per year.
(I) Unmanned Vehicle Deployment and Payload Testing—up to 111 events per year.
(J) Special Warfare Testing—up to 4 events per year.
(K) Aircraft Carrier Sea Trials—Gun Testing—Medium Caliber—up to 410 events per year.
(L) Surface Warfare Mission Package—Gun Testing—Medium Caliber—up to 5 events per year.
(M) Surface Warfare Mission Package—Gun Testing—Large Caliber—up to 5 events per year.
(N) Surface Warfare Mission Package—Missile/Rocket Testing—up to 15 events per year.
(O) Mine Countermeasure Mission Package Testing—up to 8 events per year.
(P) Aircraft Carrier Full Ship Shock Trial—1 event per 5 year period
(Q) DDG 1000 Zumwalt Class Destroyer Full Ship Shock Trial—1 event per 5 year period.
(R) Littoral Combat Ship Full Ship Shock Trial—up to 2 events per 5 year period.
(S) At-sea Explosives Testing—up to 4 events per year.
(4) Active Acoustic Sources Used During Annual Training:
(i) Mid-frequency (MF) Source Classes:
(A) MF1—up to 9,844 hours per year.
(B) MF1K—up to 163 hours per year.
(C) MF2—up to 3,150 hours per year.
(D) MF2K—up to 61 hours per year.
(E) MF3—up to 2,058 hours per year.
(F) MF4—up to 927 hours per year.
(G) MF5—up to 14,556 sonobuoys per year.
(H) MF11—up to 800 hours per year.
(I) MF12—up to 687 hours per year.
(ii) High-frequency (HF) and Very High-frequency (VHF) Source Classes:
(A) HF1—up to 1,676 hours per year.
(B) HF4—up to 8,464 hours per year.
(iii) Anti-Submarine Warfare (ASW) Source Classes:
(A) ASW1—up to 128 hours per year.
(B) ASW2—up to 2,620 sonobuoys per year.
(C) ASW3—up to 13,586 hours per year.
(D) ASW4—up to 1,365 devices per year.
(iv) Torpedoes (TORP) Source Classes:
(A) TORP1—up to 54 torpedoes per year.
(B) TORP2—up to 80 torpedoes year.
(5) Active Acoustic Sources Used During Annual Testing:
(i) LF:
(A) LF4—up to 254 hours per year.
(B) LF5—up to 370 hours per year.
(ii) MF:
(A) MF1—up to 220 hours per year.
(B) MF1K—up to 19 hours per year.
(C) MF2—up to 36 hours per year.
(D) MF3—up to 434 hours per year.
(E) MF4—up to 776 hours per year.
(F) MF5—up to 4,184 sonobuoys per year.
(G) MF6—up to 303 items per year.
(H) MF8—up to 90 hours per year.
(I) MF9—up to 13,034 hours per year.
(J) MF10—up to 1,067 hours per year.
(K) MF12—up to 144 hours per year.
(iii) HF and VHF:
(A) HF1—up to 1,243 hours per year.
(B) HF3—up to 384 hours per year.
(C) HF4—up to 5,572 hours per year.
(D) HF5—up to 1,206 hours per year.
(E) HF6—up to 1,974 hours per year.
(F) HF7—up to 366 hours per year.
(iv) ASW:
(A) ASW1—up to 96 hours per year.
(B) ASW2—up to 2,743 sonobuoys per year.
(C) ASW2—up to 274 hours per year.
(D) ASW3—up to 948 hours per year.
(E) ASW4—up to 483 devices per year.
(v) TORP:
(A) TORP1—up to 581 torpedoes per year.
(B) TORP2—up to 521 torpedoes per year.
(vi) Acoustic Modems (M):
(A) M3—up to 461 hours per year.
(B) [Reserved]
(vii) Swimmer Detection Sonar (SD):
(A) SD1 and SD2—up to 230 hours per year.
(B) [Reserved]
(viii) Forward Looking Sonar (FLS):
(A) FLS2 and FLS3—up to 365 hours per year.
(B) [Reserved]
(ix) Synthetic Aperture Sonar (SAS):
(A) SAS1—up to 6 hours per year.
(B) SAS2—up to 3,424 hours per year.
(6) Explosive Sources Used During Annual Training:
(i) Explosive Classes:
(A) E1 (0.1 to 0.25 lb NEW)—up to 124,552 detonations per year.
(B) E2 (1.26 to 0.5 lb NEW)—up to 856 detonations per year.

(C) E3 (0.6 to 2.5 lb NEW)—up to 3,132 detonations per year.
(D) E4 (>2.5 to 5 lb NEW)—up to 2,190 detonations per year.
(E) E5 (>5 to 10 lb NEW)—up to 14,370 detonations per year.
(F) E6 (>10 to 20 lb NEW)—up to 500 detonations per year.
(G) E7 (>20 to 60 lb NEW)—up to 322 detonations per year.
(H) E8 (>60 to 100 lb NEW)—up to 77 detonations per year.
(I) E9 (>100 to 250 lb NEW)—up to 2 detonations per year.
(J) E10 (>250 to 500 lb NEW)—up to 8 detonations per year.
(K) E11 (>500 to 650 lb NEW)—up to 1 detonations per year.
(L) E12 (>650 to 1,000 lb NEW)—up to 133 detonations per year.
(ii) [Reserved]
(7) Explosive Sources Used During Annual Testing:
(i) Explosive Classes:
(A) E1 (0.1 to 0.25 lb NEW)—up to 25,501 detonations per year.
(B) E2 (0.26 to 0.5 lb NEW)—up to 0 detonations per year.
(C) E3 (0.6 to 2.5 lb NEW)—up to 2,912 detonations per year.
(D) E4 (>2.5 to 5 lb NEW)—up to 1,432 detonations per year.
(E) E5 (>5 to 10 lb NEW)—up to 495 detonations per year.
(F) E6 (>10 to 20 lb NEW)—up to 54 detonations per year.
(G) E7 >20 to 60 lb NEW)—up to 0 detonations per year.
(H) E8 (>60 to 100 lb NEW)—up to 11 detonations per year.
(I) E9 (>100 to 250 lb NEW)—up to 0 detonations per year.
(J) E10 (>250 to 500 lb NEW)—up to 10 detonations per year.
(K) E11 (>500 to 650 lb NEW)—up to 27 detonations per year.
(L) E12 (>650 to 1,000 lb NEW)—up to 0 detonations per year.
(M) E13 (>1,000 to 1,740 lb NEW)—up to 0 detonations per year.
(N) E14(>1,714 to 3,625 lb NEW)—up to 4 detonations per year.
(ii) [Reserved]
(8) Active Acoustic Source Used During Non-Annual Training
(i) HF4—up to 192 hours
(ii) [Reserved]
(9) Active Acoustic Sources Used During Non-Annual Testing
(i) LF5—up to 240 hours
(ii) MF9—up to 480 hours
(iii) HF5—up to 240 hours
(iv) HF6—up to 720 hours
(v) HF7—up to 240 hours
(vi) FLS2 and FLS3—up to 240 hours
(vii) SAS2—up to 720 hours
(10) Explosive Sources Used During Non-Annual Training
(i) E2(0.26 to 0.5 lbs NEW)—up to 2
(ii) E4 (2.6 to 5 lbs NEW)—up to 2
(11) Explosive Sources Used During Non-Annual Training
(i) E1 (0.1 to 0.25 lbs NEW)—up to 600
(ii) E16 (7,251 to 14,500 lbs NEW)—up to 12
(iii) E17 (14,501 to 58,000 lbs NEW)—up to 4

§ 218.81 Effective dates and definitions.

(a) Regulations are effective January 25, 2013 through January 25, 2018.
(b) The following definitions are utilized in these regulations:
(1) *Uncommon Stranding Event (USE)*—A stranding event that takes place during a major training exercise (MTE) and involves any one of the following:
(i) Two or more individuals of any cetacean species (not including mother/calf pairs), unless of species of concern listed in paragraph (b)(1)(ii) of this section found dead or live on shore within a 2-day period and occurring within 30 miles of one another.
(ii) A single individual or mother/calf pair of any of the following marine mammals of concern: beaked whale of any species, *Kogia* spp., Risso's dolphin, melon-headed whale, pilot whale, North Atlantic right whale, humpback whale, sperm whale, blue whale, fin whale, or sei whale.
(iii) A group of two or more cetaceans of any species exhibiting indicators of distress.
(2) *Shutdown*—The cessation of MFAS/HFAS operation or detonation of explosives within 14 nautical miles of any live, in the water, animal involved in a USE.

§ 218.82 Permissible methods of taking.

(a) Under Letters of Authorization (LOAs) issued pursuant to § 218.87, the Holder of the Letter of Authorization may incidentally, but not intentionally, take marine mammals within the area described in § 218.80, provided the activity is in compliance with all terms, conditions, and requirements of these regulations and the appropriate LOA.
(b) The activities identified in § 218.80(c) must be conducted in a manner that minimizes, to the greatest extent practicable, any adverse impacts on marine mammals and their habitat.
(c) The incidental take of marine mammals under the activities identified in § 218.80(c) is limited to the following species, by the identified method of take and the indicated number of times:
(1) Level B Harassment for all Training Activities:
(i) Mysticetes:
(A) Blue whale (*Balaenoptera musculus*)—735 (an average of 147 per year)
(B) Bryde's whale (*Balaenoptera edeni*)—4,775 (an average of 955 per year)
(C) Fin whale (*Balaenoptera physalus*)—22,450 (an average of 4,490 per year)
(D) North Atlantic right whale (*Eubalaena glacialis*)—560 (an average of 112 per year)
(E) Humpback whale (*Megaptera novaeangliae*)—8,215 (an average of 1,643 per year)
(F) Minke whale (*Balaenoptera acutorostrata*)—302,010 (an average of 60,402 per year)
(G) Sei whale (*Balaenoptera borealis*)—50,940 (an average of 10,188 per year)
(ii) Odontocetes:
(A) Atlantic spotted dolphin (*Stenella frontalis*)—887,550 (an average of 177,570 per year)
(B) Atlantic white-sided dolphin (Lagenorhynchus acutus)—156,100 (an average of 31,228)
(C) Blainville's beaked whale (*Mesoplodon densirostris*)—140,893 (28,179 per year)
(D) Bottlenose dolphin (*Tursiops truncatus*)—1,422,938 (284,728 per year)
(E) Clymene dolphin (Stenella clymene)—97,938 (19,588 per year)
(F) Common dolphin (Delphinus spp.)—2,325,022 (465,014 per year)
(G) Cuvier's beaked whale (*Ziphius cavirostris*)—174,473 (34,895 per year)
(H) False killer whale (*Pseudorca crassidens*)—3,565 (an average of 713 per year)
(I) Fraser's dolphin (*Lagenodelphis hosei*)—11,025 (2,205 per year)
(J) Gervais' beaked whale (Mesoplodon europaeus)—141,271 (28,255 per year)
(K) Harbor porpoise (*Phocoena phocoena*)—711,727 (142,811 per year)
(L) Killer whale (*Orcinus orca*)—70,273 (14,055 per year)
(M) *Kogia* spp.—25,448 (5,090 per year)
(N) Melon-headed whale (*Peponocephala electra*)—104,380 (20,876 per year)
(O) Northern bottlenose whale (Hyperoodon ampullatus)—91,786 (18,358 per year)
(P) Pantropical spotted dolphin (*Stenella attenuata*)—354,834 (70,968 per year)
(Q) Pilot whale (*Globicephala spp.*)—506,240 (101,252 per year)
(R) Pygmy killer whale (*Feresa attenuata*)—7,435 (1,487 per year)
(S) Risso's dolphin (*Grampus griseus*)—1,192,618 (238,528 per year)
(T) Rough-toothed dolphin (*Steno bredanensis*)—5,293 (1,059 per year)

(U) Sowerby's beaked whale (*Mesoplodon bidens*)—49,818 (9,964 per year)
(V) Sperm whale (*Physeter macrocephalus*)—73,743 (14,749 per year)
(W) Spinner dolphin (*Stenella longirostris*)—102,068 (20,414 per year)
(X) Striped dolphin (*Stenella coerulealba*)—1,121,511 (224,305 per year)
(Y) True's beaked whale (*Mesoplodon mirus*)—83,553 (16,711 per year)
(Z) White-beaked dolphin (Lagenorhynchus albirostris)—8,027 (1,613 per year)
(iii) Pinnipeds:
(A) Gray seal (*Halichoerus grypus*)—316 (82 per year)
(B) Harbor seal (*Phoca vitulina*)—329 (83 per year)
(C) Harp seal (*Pagophilus groenlanica*)—12 (4 per year)
(D) Hooded seal (*Cystophora cristata*)—25 (5 per year)
(2) Level A Harassment for all Training Activities:
(i) Mysticetes:
(A) Minke whale (*Balaenoptera acutorostrata*)—80 (16 per year)
(B) Fin whale (*Balaenoptera physalus*)—5 (1 per year)
(C) Humpback whale (*Megaptera novaeangliae*)—5 (1 per year)
(D) Sei whale (*Balaenoptera borealis*)—5 (1 per year)
(ii) Odontocetes:
(A) Atlantic spotted dolphin (*Stenella frontalis*)—60 (12 per year)
(B) Atlantic white-sided dolphin (Lagenorhynchus acutus)—15 (3 per year)
(C) Bottlenose dolphin (*Tursiops truncatus*)—40 (8 per year)
(D) Clymene dolphin (Stenella clymene)—5 (1 per year)
(E) Common dolphin (Delphinus spp.)—85 (17 per year)
(F) Harbor porpoise (*Phocoena phocoena*)—1,308 (262 per year)
(G) *Kogia* spp.—75 (15 per year)
(H) Pantropical spotted dolphin (*Stenella attenuata*)—5 (1 per year)
(I) Pilot whale (*Globicephala spp.*)—15 (3 per year)
(J) Risso's dolphin (*Grampus griseus*)—15 (3 per year)
(K) Striped dolphin (*Stenella coerulealba*)—35 (7 per year)
(3) Mortality for all Training Activities:
(i) No more than 85 mortalities (17 per year) applicable to any small odontocete species from an impulse source.
(ii) No more than 10 beaked whale mortalities (2 per year).
(iii) No more than 10 large whale mortalities (no more than 3 in any given year) from vessel strike.
(4) Level B Harassment for all Testing Activities:
(i) Mysticetes:
(A) Blue whale (*Balaenoptera musculus*)—82 (18 per year)
(B) Bryde's whale (*Balaenoptera edeni*)—304 (64 per year)
(C) Fin whale (*Balaenoptera physalus*)—2,784 (599 per year)
(D) North Atlantic right whale (*Eubalaena glacialis*)—395 (87 per year)
(E) Humpback whale (*Megaptera novaeangliae*)—976 (200 per year)
(F) Minke whale (*Balaenoptera acutorostrata*)—34,505 (7,756 per year)
(G) Sei whale (*Balaenoptera borealis*)—3,821 (796 per year)
(ii) Odontocetes:
(A) Atlantic spotted dolphin (*Stenella frontalis*)—104,647 (24,429 per year)
(B) Atlantic white-sided dolphin (Lagenorhynchus acutus)—50,133 (10,330 per year)
(C) Blainville's beaked whale (*Mesoplodon densirostris*)—23,561 (4,753 per year)
(D) Bottlenose dolphin (*Tursiops truncatus*)—146,863 (33,708 per year)
(E) Clymene dolphin (Stenella clymene)—10,169 (2,173 per year)
(F) Common dolphin (Delphinus spp.)—235,493 (52,546 per year)
(G) Cuvier's beaked whale (*Ziphius cavirostris*)—30,472 (6,144 per year)
(H) False killer whale (*Pseudorca crassidens*)—497 (an average of 109 per year)
(I) Fraser's dolphin (*Lagenodelphis hosei*)—791 (171 per year)
(J) Gervais' beaked whale (Mesoplodon europaeus)—23,388 (4,764 per year)
(K) Harbor porpoise (*Phocoena phocoena*)—10,358,300 (2,182,872 per year)
(L) Killer whale (*Orcinus orca*)—7,173 (1,540 per year)
(M) *Kogia* spp.—5,536 (1,163 per year)
(N) Melon-headed whale (*Peponocephala electra*)—6,950 (1,512 per year)
(O) Northern bottlenose whale (Hyperoodon ampullatus)—60,409 (12,096 per year)
(P) Pantropical spotted dolphin (*Stenella attenuata*)—38,385 (7,985 per year)
(Q) Pilot whale (*Globicephala spp.*)—74,614 (15,701 per year)
(R) Pygmy killer whale (*Feresa attenuata*)—603 (135 per year)
(S) Risso's dolphin (*Grampus griseus*)—113,682 (24,356 per year)
(T) Rough-toothed dolphin (*Steno bredanensis*)—618 (138 per year)
(U) Sowerby's beaked whale (*Mesoplodon bidens*)—13,338 (2,698 per year)
(V) Sperm whale (*Physeter macrocephalus*)—8,533 (1,786 per year)
(W) Spinner dolphin (*Stenella longirostris*)—13,208 (2,862 per year)
(X) Striped dolphin (*Stenella coerulealba*)—97,852 (21,738 per year)
(Y) True's beaked whale (*Mesoplodon mirus*)—15,569 (3,133 per year)
(Z) White-beaked dolphin (Lagenorhynchus albirostris)—8,370 (1,818 per year)
(iii) Pinnipeds:
(A) Bearded seal (*Erignathus barbatus*)—161 (33 per year)
(B) Gray seal (*Halichoerus grypus*)—14,149 (3,293 per year)
(C) Harbor seal (*Phoca vitulina*)—38,860 (8,668 per year)
(D) Harp seal (*Pagophilus groenlanica*)—16,277 (3,997 per year)
(E) Hooded seal (*Cystophora cristata*)—1,447 (295 per year)
(F) Ringed seal (*Pusa hispida*)—1,795 (359 per year)
(5) Level A Harassment for all Testing Activities:
(i) Mysticetes:
(A) Minke whale (*Balaenoptera acutorostrata*)—28 (15 per year)
(B) [Reserved]
(ii) Odontocetes:
(A) Atlantic spotted dolphin (*Stenella frontalis*)—1,964 (1,854 per year)
(B) Atlantic white-sided dolphin (Lagenorhynchus acutus)—166 (147 per year)
(C) Bottlenose dolphin (*Tursiops truncatus*)—190 (149 per year)
(D) Clymene dolphin (Stenella clymene)—87 (80 per year)
(E) Common dolphin (Delphinus spp.)—2,369 (2,203 per year)
(F) Harbor porpoise (*Phocoena phocoena*)—1,080 (216 per year)
(G) Killer whale (Orcinus orca)—2 (2 per year)
(H) *Kogia* spp.—36 (12 per year)
(I) Melon-headed whale (*Peponocephala electra*)—30 (28 per year)
(J) Pantropical spotted dolphin (*Stenella attenuata*)—92 (71 per year)
(K) Pilot whale (*Globicephala spp.*)—163 (153 per year)
(L) Pygmy killer whale (*Feresa attenuata*)—3 (3 per year)
(M) Risso's dolphin (*Grampus griseus*)—89 (70 per year)
(N) Spinner dolphin (*Stenella longirostris*)—34 (28 per year)
(O) Striped dolphin (*Stenella coerulealba*)—2,751 (2,599 per year)
(P) White-beaked dolphin (Lagenorhynchus albirostris)—3 (3 per year)
(iii) Pinnipeds:
(A) Gray seal (*Halichoerus grypus*)—46 (14 per year)
(B) Harbor seal (*Phoca vitulina*)—330 (78 per year)
(C) Harp seal (*Pagophilus groenlanica*)—30 (14 per year)

(6) Mortality for all Testing Activities:

(i) No more than 55 mortalities (11 per year) applicable to any small odontocete species from an impulse source.

(ii) No more than 1 large whale mortalities (no more than 1 in any given year) from vessel strike.

(iii) Nor more than 25 mortalities (no more than 20 in any given year) applicable to any small odontocete species from Ship Shock trials.

§ 218.83 Prohibitions.

Notwithstanding takings contemplated in § 218.82 and authorized by an LOA issued under § 216.106 of this chapter and § 218.87, no person in connection with the activities described in § 218.80 may:

(a) Take any marine mammal not specified in § 218.82(c);

(b) Take any marine mammal specified in § 218.82(c) other than by incidental take as specified in § 218.82(c);

(c) Take a marine mammal specified in § 218.82(c) if such taking results in more than a negligible impact on the species or stocks of such marine mammal; or

(d) Violate, or fail to comply with, the terms, conditions, and requirements of these regulations or an LOA issued under § 216.106 of this chapter and § 218.87.

§ 218.84 Mitigation.

(a) When conducting training and testing activities, as identified in § 218.80, the mitigation measures contained in the LOA issued under § 216.106 of this chapter and § 218.87 must be implemented. These mitigation measures include, but are not limited to:

(1) Lookouts—The following are protective measures concerning the use of lookouts.

(i) Lookouts positioned on surface ships will be dedicated solely to diligent observation of the air and surface of the water. Their observation objectives will include, but are not limited to, detecting the presence of biological resources and recreational or fishing boats, observing buffer zones, and monitoring for vessel and personnel safety concerns.

(ii) Lookouts positioned in aircraft or on boats will, to the maximum extent practicable and consistent with aircraft and boat safety and training and testing requirements, comply with the observation objectives described above in paragraph (a)(1)(i) of this section.

(iii) Lookout measures for non-impulsive sound:

(A) With the exception of vessels less than 65 ft (20 m) in length and the Littoral Combat Ship (and similar vessels which are minimally manned), ships using low-frequency or hull-mounted mid-frequency active sonar sources associated with anti-submarine warfare and mine warfare activities at sea will have two Lookouts at the forward position of the vessel. For the purposes of this rule, low-frequency active sonar does not include surface towed array surveillance system low-frequency active sonar.

(B) While using low-frequency or hull-mounted mid-frequency active sonar sources associated with anti-submarine warfare and mine warfare activities at sea, vessels less than 65 ft (20 m) in length and the Littoral Combat Ship (and similar vessels which are minimally manned) will have one Lookout at the forward position of the vessel due to space and manning restrictions.

(C) Ships conducting active sonar activities while moored or at anchor (including pierside testing or maintenance) will maintain one Lookout.

(D) Ships or aircraft conducting non-hull-mounted mid-frequency active sonar, such as helicopter dipping sonar systems, will maintain one Lookout.

(E) Surface ships or aircraft conducting high-frequency or non-hull-mounted mid-frequency active sonar activities associated with anti-submarine warfare and mine warfare activities at sea will have one Lookout.

(iv) Lookout measures for explosives and impulsive sound:

(A) Aircraft conducting activities with IEER sonobuoys and explosive sonobuoys with 0.6 to 2.5 lbs net explosive weight will have one Lookout.

(B) Surface vessels conducting anti-swimmer grenade activities will have one Lookout.

(C) During general mine countermeasure and neutralization activities using up to a 500-lb net explosive weight detonation (bin E10 and below), vessels greater than 200 ft will have two Lookouts, while vessels less than 200 ft will have one Lookout.

(D) General mine countermeasure and neutralization activities using a 501 to 650-lb net explosive weight detonation (bin E11), will have two Lookouts. One Lookout will be positioned in an aircraft and one in a support vessel.

(E) Mine neutralization activities involving diver-placed charges using up to 100-lb net explosive weight detonation (E8) conducted with a positive control device will have a total of two Lookouts. One Lookout will be positioned in each of the two support vessels. When aircraft are used, the pilot or member of the aircrew will serve as an additional Lookout. All divers placing the charges on mines will support the Lookouts while performing their regular duties. The divers placing the charges on mines will report all marine mammal sightings to their dive support vessel.

(F) When mine neutralization activities using diver-placed charges with up to a 20-lb net explosive weight detonation (bin E6) are conducted with a time-delay firing device, four Lookouts will be used. Two Lookouts will be positioned in each of two small rigid hull inflatable boats. When aircraft are used, the pilot or member of the aircrew will serve as an additional Lookout. The divers placing the charges on mines will report all marine mammal sightings to their dive support vessel.

(G) Surface vessels conducting line charge testing will have one Lookout

(H) Surface vessels or aircraft conducting small- and medium-caliber gunnery exercises will have one Lookout.

(I) Surface vessels or aircraft conducting large-caliber gunnery exercises will have one Lookout.

(J) Surface vessels or aircraft conducting missile exercises against surface targets will have one Lookout.

(K) Aircraft conducting bombing exercises will have one Lookout.

(L) During explosive torpedo testing, one Lookout will be used and positioned in an aircraft.

(M) During sinking exercises, two Lookouts will be used. One Lookout will be positioned in an aircraft and one on a surface vessel.

(N) Prior to commencement, during, and after ship shock trials using up to 10,000 lb HBX charges, the Navy will have Lookouts or trained marine species observers positioned either in an aircraft or on multiple surface vessels. If vessels are the only available platform, a sufficient number will be used to provide visual observation of the mitigation zone comparable to that achieved by aerial surveys.

(O) Prior to commencement and after ship shock trials using up to 40,000 lb HBX charges, the Navy will have a minimum of two Lookouts or trained marine species observers positioned in an aircraft. During ship shock trials using up to 40,000 lb HBX charges, the Navy will have a total of four Lookouts or trained marine species observers. Two Lookouts will be positioned in an aircraft and two Lookouts will be positioned on a surface vessel.

(P) Each surface vessel supporting at-sea explosive testing will have at least one lookout.

(Q) During pile driving, one lookout will be used and positioned on the platform that will maximize the potential for marine mammal sightings

(e.g., the shore, an elevated causeway, or on a ship).

(R) Surface vessels conducting explosive and non-explosive large-caliber gunnery exercises will have one lookout. This may be the same lookout used during large-caliber gunnery exercises with a surface target.

(v) Lookout measures for physical strike and disturbance:

(A) While underway, surface ships will have at least one lookout.

(B) During activities using towed in-water devices, one lookout will be used.

(C) Activities involving non-explosive practice munitions (e.g., small-, medium-, and large-caliber gunnery exercises) using a surface target will have one lookout.

(D) During activities involving non-explosive bombing exercises, one lookout will be used.

(2) *Mitigation Zones*—The following are protective measures concerning the implementation of mitigation zones.

(i) Mitigation zones will be measured as the radius from a source and represent a distance to be monitored.

(ii) Visual detections of marine mammals within a mitigation zone will be communicated immediately to a watch station for information dissemination and appropriate action.

(iii) Mitigation zones for non-impulsive sound:

(A) When marine mammals are visually detected, the Navy shall ensure that low-frequency and hull-mounted mid-frequency active sonar transmission levels are limited to at least 6 dB below normal operating levels if any detected marine mammals are within 1,000 yd (914 m) of the sonar dome (the bow).

(B) The Navy shall ensure that low-frequency and hull-mounted mid-frequency active sonar transmissions are limited to at least 10 dB below the equipment's normal operating level if any detected marine mammals are within 500 yd (457 m) of the sonar dome.

(B) The Navy shall ensure that low-frequency and hull-mounted mid-frequency active sonar transmissions are ceased if any visually detected marine mammals are within 200 yd (183 m) of the sonar dome. Transmissions will not resume until the marine mammal has been seen to leave the area, has not been detected for 30 minutes, or the vessel has transited more than 2,000 yd beyond the location of the last detection.

(C) When marine mammals are visually detected, the Navy shall ensure that high-frequency and non-hull-mounted mid-frequency active sonar transmission levels are ceased if any visually detected marine mammals are within 200 yd (183 m) of the source. Transmissions will not resume until the marine mammal has been seen to leave the area, has not been detected for 30 minutes, or the vessel has transited more than 2,000 yd beyond the location of the last detection.

(D) Special conditions applicable for dolphins and porpoises only: If, after conducting an initial maneuver to avoid close quarters with dolphins or porpoises, the Officer of the Deck concludes that dolphins or porpoises are deliberately closing to ride the vessel's bow wave, no further mitigation actions are necessary while the dolphins or porpoises continue to exhibit bow wave riding behavior.

(E) Prior to start up or restart of active sonar, operators shall check that the mitigation zone radius around the sound source is clear of marine mammals.

(iv) Mitigation zones for explosive and impulsive sound:

(A) A mitigation zone with a radius of 600 yd (549 m) shall be established for IEER sonobuoys (bin E4).

(B) A mitigation zone with a radius of 350 yd (320 m) shall be established for explosive sonobuoys using 0.6 to 2.5 lb net explosive weight (bin E3).

(C) A mitigation zone with a radius of 200 yd (183 m) shall be established for anti-swimmer grenades (bin E2).

(D) A mitigation zone ranging from 350 yd (320 m) to 850 yd (777 m), dependent on charge size, shall be established for mine countermeasure and neutralization activities using diver placed positive control firing devices. Mitigation zone distances are specified for charge size in Table 11–2 of the Navy's application.

(E) A mitigation zone with a radius of 1,000 yd (915 m) shall be established for mine neutralization diver placed mines using time-delay firing devices (bin E6).

(F) A mitigation zone with a radius of 900 yd (823 m) shall be established for ordnance testing (line charge testing) (bin E4).

(G) A mitigation zone with a radius of 200 yd (183 m) shall be established for small- and medium-caliber gunnery exercises with a surface target (bin E2).

(H) A mitigation zone with a radius of 600 yd (549 m) shall be established for large-caliber gunnery exercises with a surface target (bin E5).

(I) A mitigation zone with a radius of 900 yd (823 m) shall be established for missile exercises with up to 250 lb net explosive weight and a surface target (bin E9).

(J) A mitigation zone with a radius of 2,000 yd (1.8 km) shall be established for missile exercises with 251 to 500 lb net explosive weight and a surface target (E10).

(K) A mitigation zone with a radius of 2,500 yd (2.3 km) shall be established for bombing exercises (bin E12).

(L) A mitigation zone with a radius of 2,100 yd (1.9 km) shall be established for torpedo (explosive) testing (bin E11).

(M) A mitigation zone with a radius of 2.5 nautical miles shall be established for sinking exercises (bin E12).

(N) A mitigation zone with a radius of 1,600 yd (1.4 km) shall be established for at-sea explosive testing (bin E5).

(O) A mitigation zone with a radius of 60 yd (55 m) shall be established for elevated causeway system pile driving.

(P) A mitigation zone with a radius of 3.5 nautical miles shall be established for a shock trial.

(v) Mitigation zones for vessels and in-water devices:

(A) A mitigation zone of 500 yd (457 m) for observed whales and 200 yd (183 m) for all other marine mammals (except bow riding dolphins) shall be established for all vessel movement, providing it is safe to do so.

(B) A mitigation zone of 250 yd (229 m) shall be established for all towed in-water devices, providing it is safe to do so.

(vi) Mitigation zones for non-explosive practice munitions:

(A) A mitigation zone of 200 yd (183 m) shall be established for small, medium, and large caliber gunnery exercises using a surface target.

(B) A mitigation zone of 1,000 yd (914 m) shall be established for bombing exercises.

(3) *Protective Measures Specific to North Atlantic Right Whales.*

(i) North Atlantic Right Whale Calving Habitat off the Southeast United States.

(A) The Southeast Right Whale Mitigation Area is defined by a 5 nm (9.3 km) buffer around the coastal waters between 31–15 N. lat. and 30–15 N. lat. extending from the coast out 15 nm (27.8 km), and the coastal waters between 30–15 N. lat. to 28–00 N. lat. from the coast out to 5 nm (9.3 km).

(B) Between November 15 and April 15, the following activities are prohibited within the Southeast Right Whale Mitigation Area:

(*1*) High-frequency and non-hull mounted mid-frequency active sonar (except helicopter dipping)

(*2*) Missile activities (explosive and non-explosive)

(*3*) Bombing exercises (explosive and non-explosive)

(*4*) Underwater detonations

(*5*) Improved extended echo ranging sonobuoy exercises

(*6*) Torpedo exercises (explosive)

(*7*) Small-, medium-, and large-caliber gunnery exercises

(C) Prior to transiting or training in the Southeast Right Whale Mitigation Area, ships shall contact Fleet Area Control and Surveillance Facility, Jacksonville, to obtain the latest whale sightings and other information needed to make informed decisions regarding safe speed and path of intended movement. Submarines shall contact Commander, Submarine Force United States Atlantic Fleet for similar information.

(D) The following specific mitigation measures apply to activities occurring within the Southeast Right Whale Mitigation Area:

(*1*) When transiting within the Southeast Right Whale Mitigation Area, vessels shall exercise extreme caution and proceed at a slow safe speed. The speed shall be the slowest safe speed that is consistent with mission, training, and operations.

(*2*) Speed reductions (adjustments) are required when a North Atlantic right whale is sighted by a vessel, when the vessel is within 9 km (5 nm) of a sighting reported within the past 12 hours, or when operating at night or during periods of poor visibility.

(*3*) Vessels shall avoid head-on approaches to North Atlantic right whales(s) and shall maneuver to maintain at least 457 m (500 yd) of separation from any observed whale if deemed safe to do so. These requirements do not apply if a vessel's safety is threatened, such as when a change of course would create an imminent and serious threat to a person, vessel, or aircraft, and to the extent vessels are restricted in their ability to maneuver.

(*4*) Vessels shall minimize to the extent practicable north-south transits through the Southeast Right Whale Mitigation Area. If transit in a north-south direction is required during training or testing activities, the Navy shall implement the measures described above.

(*5*) Ship, surfaced subs, and aircraft shall report any North Atlantic right whale sightings to Fleet Area Control and Surveillance Facility, Jacksonville, by the most convenient and fastest means. The sighting report shall include the time, latitude/longitude, direction of movement and number and description of whale (i.e., adult/calf)

(ii) North Atlantic Right Whale Foraging Habitat off the Northeast United States.

(A) The Northeast Right Whale Mitigation Area consists of two areas: the Great South Channel and Cape Cod Bay. The Great South Channel is defined by the following coordinates: 41-40 N. Lat., 69-45 W. Long.; 41-00 N. Lat., 69-05 W. Long.; 41-38 N. Lat., 68-13 W. Long.; and 42-10 N. Lat., 68-31 W. Long. Cape Cod Bay is defined by the following coordinates: 42-04.8 N. Lat., 70-10 W. Long.; 42-10 N. Lat., 70-15 W. Long.; 42-12 N. Lat., 70-30 W. Long.; 41-46.8 N. Lat., 70-30 W. Long.; and on the south and east by the interior shoreline of Cape Cod.

(B) Year-round, the following activities are prohibited within the Northeast Right Whale Mitigation Area:

(*1*) Improved extended echo ranging sonobuoy exercises in or within 5.6 km (3 nm) of the mitigation area.

(*2*) Bombing exercises (explosive and non-explosive)

(*3*) Underwater detonations

(*4*) Torpedo exercises (explosive)

(C) Prior to transiting or training in the Northeast Right Whale Mitigation Area, ships and submarines shall contact the Northeast Right Whale Sighting Advisory System to obtain the latest whale sightings and other information needed to make informed decisions regarding safe speed and path of intended movement.

(D) The following specific mitigation measures apply to activities occurring within the Northeast Right Whale Mitigation Area:

(*1*) When transiting within the Northeast Right Whale Mitigation Area, vessels shall exercise extreme caution and proceed at a slow safe speed. The speed shall be the slowest safe speed that is consistent with mission, training, and operations.

(*2*) Speed reductions (adjustments) are required when a North Atlantic right whale is sighted by a vessel, when the vessel is within 9 km (5 nm) of a sighting reported within the past week, or when operating at night or during periods of poor visibility.

(*3*) When conducting TORPEXs, the following additional speed restrictions shall be required: during transit, surface vessels and submarines shall maintain a speed of no more than 19 km/hour (10 knots); during torpedo firing exercises, vessel speeds should, where feasible, not exceed 10 knots; when a submarine is used as a target, vessel speeds should, where feasible, not exceed 18 knots; when surface vessels are used as targets, vessels may exceed 18 knots for a short period of time (e.g., 10–15 minutes).

(*4*) Vessels shall avoid head-on approaches to North Atlantic right whales(s) and shall maneuver to maintain at least 457 m (500 yd) of separation from any observed whale if deemed safe to do so. These requirements do not apply if a vessel's safety is threatened, such as when a change of course would create an imminent and serious threat to a person, vessel, or aircraft, and to the extent vessels are restricted in their ability to maneuver.

(*5*) Non-explosive torpedo testing shall be conducted during daylight hours only in Beaufort sea states of 3 or less to increase the probability of marine mammal detection.

(*6*) Non-explosive torpedo testing activities shall not commence if concentrations of floating vegetation (*Sargassum* or kelp patties) are observed in the vicinity.

(*7*) Non-explosive torpedo testing activities shall cease if a marine mammal is visually detected within the immediate vicinity of the activity. The tests may recommence when any one of the following conditions are met: the animal is observed exiting the immediate vicinity of the activity; the animal is thought to have exited the immediate vicinity based on its course and speed; or the immediate vicinity of the activity has been clear from any additional sightings for a period of 30 minutes.

(iii) North Atlantic Right Whale Mid-Atlantic Migration Corridor

(A) The Mid-Atlantic Right Whale Mitigation Area consists of the following areas:

(*1*) Block Island Sound: the area bounded by 40-51-53.7 N. Lat., 70-36-44.9 W. Long.; and 41-20-14.1 N. Lat., 70-49-44.1 W. Long.

(*2*) New York and New Jersey: 37 km (20 nm) seaward of the line between 40-29-42.2 N. Lat., 73-55-57.6 W. Long.

(*3*) Delaware Bay: 38-52-27.4 N. Lat., 75-01-32.1 W. Long.

(*4*) Chesapeake Bay: 37-00-36.9 N. Lat., 75-57-50.5 W. Long.

(*5*) Morehead City, North Carolina: 34-41-32 N. Lat., 76-40-08.3 W. Long.

(*6*) Wilmington, North Carolina, through South Carolina, and to Brunswick, Georgia: within a continuous area 37 km (20 nm) from shore and west back to shore bounded by 34-10-30 N. Lat., 77-49-12 W. Long.; 33-56-42 N. Lat., 77-31-30 W. Long.; 33-36-30 N. Lat., 77-47-06 W. Long.; 33-28-24 N. Lat., 78-32-30 W. Long.; 32-59-06 N. Lat., 78-50-18 W. Long.; 31-50 N. Lat., 80-33-12 W. Long.; 31-27 N. Lat., 80-51-36 W. Long.

(B) Between November 1 and April 30, when transiting within the Mid-Atlantic Right Whale Mitigation Area, vessels shall exercise extreme caution and proceed at a slow safe speed. The speed shall be the slowest safe speed that is consistent with mission, training, and operations.

(iv) Planning Awareness Areas.

(A) The Navy shall avoid planning exercises involving the use of active sonar in the specified planning

awareness areas (PAAs—see Figure 11-1 in the Navy's LOA application) where feasible. Should national security require the conduct of more than five major exercises (C2X, JTFEX, SEASWITI, or similar scale event) in these areas (meaning all or a portion of the exercise) per year, the Navy shall provide NMFS with prior notification and include the information in any associated after-action or monitoring reports.

(4) *Stranding Response Plan.*

(i) The Navy shall abide by the current Stranding Response Plan for Major Navy Training Exercises in the Study Area, to include the following measures:

(A) Shutdown Procedures—When an Uncommon Stranding Event (USE—defined in § 218.71(b)(1)) occurs during a Major Training Exercise (MTE) in the AFTT Study Area, the Navy shall implement the procedures described below.

(*1*) The Navy shall implement a shutdown (as defined § 218.81(b)(2)) when advised by a NMFS Office of Protected Resources Headquarters Senior Official designated in the AFTT Study Area Stranding Communication Protocol that a USE involving live animals has been identified and that at least one live animal is located in the water. NMFS and the Navy will maintain a dialogue, as needed, regarding the identification of the USE and the potential need to implement shutdown procedures.

(*2*) Any shutdown in a given area shall remain in effect in that area until NMFS advises the Navy that the subject(s) of the USE at that area die or are euthanized, or that all live animals involved in the USE at that area have left the area (either of their own volition or herded).

(*3*) If the Navy finds an injured or dead animal floating at sea during an MTE, the Navy shall notify NMFS immediately or as soon as operational security considerations allow. The Navy shall provide NMFS with species or description of the animal(s), the condition of the animal(s), including carcass condition if the animal(s) is/are dead, location, time of first discovery, observed behavior (if alive), and photo or video (if available). Based on the information provided, NFMS will determine if, and advise the Navy whether a modified shutdown is appropriate on a case-by-case basis.

(*4*) In the event, following a USE, that qualified individuals are attempting to herd animals back out to the open ocean and animals are not willing to leave, or animals are seen repeatedly heading for the open ocean but turning back to shore, NMFS and the Navy shall coordinate (including an investigation of other potential anthropogenic stressors in the area) to determine if the proximity of mid-frequency active sonar training activities or explosive detonations, though farther than 14 nautical miles from the distressed animal(s), is likely contributing to the animals' refusal to return to the open water. If so, NMFS and the Navy will further coordinate to determine what measures are necessary to improve the probability that the animals will return to open water and implement those measures as appropriate.

(B) Within 72 hours of NMFS notifying the Navy of the presence of a USE, the Navy shall provide available information to NMFS (per the AFTT Study Area Communication Protocol) regarding the location, number and types of acoustic/explosive sources, direction and speed of units using mid-frequency active sonar, and marine mammal sightings information associated with training activities occurring within 80 nautical miles (148 km) and 72 hours prior to the USE event. Information not initially available regarding the 80-nautical miles (148-km), 72-hour period prior to the event will be provided as soon as it becomes available. The Navy will provide NMFS investigative teams with additional relevant unclassified information as requested, if available.

(ii) [Reserved]

(b) [Reserved]

§ 218.85 Requirements for monitoring and reporting.

(a) As outlined in the AFTT Study Area Stranding Communication Plan, the Holder of the Authorization must notify NMFS immediately (or as soon as clearance procedures allow) if the specified activity identified in § 218.80 is thought to have resulted in the mortality or injury of any marine mammals, or in any take of marine mammals not identified in § 218.81.

(b) The Holder of the LOA must conduct all monitoring and required reporting under the LOA, including abiding by the AFTT Monitoring Plan.

(c) General Notification of Injured or Dead Marine Mammals—Navy personnel shall ensure that NMFS (regional stranding coordinator) is notified immediately (or as soon as clearance procedures allow) if an injured or dead marine mammal is found during or shortly after, and in the vicinity of, an Navy training or testing activity utilizing mid- or high-frequency active sonar, or underwater explosive detonations. The Navy shall provide NMFS with species identification or description of the animal(s), the condition of the animal(s) (including carcass condition if the animal is dead), location, time of first discovery, observed behaviors (if alive), and photo or video (if available). The Navy shall consult the Stranding Response Plan to obtain more specific reporting requirements for specific circumstances.

(d) Annual AFTT Monitoring Plan Report—The Navy shall submit an annual report describing the implementation and results of the AFTT Monitoring Plan, described in this section. Data collection methods will be standardized across range complexes and study areas to allow for comparison in different geographic locations. Although additional information will be gathered, the protected species observers collecting marine mammal data pursuant to the AFTT Monitoring Plan shall, at a minimum, provide the same marine mammal observation data required in this section. The AFTT Monitoring Plan may be provided to NMFS within a larger report that includes the required Monitoring Plan reports from multiple range complexes and study areas.

(e) Annual AFTT Exercise Report—The Navy shall submit an annual AFTT Exercise Report. This report shall contain information identified in paragraphs (e)(1) through (5) of this section.

(1) MFAS/HFAS Major Training Exercises—This section shall contain the following information for Major Training Exercises conducted in the AFTT Study Area:

(i) Exercise Information (for each MTE):

(A) Exercise designator.

(B) Date that exercise began and ended.

(C) Location.

(D) Number and types of active sources used in the exercise.

(E) Number and types of passive acoustic sources used in exercise.

(F) Number and types of vessels, aircraft, etc., participating in exercise.

(G) Total hours of observation by watchstanders.

(H) Total hours of all active sonar source operation.

(I) Total hours of each active sonar source bin.

(J) Wave height (high, low, and average during exercise).

(ii) Individual marine mammal sighting info (for each sighting in each MTE).

(A) Location of sighting.

(B) Species (if not possible, indication of whale/dolphin/pinniped).

(C) Number of individuals.

(D) Calves observed (y/n).

(E) Initial Detection Sensor.
(F) Indication of specific type of platform observation made from (including, for example, what type of surface vessel, i.e., FFG, DDG, or CG).
(G) Length of time observers maintained visual contact with marine mammal.
(H) Wave height (in feet).
(I) Visibility.
(J) Sonar source in use (y/n).
(K) Indication of whether animal is <200 yd, 200 to 500 yd, 500 to 1,000 yd, 1,000 to 2,000 yd, or >2,000 yd from sonar source in paragraph (e)(1)(ii)(J) of this section.
(L) Mitigation Implementation—Whether operation of sonar sensor was delayed, or sonar was powered or shut down, and how long the delay was.
(M) If source in use (see paragraph (e)(1)(ii)(J) of this section) is hull-mounted, true bearing of animal from ship, true direction of ship's travel, and estimation of animal's motion relative to ship (opening, closing, parallel).
(N) Observed behavior—Watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animals (such as animal closing to bow ride, paralleling course/speed, floating on surface and not swimming, etc.).
(iii) An evaluation (based on data gathered during all of the MTEs) of the effectiveness of mitigation measures designed to avoid exposing animals to mid-frequency active sonar. This evaluation shall identify the specific observations that support any conclusions the Navy reaches about the effectiveness of the mitigation.
(2) ASW Summary—This section shall include the following information as summarized from both MTEs and non-major training exercises (i.e., unit-level exercises, such as TRACKEXs):
(i) Total annual hours of each sonar source bin.
(ii) Cumulative Impact Report—To the extent practicable, the Navy, in coordination with NMFS, shall develop and implement a method of annually reporting non-major training exercises utilizing hull-mounted sonar. The report shall present an annual (and seasonal, where practicable) depiction of non-major training exercises geographically across the AFTT Study Area. The Navy shall include (in the AFTT annual report) a brief annual progress update on the status of development until an agreed-upon (with NMFS) method has been developed and implemented.
(3) SINKEXs—This section shall include the following information for each SINKEX completed that year:
(i) Exercise information (gathered for each SINKEX):
(A) Location.
(B) Date and time exercise began and ended.
(C) Total hours of observation by watchstanders before, during, and after exercise.
(D) Total number and types of explosive source bins detonated.
(E) Number and types of passive acoustic sources used in exercise.
(F) Total hours of passive acoustic search time.
(G) Number and types of vessels, aircraft, etc., participating in exercise.
(H) Wave height in feet (high, low, and average during exercise).
(I) Narrative description of sensors and platforms utilized for marine mammal detection and timeline illustrating how marine mammal detection was conducted.
(ii) Individual marine mammal observation (by Navy lookouts) information (gathered for each marine mammal sighting):
(A) Location of sighting.
(B) Species (if not possible, indicate whale, dolphin, or pinniped).
(C) Number of individuals.
(D) Whether calves were observed.
(E) Initial detection sensor.
(F) Length of time observers maintained visual contact with marine mammal.
(G) Wave height.
(H) Visibility.
(I) Whether sighting was before, during, or after detonations/exercise, and how many minutes before or after.
(J) Distance of marine mammal from actual detonations (or target spot if not yet detonated).
(K) Observed behavior—Watchstanders will report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s) (such as animal closing to bow ride, paralleling course/speed, floating on surface and not swimming etc.), including speed and direction.
(L) Resulting mitigation implementation—Indicate whether explosive detonations were delayed, ceased, modified, or not modified due to marine mammal presence and for how long.
(M) If observation occurs while explosives are detonating in the water, indicate munition type in use at time of marine mammal detection.
(4) IEER Summary—This section shall include an annual summary of the following IEER information:
(i) Total number of IEER events conducted in the AFTT Study Area.
(ii) Total expended/detonated rounds (buoys).
(iii) Total number of self-scuttled IEER rounds.
(5) Explosives Summary—To the extent practicable, the Navy will provide the information described below for all of their explosive exercises. Until the Navy is able to report in full the information below, they will provide an annual update on the Navy's explosive tracking methods, including improvements from the previous year.
(i) Total annual number of each type of explosive exercises (of those identified as part of the "specified activity" in this subpart) conducted in the AFTT Study Area.
(ii) Total annual expended/detonated rounds (missiles, bombs, etc.) for each explosive source bin.
(f) Sonar Exercise Notification—The Navy shall submit to the NMFS Office of Protected Resources (specific contact information to be provided in LOA) either an electronic (preferably) or verbal report within fifteen calendar days after the completion of any major exercise (COMPTUEX, JTFEX, SEASWITI or similar scale event) indicating:
(1) Location of the exercise.
(2) Beginning and end dates of the exercise.
(3) Type of exercise (e.g., COMPTUEX, JTFEX, SEASWITI or similar scale event).
(g) AFTT Study Area 5-yr Comprehensive Report—The Navy shall submit to NMFS a draft report that analyzes and summarizes all of the multi-year marine mammal information gathered during ASW and explosive exercises for which annual reports are required (Annual AFTT Exercise Reports and AFTT Monitoring Plan reports). This report will be submitted at the end of the fourth year of the rule (November 2018), covering activities that have occurred through June 1, 2018.
(h) Comprehensive National ASW Report—By June 2019, the Navy shall submit a draft Comprehensive National Report that analyzes, compares, and summarizes the active sonar data gathered (through January 1, 2019) from the watchstanders in accordance with the Monitoring Plans for HSTT, AFTT, MITT, and NWTT.
(i) The Navy shall respond to NMFS' comments and requests for additional information or clarification on the AFTT Comprehensive Report, the draft National ASW report, the Annual AFTT Exercise Report, or the Annual AFTT Monitoring Plan report (or the multi-Range Complex Annual Monitoring Plan Report, if that is how the Navy chooses to submit the information) if submitted within 3 months of receipt. These

reports will be considered final after the Navy has addressed NMFS' comments or provided the requested information, or three months after the submittal of the draft if NMFS does not provide comment.

§ 218.86 Applications for Letters of Authorization.

To incidentally take marine mammals pursuant to the regulations in this subpart, the U.S. citizen (as defined by § 216.106 of this chapter) conducting the activity identified in § 218.80(c) (the U.S. Navy) must apply for and obtain either an initial LOA in accordance with § 218.87 or a renewal under § 218.88.

§ 218.87 Letters of Authorization.

(a) An LOA, unless suspended or revoked, will be valid for a period of time not to exceed the period of validity of this subpart.

(b) Each LOA will set forth:

(1) Permissible methods of incidental taking;

(2) Means of effecting the least practicable adverse impact on the species, its habitat, and on the availability of the species for subsistence uses (i.e., mitigation); and

(3) Requirements for mitigation, monitoring and reporting.

(c) Issuance and renewal of the LOA will be based on a determination that the total number of marine mammals taken by the activity as a whole will have no more than a negligible impact on the affected species or stock of marine mammal(s).

§ 218.88 Renewal of Letters of Authorization.

(a) A Letter of Authorization issued under § 216.106 of this chapter and § 218.87 for the activity identified in § 218.80(c) will be renewed based upon:

(1) Notification to NMFS that the activity described in the application submitted under this sectionwill be undertaken and that there will not be a substantial modification to the described work, mitigation, or monitoring undertaken during the upcoming period of validity;

(2) Timely receipt (by the dates indicated in this subpart) of the monitoring reports required under § 218.85(c) through (j); and

(3) A determination by the NMFS that the mitigation, monitoring, and reporting measures required under § 218.84 and the LOA issued under § 216.106 of this chapter and § 218.87, were undertaken and will be undertaken during the upcoming period of validity of a renewed Letter of Authorization.

(b) If a request for a renewal of an LOA issued under this § 216.106 of this chapter and § 218.87 indicates that a substantial modification, as determined by NMFS, to the described work, mitigation or monitoring undertaken during the upcoming season will occur, NMFS will provide the public a period of 30 days for review and comment on the request. Review and comment on renewals of LOAs are restricted to:

(1) New cited information and data indicating that the determinations made in this document are in need of reconsideration; and

(2) Proposed changes to the mitigation and monitoring requirements contained in these regulations or in the current LOA.

(c) A notice of issuance or denial of an LOA renewal will be published in the **Federal Register**.

(d) NMFS, in response to new information and in consultation with the Navy, may modify the mitigation or monitoring measures in subsequent LOAs if doing so creates a reasonable likelihood of more effectively accomplishing the goals of mitigation and monitoring. Below are some of the possible sources of new data that could contribute to the decision to modify the mitigation or monitoring measures:

(1) Results from the Navy's monitoring from the previous year (either from the AFTT Study Area or other locations).

(2) Compiled results of Navy-funded research and development (R&D) studies (presented pursuant to the ICMP (§ 218.85(d)).

(3) Results from specific stranding investigations (either from the AFTT Study Area or other locations, and involving coincident mid- or high-frequency active sonar or explosives training or not involving coincident use).

(4) Results from the Long Term Prospective Study.

(5) Results from general marine mammal and sound research (funded by the Navy (or otherwise).

§ 218.89 Modifications to Letters of Authorization.

(a) Except as provided in paragraph (b) of this section, no substantive modification (including withdrawal or suspension) to the LOA by NMFS, issued pursuant to § 216.106 of this chapter and § 218.87 and subject to the provisions of this subpart shall be made until after notification and an opportunity for public comment has been provided. For purposes of this paragraph, a renewal of an LOA under § 218.88, without modification (except for the period of validity), is not considered a substantive modification.

(b) If the Assistant Administrator determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in § 218.82(c), an LOA issued pursuant to § 216.106 of this chapter and § 218.87 may be substantively modified without prior notification and an opportunity for public comment. Notification will be published in the **Federal Register** within 30 days subsequent to the action.

[FR Doc. 2013–01817 Filed 1–25–13; 11:15 am]

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APPENDIX C

AGENCY CORRESPONDENCE

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There are no figures in this section.

APPENDIX C AGENCY CORRESPONDENCE

Appendix C contains the correspondence between the Navy and federal or state agencies with respect to cooperating agency status (Section C.1), Coastal Zone Management Act (Section C.2), Endangered Species Act (Section C.3), Magnuson-Stevens Fishery Conservation and Management Act (Section C.4), Marine Mammal Protection Act (Section C.5), the National Historic Preservation Act (Section C.6), and Executive Order (EO) 13175, *Consultation and Coordination with Indian Tribal Governments* (Section C.7).

C.1 COOPERATING AGENCY STATUS

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, DC 20350-2000

IN REPLY REFER TO

5090
Ser N456D/10U158199
21 July 2010

Mr. Eric C. Schwaab
Assistant Administrator
National Marine Fisheries Service
1315 East West Highway
Silver Spring, MD 20910

Dear Mr. Schwaab: Eric

In accordance with the National Environmental Policy Act (NEPA), the Department of the Navy (Navy) is initiating the preparation of an Environmental Impact Statement (EIS)/Overseas EIS (OEIS) to evaluate the potential environmental effects associated with military readiness training and research, development, testing, and evaluation (RDT&E) activities conducted within the Atlantic Fleet Training and Testing (AFTT) study area. The AFTT study area includes the Western North Atlantic Ocean along the East Coast of North America, the Chesapeake Bay, and the Gulf of Mexico (including the area where the Undersea Warfare Training Range will be operated). Also included are select Navy pier-side locations and channels. The AFTT study area does not include the Arctic.

The AFTT EIS/OEIS will consolidate five previous EIS/OEISs that cover most of the AFTT study area into a single EIS/OEIS analyses: the Atlantic Fleet Active Sonar Training (AFAST), the Virginia Capes (VACAPES) Range Complex, the Navy Cherry Point Range Complex, the Jacksonville Range Complex and the Naval Surface Warfare Center Panama City Range Complex. In addition, Navy is currently finalizing the Gulf of Mexico (GOMEX) Range Complex EIS/OEIS that is expected to be complete in late 2010.

An important aspect of the AFTT EIS/OEIS will be the anaylsis of the acoustic effects to marine species protected under the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). The AFTT EIS/OEIS is also intended to serve as a basis for the renewal of current regulatory permits and authorizations, the earliest expiring in January 2014; address current training and testing not covered under the existing permits and authorizations; and obtain those permits and authorizations necessary to support force structure changes and emerging and future training and testing requirements.

To complete the analysis required by the permitting and consultation processes, the Navy and the National Marine Fisheries Services (NMFS) will need to work together. Therefore, in accordance with the Council on Environmental Quality's (CEQ) NEPA guidelines

(specifically, 40 CFR Part 1501) and CEQ's 2002 guidance on cooperating agencies, Navy requests NMFS serve as a cooperating agency for the development of the AFTT EIS/OEIS.

As the lead agency, the Navy will be responsible for overseeing preparation of the EIS/OEIS that will include, but not be limited to, the following:

- Gathering all necessary background information and preparing all necessary permit applications associated with the proposed action.
- Working with NMFS personnel to determine the method of estimating potential effects to protected marine species, including threatened and endangered species.
- Determining the scope of the EIS/OEIS, including the alternatives evaluated.
- Circulating the appropriate NEPA documentation to the general public and any other interested parties.
- Scheduling and supervising meetings held in support of the NEPA process and compiling any comments received.
- Maintaining an administrative record and responding to any Freedom of Information Act requests relating to the EIS/OEIS.

Navy respectfully requests that NMFS, in its role as a cooperating agency, provide support as follows:

- Providing timely comments after the Agency Information Meeting (which will be held at the onset of the EIS/OEIS process) and on working drafts of the EIS/OEIS documents. The Navy requests that comments on draft EIS/OEIS documents (Version 2) be provided within 30 working days.
- Responding to Navy requests for information, in particular related to review of the acoustic effects analysis and evaluation of the effectiveness of protection and mitigation measures.
- Coordinating, to the maximum extent practicable, any public comment periods required in the MMPA permitting process with the Navy's NEPA public comment periods.
- Participating, as necessary, in meetings hosted by the Navy for discussion of issues related to the EIS/OEIS, including public hearings/meetings.

2

- Adhering to the overall schedule as set forth by the Navy.
- Providing a formal, written response to this request.

The Navy views this agreement as important to the successful completion of the environmental planning process for the AFTT EIS/OEIS. NMFS assistance will be invaluable in this endeavor.

The point of contact for this action is Ms. Dawn Schroeder, (703) 602-4769, email: Dawn.Schroeder@navy.mil.

John Quinn

JOHN P. QUINN
Deputy Director, Energy and Environmental Readiness Division (OPNAV N45)

Copy to:
ASN (EI&E)
DASN (E)
OAGC (EI&E)
Commander, U.S. Fleet Forces Command (N73, N77)
Commander, U.S. Pacific Fleet (N01CE, N7)
Commander, Navy Installations Command (N45)
Commander, Navy Region Southeast (N45)
Commander, Navy Region MIDLANT (N45)

Eric – Thanks in advance for your help as we cooperate to achieve both our missions.

John

3

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910
THE DIRECTOR

Mr. John P. Quinn
Deputy Director, Energy and
Environmental Readiness Division
Department of the Navy
2000 Navy Pentagon
Washington, DC 20350-2000

AUG 27 2010

Dear Mr. Quinn: John

Thank you for your letter requesting that NOAA's National Marine Fisheries Service (NMFS) participate as a cooperating agency in the preparation of an Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to evaluate potential environmental effects of military readiness training and research, development, testing, and evaluation (RDT&E) activities conducted within the Atlantic Fleet Training and Testing (AFTT) study area. We support the Navy's decision to prepare an EIS/OEIS on these activities and agree to be a cooperating agency, due, in part, to our responsibilities under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA) and section 7 of the Endangered Species Act.

In response to your letter, NMFS staff will, to the extent possible,

- Provide timely review and comments, within 30 working days, after the Agency Information Meeting and on working drafts of the EIS/OEIS documents;
- Respond to Navy requests for information, in particular those related to the acoustic effects analysis and the evaluation of the effectiveness of protection and mitigation measures, in a timely manner;
- Coordinate, when logistically feasible, any public comment periods required by the MMPA with the Navy's NEPA public comment periods;
- Participate in meetings, as necessary, hosted by the Navy to discuss issues related to the EIS/OEIS, including public hearings on the draft EIS/OEIS, and;
- Adhere to the overall schedule as agreed upon by NMFS and the Navy.

If you need any additional information, please contact Ms. Jolie Harrison, NMFS Office of Protected Resources, at (301) 713-2289.

Sincerely,

Eric C. Schwaab

THE ASSISTANT ADMINISTRATOR
FOR FISHERIES

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C.2 COASTAL ZONE MANAGEMENT ACT

Under the CZMA, states/territories have 60 days to respond to federal consistency reviews or their concurrence is assumed. Consistency determinations were submitted to 18 states and 2 territories adjacent to the Study Area. Letters indicating concurrence were received from 16 states/territories as of 14 March 2013. Concurrence was assumed for the four remaining states/territories (Rhode Island, South Carolina, Texas, and the U.S. Virgin Islands).

C.2.1 ALABAMA

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1079
December 12, 2012

Mr. Scott Brown, Program Chief
Coastal Programs Office
Department of Environmental Management
4171 Commanders Drive
Mobile, AL 36615

Dear Mr. Brown:

In accordance with the Coastal Zone Management Act (16 United States Code §1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed Alabama's Coastal Area Management Program for preparing this consistency determination. Based on the analyses, the Navy has determined that the Proposed Action in the Study Area will be fully consistent with Alabama's Coastal Area Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

LANCE R. LEFLEUR
DIRECTOR

ROBERT J. BENTLEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov
1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

February 13, 2013

J.W. MURPHY, DEPUTY CHIEF OF STAFF
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK VA 23551-2487

RE: State of Alabama Coastal Consistency Determination
Atlantic Fleet Training and Testing
ADEM Tracking Number: 2013-071-NAVY

Dear Mr. Murphy:

Reference is made to the December 12, 2012, request for the State of Alabama's coastal consistency determination regarding the referenced proposal. A coastal consistency determination was requested pursuant to 15 CFR § 930, et seq. and Section 307 of the Coastal Zone Management Act of 1972, as amended.

Based upon review of the information submitted with the request for a coastal zone management consistency determination, the activity should not result in significant negative impacts to Alabama's coastal resources pursuant to ADEM Administrative Code Rule 335-8-2-.01 (2(b&c)). Furthermore, the proposal appears to be in the national interest and as such would be considered a use of regional benefit under the administrative code. Therefore, the ADEM concurs with the Department of the Navy's statement of coastal consistency.

If you have any questions, please contact Allen Phelps of the ADEM Coastal/Facility Section office in Mobile at 251/432-6533.

Sincerely,

Steven O. Jenkins, Chief
Field Operations Division

SOJ/cap File: CZCERT/

e-copy: Chris Denson, ADCNR-MRD
Richard J. Nissen, Navy

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S. W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
4171 Commanders Drive
Mobile, AL 36615-1421
(251) 432-6533
(251) 432-6598 (FAX)

C.2.2 CONNECTICUT

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1080
December 12, 2012

Mr. David Blatt
Office of Long Island Sound Programs
Department of Environmental Protection
79 Elm Street, 3rd Floor
Hartford, CT 06106-5127

Dear Mr. Blatt:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed Connecticut's Coastal Management Program and analyzed potential impacts to coastal zone uses and resources in preparing this consistency determination. Based on the analyses, the Navy will be fully consistent with Connecticut's Coastal Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

Connecticut Department of ENERGY & ENVIRONMENTAL PROTECTION

February 26, 2013

Richard J. Nissen
Department of the Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue Suite 250
Norfolk, VA 23551-2487

RE: Federal Consistency Determination for Proposed Activities in the Atlantic Fleet Training and Testing Study Area for Connecticut

Dear Mr.Nissen:

This Office has reviewed your request for federal consistency concurrence to conduct training and testing activities in Connecticut as shown in materials received by this Office on December 18, 2012 pursuant to section 307(c)(1) of the Coastal Zone Management Act of 1972, as amended, and Subpart C of 15 Code of Federal Regulations (CFR), Part 930. Based on a review of the proposed activities as described in the above-referenced plans and the application received by this Office, we concur with your determination that the activities as proposed are consistent with Connecticut's federally approved Coastal Management Program and will be conducted in a manner consistent with that program.

Please be advised that any subsequent modifications to the proposed activity, regardless of their magnitude or impact, constitute a new application for the purposes of federal consistency certification. Accordingly, all such modifications must be submitted to this Office for a coastal consistency concurrence pursuant to 15 CFR 930.50.

Thank you for providing a consistency determination and supporting information for our review. Should you have any questions regarding this consistency determination or any other coastal management matter, please contact Kristal Kallenberg in the Office of Long Island Sound Programs at (860) 424-3760 or Kristal.Kallenberg@ct.gov.

Yours truly,

Betsey C. Wingfield, Chief
Bureau of Water Protection and Land Reuse

BCW/kk

cc: J.W. Murphy, Deputy Chief of Staff for Fleet Installations, Dept. of the Navy

79 Elm Street • Hartford, CT 06106-5127
www.ct.gov/deep
Affirmative Action/Equal Opportunity Employer

C.2.3 DELAWARE

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1081
December 12, 2012

Ms. Sarah Cooksey
Delaware Coastal Programs
5 East Reed Street
Dover, DE 19901
Phone: (302) 739-9283 / Fax: (302) 739-2048

Dear Ms. Cooksey:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456 (c)) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area. The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed Delaware's Coastal Management Program and analyzed potential impacts to coastal zone uses and resources in preparing this consistency determination. Based on the analyses, the Navy will be consistent to the maximum extent practicable with Delaware's Coastal Management Program. The Navy is unable to be fully consistent with the program, because doing so would limit the Navy's ability to fulfill its mission as mandated by federal law (Title 10 U.S.C. § 5062), which charges the Chief of Naval Operations with the responsibility for ensuring the readiness of the nation's naval forces.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL

DELAWARE COASTAL MANAGEMENT PROGRAM

89 KINGS HIGHWAY
DOVER, DELAWARE 19901

Phone: (302) 739- 9283
Fax: (302) 739-2048

February 8, 2013

J.W. Murphy
Department of the Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue Suite 250
Norfolk, VA 23551-2487

Re: United States Navy's Atlantic Fleet Training and Testing DEIS/Overseas EIS
Delaware Coastal Management Federal Consistency Certification (FC# 2013.0033)

Dear Mr. Murphy,

The Delaware Coastal Management Program (DCMP) received your consistency determination for the Draft Environmental Impact Statement (EIS) and Overseas Environmental Impact Statement for Navy Atlantic Fleet Training and Testing on December 14, 2012. The Draft EIS identified the area as seaward of the mean high tide line east to the 45 degree west longitude line, covering approximately 2.6 million square nautical miles. Based upon our review and pursuant to National Oceanic & Atmospheric Administration regulations (15 CFR 930), the DCMP concurs with your consistency certification for the above referenced project.

While the DCMP concurs with this determination, please be advised of the following comments pertaining to the air quality analysis provided in the DEIS and we ask that Final EIS address these concerns:

- The emissions estimates for the criteria pollutants are summarized by the testing range complexes, and it is not clear what portions of the Virginia Capes and Northeast Range Complex emissions are attributable to Delaware. We suspect that the emissions estimates provided in these reports account for the operations in the entire testing range complexes. If so, it is not clear how to assign emissions to the outer continental shelf within Delaware's borders. Emissions inventories maintained by the Delaware Department of Natural Resources and Environmental Control include emissions from sources within 25 miles of state waters; so these emissions would represent an increase in the state emissions inventory. As the emissions estimates for the proposed operations attributable to Delaware are not provided, it is unknown if these emissions will be subjected to the Prevention of Significant Deterioration (PSD) thresholds.

- No air quality modeling was conducted to assess whether the emissions would have significant impact on Delaware's air quality. However, the documents state that the natural mixing would substantially disperse the pollutants before they reach the shore and the distances travelled are large, and therefore, the impacts are insignificant. The proposed operations could produce emissions as close as 3 nautical miles of the shore. The conclusions of no impact should be supported by atmospheric modeling results not general assumptions.

- Hazardous Air Pollutant (HAP) emissions resulting from the proposed operations are not estimated. The documents state that there will be no health effects from the resulting HAP emissions; the HAPs emitted are minute; the emissions are released in a remote area, and HAPs would be diluted through mixing. These conclusions should be based on some numeric analysis which we could not find in the available documents.

If you have any questions, please contact me or Tricia Arndt of my staff at (302) 739-9283.

Sincerely,

Sarah W. Cooksey, Administrator

SWC/tka

cc: Collin P. O'Mara, DNREC
File: 2013.0033

C.2.4 FLORIDA

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1077
December 12, 2012

Ms. Kelly Samek
Florida Coastal Management Program
Department of Environmental Protection
3900 Commonwealth Boulevard
Douglas Building, Mail Station 47
Tallahassee, FL 32399-3000

Dear Ms. Samek:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy has prepared a Draft Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy has reviewed Florida's Coastal Management Program for preparing this consistency determination. Based on the analyses, the Navy has determined that the Proposed Action in the Study Area will be consistent to the maximum extent practicable with Florida's Coastal Management Program. The Navy cannot be fully consistent with the program because doing so would limit the Navy's ability to fulfill its mission as mandated by federal law (Title 10 U.S.C. § 5062), which charges the Chief of Naval Operations with the responsibility for ensuring the readiness of the nation's naval forces.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
MARJORY STONEMAN DOUGLAS BUILDING
3900 COMMONWEALTH BOULEVARD
TALLAHASSEE, FLORIDA 32399-3000

RICK SCOTT
GOVERNOR

JENNIFER CARROLL
LT. GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

February 22, 2013

Mr. Richard Jene Nissen
U.S. Fleet Forces Command
Department of the Navy
1562 Mitscher Avenue, Suite 250
Norfolk, VA 23551-2487

RE: U.S. Department of the Navy – Consistency Determination – Draft Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) for Navy Atlantic Fleet Training and Testing in the North Atlantic Ocean and Gulf of Mexico. SAI # FL201212216455C (Reference Prior SAI # FL201205166230)

Dear Mr. Nissen:

The Florida State Clearinghouse has coordinated a review of the Department of the Navy's Consistency Determination for the Atlantic Fleet Training and Testing (AFTT) project under the following authorities: Presidential Executive Order 12372; § 403.061(42), *Florida Statutes*; the Coastal Zone Management Act (CZMA), 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The Florida Department of Environmental Protection's (DEP) Outer Continental Shelf Program staff recommends the following as the Navy proceeds with development of the final EIS/OEIS and implementation of activities described therein:

- Site-specific information collected and analyzed in the *JAX OPAREA USWTR Bottom Mapping and Habitat Characterization, Jacksonville, Florida – Final Cruise Report* (December 31, 2010) should be used in habitat descriptions in the final EIS/OEIS.
- In July 2009, the State of Florida conditionally concurred with the Navy's determination that the planning, design and construction phase of the Navy's Undersea Warfare Training Range (USWTR) project – located offshore Jacksonville, Florida – was consistent with the Florida Coastal Management Program. The state's concurrence was conditioned upon the Navy conducting a benthic habitat study of the area to determine the location and types of sensitive resources and working with the state to determine the areas that should be avoided during planning, designing and constructing the sonar grid for USWTR. The DEP appreciates the Navy's efforts to date to comply with the state's conditions by having a benthic habitat survey conducted and results reported in the *JAX OPAREA USWTR Bottom Mapping and Habitat Characterization, Jacksonville, Florida – Final Cruise Report* (December 31, 2010).

- The state would appreciate the opportunity to review the video and still photography collected during the study, and the opportunity to work cooperatively with the Navy to determine the best location for cable routes and sonar nodes in relation to benthic resources.
- The DEP continues to recommend that all bottom-disturbing activities avoid the North Florida Marine Protected Area offshore Jacksonville and all hard/live-bottom habitats.
- The DEP Beaches, Mining and Environmental Resource Permit Support Program requests that sand borrow areas be avoided during exercises involving expendable munitions testing and training. The DEP offers its assistance to the Navy in identifying sand borrow areas, as plans are developed.

For additional information and assistance, please contact Ms. Debby Tucker at (850) 245-2181 or Debby.Tucker@dep.state.fl.us.

Florida Fish and Wildlife Conservation Commission (FWC) notes that the Navy recognizes the "growing issues of ship strikes on marine mammals, including right whales," and the FWC reiterates the importance of the project area's proximity to habitat vital to right whale calving. Although the indefinite timeframe and potential cumulative impacts of the proposed activities may affect right whale habitat quality and increase the risk of watercraft-related injury or mortality, the draft EIS/OEIS also references the early warning system (EWS) aerial surveys, which are critically important for right whale ship-strike mitigation. The FWC commends the Navy's support of the EWS surveys and recognizes the role that the Fleet Area Control and Surveillance Facility in Jacksonville plays in the dissemination of right whale sightings. The FWC notes the possibility that more frequent and extensive airspace restrictions could further limit the mitigation effectiveness of EWS surveys. Therefore, the FWC continues to recommend that the Navy work closely with the National Marine Fisheries Service to develop adaptive management approaches to support effective mitigation for marine mammals.

The FWC finds the draft EIS/OEIS consistent with its authorities under Florida's Coastal Zone Management Program. As additional project information becomes available, the FWC may have additional comments regarding appropriate conservation measures. Please refer to the enclosed FWC letters and contact Ms. Mary Duncan at Mary.Duncan@MyFWC.com or (850) 922-4330 for further information.

Based on the information contained in the AFTT Consistency Determination, the draft EIS/OEIS and the comments provided by our reviewing agencies, the state has determined that the proposed activities are consistent to the maximum extent practicable with the enforceable policies of the Florida Coastal Management Program (FCMP). Pursuant to 15 C.F.R. 930.45(a), federal and state agencies will cooperate on monitoring the approved activities to ensure the Navy continues to undertake them in a manner consistent with the FCMP to the maximum extent practicable. The state's continued concurrence will be based on the activities' continued compliance with FCMP authorities, as well as the adequate resolution of issues identified during this and any subsequent reviews.

Thank you for the opportunity to review the proposed project. Should you have any questions regarding this letter, please contact Ms. Lauren P. Milligan at Lauren.Milligan@dep.state.fl.us or (850) 245-2170.

Yours sincerely,

Sally B. Mann

Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/lm
Enclosure

cc: Debby Tucker, DEP, OIP
Roxane Dow, DEP, BMESP
Scott Sanders, FWC
Lesley Dobbins, Department of the Navy

C.2.5 GEORGIA

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1082
December 12, 2012

Ms. Kelie Moore
Coastal Zone Management Program
Department of Natural Resources
One Conservation Way, Suite 300
Brunswick, GA 31520-8687

Dear Ms. Moore:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area. The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess potential environmental impacts in the Study Area (Study Area). The proposed activities evaluated in the Draft EIS/OEIS are associated with Navy training and testing activities and associated range capabilities enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed Georgia's Coastal Management Program for preparing this consistency determination. Based on the analyses, the Navy determined that the Proposed Action in the Study Area will be consistent to the maximum extent practicable with the Georgia Coastal Management Program. The Navy is unable to be fully consistent with the program, because doing so would limit the Navy's ability to fulfill its mission as mandated by federal law (Title 10 U.S.C. § 5062), which charges the Chief of Naval Operations with the responsibility for ensuring the readiness of the nation's naval forces.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/029
February 08, 2013

Mr. A. G. Woodward
Director
Coastal Resources Division
Department of Natural Resources
One Conservation Way
Brunswick, GA 31520-8687

Dear Mr. Woodward:

The United States Navy (Navy) is in receipt of your letter, dated January 2, 2013, requesting additional information on the Navy's Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing (AFTT) Study Area. The proposed activities and their potential environmental impacts are analyzed in the Navy's AFTT Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS), which was provided to your office along with our consistency determination letter.

Your letter of January 2, 2013 requested information on five issues: North Atlantic right whale (NARW) abundance and distribution; active sonar; ordnance detonation; vessel strikes; and the Undersea Warfare Training Range (USWTR). You will find each of these areas addressed in the documentation provided with the Navy letter of December 12, 2012. This information has also been highlighted in the attachment to this letter. In addition, we have provided links to the National Marine Fisheries Service (NMFS) Office of Protected Resources website, which is the repository for Navy monitoring reports, as well as the Navy's monitoring website. The Navy believes this information will allow you to make an informed decision.

Your letter also references Georgia Coastal Management Plan enforceable policy (Official Code of Georgia Annotated 27-3-130) regarding the protection of marine wildlife and their habitat. As we have discussed in previous correspondence with your agency, such policies are preempted by the Marine Mammal Protection Act (MMPA) insofar as these policies relate to the taking of marine mammals and are not explicitly authorized under Section 6 of the Endangered Species Act. Georgia Department of Natural Resources (GaDNR) has an opportunity to submit comments to NMFS as part of the AFTT MMPA rulemaking process. NMFS published the AFTT Proposed Rule in the Federal Register on January 31, 2013, and the public comment period runs through March 11, 2013.

5090
Ser N46/029
February 08, 2013

Finally, your January 2, 2013 letter indicated that additional information must be provided to GaDNR before the 60-day review will begin. All information required by 15 CFR §930.39(a) was submitted with the Navy's consistency determination. Moreover, your letter of January 2, 2013 did not meet the 14-day notification period. Therefore, the 60-day review period began on December 17, 2012, the date the GaDNR received the consistency determination and accompanying information. However, as described in §930.41(b), an extension of the review period may be requested.

We appreciate your assistance in this federal consistency process. If you have any further questions, please contact Mr. Jene Nissen at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosure: Information for the United States Navy's Federal Consistency Determination for Proposed Activities in the Atlantic Fleet Training and Testing Study Area

2

INFORMATION FOR THE UNITED STATES NAVY'S FEDERAL CONSISTENCY DETERMINATION FOR PROPOSED ACTIVITIES IN THE ATLANTIC FLEET TRAINING AND TESTING STUDY AREA

The United States Navy (Navy) submitted a coastal consistency determination for activities analyzed in the Atlantic Fleet Training and Testing (AFTT) Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS) to the Georgia Coastal Management Program by letter dated December 12, 2012. This document highlights information already provided to the Georgia Department of Natural Resources (GaDNR) regarding North Atlantic right whale (NARW) abundance and distribution, active sonar, ordnance detonation, vessel strikes, and the Undersea Warfare Training Range (USWTR). Each of these issues is addressed below.

1) NARW Abundance and Distribution - Sections 3.0.2.2.2.1 and 3.0.2.2.2.2 of the AFTT DEIS/OEIS discuss the ongoing monitoring efforts and the annual reports, which are submitted to the National Marine Fisheries Service (NMFS) per the Atlantic Fleet Active Sonar Training (AFAST) EIS/OEIS and Jacksonville EIS/OEIS Final Rules and Letters of Authorization. These reports are also posted to the NMFS Office of Protected Resources web site at http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications. The reports have been and will continue to be made available to the public. Information on NARW surveys can also be found in Section 3.4.2.5.3 of the AFTT DEIS/OEIS. Additionally, we have launched a web site for Navy monitoring efforts, including the monitoring reports at http://www.navymarinespeciesmonitoring.us/. As detailed in the reports, there have been no sightings of NARW in the USWTR area.

   The mitigation measures for NARW have been developed in cooperation with NMFS. In compliance with the Endangered Species Act and Marine Mammal Protection Act, all activities conducted by the Navy in NARW critical habitat have been coordinated with NMFS and are addressed in the proposed Final Rule published by NMFS on January 31, 2013.

2) Active Sonar - The level of active sonar occurring in the NARW critical habitat from 15 November to 15 April is provided in Section 5.3.3.1.1.1 of the AFTT DEIS/OEIS. In summary, active sonar in the mitigation area (designated critical habitat plus a 5 nm buffer) is proposed only for navigation training and helicopter dipping sonar testing or maintenance. This is consistent with our current permits issued by NMFS, which have been in place since January 2009. The intensive acoustic modeling effort and analysis of the findings undertaken for the AFTT DEIS/OEIS satisfies the federal regulatory requirements under the Marine Mammal Protection Act permit program and the Coastal Zone Management Act.

   The extent to which active sonar propagates into critical habitat has been studied and the effects analyzed through modeling. The acoustic propagation models are based on the best available science. The models have been validated for worldwide use and there is nothing specific to the waters off the coasts of Georgia or Florida that would alter the modeling results for acoustic propagation. Information regarding the models used by the Navy was provided to GaDNR in August 2009. Further empirical testing to demonstrate what has already been conducted, modeled and analyzed in varying water conditions is unnecessary.

   Tables 3.4-10, 3.4-11, and 3.4-12 of the AFTT DEIS/OEIS address the maximum sound levels of sonar adjacent to the critical habitat. These tables show the range to permanent threshold shift is less than 80 meters for hull mounted sonar systems (the highest source level) and less than 6300 meters for temporary threshold shift. Mitigations currently in place are designed to

Enclosure

INFORMATION FOR THE UNITED STATES NAVY'S FEDERAL CONSISTENCY DETERMINATION FOR PROPOSED ACTIVITIES IN THE ATLANTIC FLEET TRAINING AND TESTING STUDY AREA

prevent permanent threshold shift exposures. The proposed mitigations are the same as the approved mitigations we currently operate under as described in the AFAST EIS/OEIS and associated NMFS permits. The remaining exposures are temporary level B exposures. These conclusions are fully consistent with the AFAST EIS/OEIS analysis.

There is no evidence that sonar increases ambient noise levels. Sonar is not a continuous sound over extended periods of time; it is intermittent with events lasting on the order of hours. The energy from sonar attenuates to below ambient levels relatively quickly. Ambient noise levels are affected by low frequency sounds (on the order of <300 Hz) that are persistent over days and weeks. These types of sources are not part of the proposed action.

The information on current and forecast levels can be obtained through Section 2.8, Tables 2.8-1, 2.8-1, 2.8-3 and Table 3.0-9 in the AFTT DEIS/OEIS.

3) Ordnance Detonation - As stated in Section 5.3.3.1.1.1 of the AFTT DEIS/OEIS, explosive detonation is not proposed to occur in the NARW critical habitat from 15 November - 15 April. The Navy is consulting with NMFS regarding ordnance detonations outside the critical habitat.

4) Vessel Strikes - Section 3.0.5.3.3.1 of the AFTT DEIS/OEIS analyzes ship traffic and Section 3.4.3.3 of the AFTT DEIS/OEIS has a complete analysis regarding ship strikes. The proposed action does not include an increase in vessel traffic of 190%. At the end of Section 3.4.3.3, it clearly states that while the number of events may increase, the number of ships and/or transits does not. The Navy's ship inventory and fuel budget are static and are not expected to increase during the duration of the proposed action.

5) USWTR - The USWTR EIS/OEIS is a supporting document to the AFTT DEIS/OEIS. The level and types of activities identified in the USWTR EIS/OEIS were reanalyzed in the AFTT DEIS/OEIS at the same levels. As stated in the USWTR EIS/OEIS, the AFTT DEIS/OEIS, and as discussed above, the level of ship traffic is not expected to change through 2019. A specific number of transits cannot be identified in advance as training and testing schedules are predicated on deployment requirements, which are predicated on the geo-political climate. Additionally, specific ship schedules are classified, therefore the DEIS/OEIS explains to the reader that while the number of training events may be increasing, the amount of ship traffic does not, meaning that the activity level will not appreciably change from current levels.

   Information on sound propagation into the critical habitat from activities occurring on USWTR can be found in Table 3.4-12 of the AFTT DEIS/OEIS. This table shows the maximum range hull-mounted sonar (highest source level) can propagate. From this, the maximum (and low probability) sound level that could reach the critical habitat is less than a dolphin whistle, and far less than a pleasure craft. Activities occurring on USWTR will not result in sound effects to the GA coastal zone or coastal resources. Ambient sound is addressed above.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

A.G. 'SPUD' WOODWARD
DIRECTOR

March 11, 2013

J.W. Murphy, Deputy Chief of Staff
Navy Fleet Installations and Environmental Readiness
U.S. Fleet Forces Command
1562 Mitscher Avenue, Ste. 250
Norfolk, Virginia 23551-2487

RE: **Conditional** Federal Consistency Determination Concurrence: AFTT Study Area Activities DEIS/DOES

Dear Mr. Murphy:

Staff of Georgia's Coastal Management Program (GCMP) and Georgia Department of Natural Resources' Wildlife Resources Division (GaDNR/WRD) has reviewed the supplemental information requested in our February 11, 2013 letter regarding monitoring and progress reports. Our primary concerns have been and continue to be 1) the accuracy with which the Navy is able to predict interactions with North Atlantic right whales (NARW) resulting from operation of the Undersea Warfare Training Range (USWTR) portion of the Atlantic Fleet Testing and Training (AFTT) proposal and 2) the effectiveness of proposed AFTT vessel mitigation measures to reduce risk of NARW vessel collisions.

Our confidence level that operation of the USWTR will be conducted in a manner that minimizes or eliminates NARW impacts remains low due to close proximity of the USWTR to the NARW calving habitat and uncertainty surrounding 1) sonar propagation distance, 2) NARW abundance in the USWTR area and 3) levels of vessel, active sonar and ordnance detonation activities that will occur during the NARW calving season (November 15-April 15). Georgia's July 20, 2009 Phased Consistency Determination specifically **objected** to USWTR operation until these three issues were better defined.

Regarding sonar propagation distance, the GCMP previously requested that the Navy conduct an in-situ sonar validation study to assess the accuracy of the Navy's Acoustic Effects Model and projected take estimates. This request was denied. As a result, the extent to which active sonar noise may propagate from the USWTR and into the adjacent NARW calving habitat will not be determinable until after the USWTR becomes operational. Likewise, the distribution and abundance of NARW in the USWTR area remains uncertain because 1) a Navy-funded passive acoustic monitoring study has not been completed and 2) Navy-funded aerial and vessel surveys have been conducted at an insufficient level of effort during the NARW calving season to assess NARW presence or absence. Lastly, the Navy has failed to quantify levels of vessel, active sonar and ordnance detonation activities that will occur in the USWTR during the NARW calving season, and how these levels differ from the status quo. As such, we are unable to evaluate the extent to which the USWTR will concentrate training and testing activities in close proximity to the NARW calving habitat.

Our confidence level that proposed AFTT vessel mitigation measures will eliminate the potential of NARW vessel collisions remains low because 1) mitigation measures rely primarily on visual detection methods, rather than speed reduction and 2) the NARW calving Mitigation Area does not adequately encompass the area inhabited by NARW. Visual detection methods, while prudent, cannot be relied

ONE CONSERVATION WAY | BRUNSWICK, GEORGIA 31520-8686
912.264.7218 | FAX 912.262.3143 | WWW.COASTALGADNR.ORG

upon to reliably detect NARW. NARW are often below the surface of the water and undetectable by visual means. The probability of detecting NARW is further reduced in rough seas, inclement weather and at night. A combination of visual detection and vessel speed reductions would be a more effective way to mitigate vessel strike risk. Studies indicate that probability of whale mortality and serious injury are reduced at vessel speeds of 10 knots or less (Laist et al. 2001, Pace and Silber 2007, Vanderlaan and Taggart 2007). The Navy has stated that vessels will reduce their speed while operating in the calving habitat Mitigation Area, but the actual speed that vessels will travel is unclear. The proposed calving habitat Mitigation Area, which includes waters within 15 nmi of shore between Kings Bay, GA and Mayport, FL, plus a 5 nmi buffer, does not adequately encompass the area actually utilized by NARW during the calving season. NARW inhabit all Southeast U.S. waters within 30 nmi of the South Carolina, Georgia and northeast Florida coast during November 15 to April 15.

The proposed action has incorporated adaptive management, as directed by Executive Order 13547, in only the most general sense. We recommend that the Navy develop a concrete Adaptive Management Plan outlining USWTR-specific monitoring needs, specific trigger levels, and alternate mitigation actions. Such a plan will position the Navy to respond rapidly in the event that direct or cumulative environmental effects are observed that are greater or different than predicted. This approach would increase our confidence that the proposed action can be conducted in a manner that will minimize reasonably foreseeable impacts to Georgia's coastal resources.

Appropriate Adaptive Management Plan elements include:

- USWTR-Specific Monitoring Needs:
  - Passive acoustic monitoring of the USWTR, NARW calving habitat and intervening ocean waters should be conducted to assess ambient and operational noise levels. Monitoring should commence at least one year prior to USWTR operation and continue for at least five years post-operation. Monitoring should be conducted in cooperation with the National Marine Fisheries Services (NMFS) and independent researchers with expertise in acoustics and marine mammal biology. Calibrated acoustic monitoring devices should be deployed at sufficient spatial and temporal resolution to assess whether training and testing activities in the USWTR are increasing ambient noise levels within the NARW calving habitat. Monitoring should continue beyond five years if 1) vessel activities, active sonar and/or ordnance detonation levels increase beyond predicted levels or 2) effects on NARW calving habitat are exceed predicted levels
  - Annual activity reports should be provided that quantify vessel activity, active sonar and ordnance detonation levels from November 15 to April 15 within 1) the USWTR area, 2) NARW critical habitat offshore of a) Georgia and b) northeast Florida, and 3) ocean waters within 30 nmi of the a) Georgia and b) northeast Florida coast.
- Specific Trigger Levels and Alternate Mitigation Actions:
  - In the event that NMFS expands NARW Critical Habitat, AFTT NARW Mitigation Area boundaries will be redrawn to reflect expanded NARW Critical Habitat, plus 5 mile buffers.
  - In the event that a NARW is killed or seriously injured by a Navy vessel 60 ft or greater in length operating within 30 nmi of the Southeast U.S. coast, the Navy will implement 10 kt vessel speed restrictions in this area from November 15 to April 15.
  - In the event that a NARW is killed or severely injured in the USWTR area by a vessel strike, active sonar or ordnance detonation, USWTR training and testing activities will cease during November 15 to April 15 pending re-initiation of an ESA Section 7 consultation with NMFS.
- Trigger Levels and Alternate Mitigation Actions to be Developed:
  - The Navy will coordinate with the NMFS Ocean Acoustics Program to establish maximum

ONE CONSERVATION WAY | BRUNSWICK, GEORGIA 31520-8686
912.264.7218 | FAX 912.262.3143 | WWW.COASTALGADNR.ORG

and cumulative thresholds for active sonar and ordnance detonation sound pressure levels detected within the NARW calving habitat Mitigation Area.

- In the event that these thresholds are exceeded, training and testing activities will cease in the USWTR area during November 15 to April 15 pending re-initiation of an ESA Section 7 consultation with NMFS.

The Georgia Coastal Management Program **concurs** that that the Atlantic Fleet Testing and Training Study Area Activities comply with the Program to the maximum extent practicable with the **condition** that an Undersea Warfare Training Range Adaptive Management Plan is developed and implemented prior to USWTR operation. That plan must include monitoring needs, identify triggers, and list alternate mitigation actions.

If the proposed project is not modified to include an Adaptive Management Plan prior to USWTR operation all parties shall treat this conditional concurrence letter as an objection letter pursuant to 15 CFR §930.43. The Navy must notify us immediately if these conditions are not acceptable [15 CFR §930.4(a)(2)].

In the event actual impacts are higher than or different from predicted impacts, a Supplemental Federal Consistency Determination must be submitted in accordance with 15 CFR §930.36 that includes adequate public notice and public participation to specifically address reasonably foreseeable coastal effects on NARW and NARW calving habitat from Navy vessel activities and USWTR testing and training activities.

If you have any technical questions regarding this action, please contact Jason Lee or Clay George at the number below. If you have any questions regarding the federal consistency process, please contact Brad Gane or Kelie Moore at the number below.

Sincerely,

A.G. "Spud" Woodward
Director

ONE CONSERVATION WAY | BRUNSWICK, GEORGIA 31520-8686
912.264.7218 | FAX 912.262.3143 | WWW.COASTALGADNR.ORG

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/059
March 25, 2013

Mr. A. G. Woodward
Director, Coastal Resources Division
Department of Natural Resources
One Conservation Way
Brunswick, GA 31520-8687

Dear Mr. Woodward:

The United States Navy (Navy) is in receipt of your letter dated March 11, 2013. The Georgia Coastal Management Program concurred that activities proposed in the Atlantic Fleet Training and Testing (AFTT) Study Area comply with the Coastal Management Program to the maximum extent practicable with the condition that an Undersea Warfare Training Range (USWTR) Adaptive Management Plan be developed and implemented prior to USWTR operation.

However, your response does not identify how the proposed activity is inconsistent with a specific enforceable policy that the condition (the adaptive management plan) is designed to satisfy, as required by 15 CFR 930.43(a). The Navy is consistent to the maximum extent practicable with each of Georgia's enforceable Coastal Zone Management Act (CZMA) policies that are not preempted by National Marine Fisheries Service (NMFS) regulations under the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA). Therefore, we ask that you reconsider your conditional concurrence and invite you to participate in the NMFS rulemaking process to address your concerns under MMPA.

The following information is provided to address your primary concerns:

Monitoring. The Navy currently conducts North Atlantic right whale (NARW) monitoring in the USWTR area through an established monitoring program that has been developed with and reviewed by recognized scientific experts. The monitoring program includes passive acoustic monitoring (PAM) devices deployed 365 days per year that collect data on vocalizing marine species to aid in the determination of presence and potential for reactions to anthropogenic activities. These high-frequency acoustic recording package (HARP) devices have been in place since 2009 as an element of the Atlantic Fleet Active Sonar Training (AFAST) monitoring plan and will continue in the AFTT monitoring plan.

Additionally, visual surveys of the USWTR area are and will remain an element of the Navy's monitoring plan. The Navy conducts visual surveys of the area between USWTR and the NARW critical habitat beginning five nautical miles (nm) seaward of where the current NMFS critical habitat surveys occur. NMFS agreed to Navy's survey boundary starting five nm seaward of the NMFS critical habitat survey boundary to deconflict

airspace for safety of flight reasons. Visual surveys were developed to complement PAM in determining species presence throughout all seasons and this effort has resulted in considerable data for the area, including the first recording of a NARW birth. Developed with leading scientific experts, the overall monitoring plan is sufficient to meet NMFS and Navy monitoring goals. The visual surveys will continue throughout the AFTT permit period as a required monitoring measure. The Navy is currently in consultation with NMFS to address potential impacts on marine mammals and endangered species in the AFTT Study Area. Mitigation and monitoring for marine mammals will be finalized during this public process. However, the Navy is not recommending an expansion of the PAM effort into either the NARW critical habitat or the area between critical habitat and USWTR. An expansion would be beyond the scope of monitoring required under our current permits from NMFS as very little Navy activity occurs in this area. These monitoring and mitigation requirements remain a matter under NMFS purview.

Annual reports. The Navy has and will continue to provide unclassified annual exercise and monitoring reports that certify our permit compliance. The Navy also provides classified reports to NMFS that detail specific information about the level of activity and this information must remain classified. The unclassified reports are publicly available on the NMFS Office of Protected Resources web site and are also available on the Navy monitoring web site; links to both sites were provided to Georgia Department of Natural Resources (GaDNR) staff during our CZMA consistency determination discussions.

Critical Habitat Expansion. In the event the NARW critical habitat is expanded, the Navy will work with NMFS under the ESA to determine the appropriate changes (if any) to be made to the AFTT mitigation zone. NMFS is the regulating body responsible for enforcing the ESA for ocean-based species; the Navy fully complies with NMFS requirements set through a consultation process.

Speed restrictions. As discussed in the AFTT Draft Environmental Impact Statement and pursuant to 50 C.F.R. § 224.105 (2012), U.S. Navy vessels are exempt from the 10-knot NARW critical habitat speed restriction. In coordination with NMFS, Navy provides specific guidance to our ships during NARW calving season through the enclosed annual message directing specific alertness for NARW presence.

Restrict activities November-April. Navy training and testing is directly tied to meeting operational requirements. GaDNR's request to restrict Navy training to seven months of the year would significantly impact the Navy's ability to generate ready forces to effectively respond to crises and operational deployments. The Navy is currently in consultation with NMFS on the development of a biological opinion for AFTT.

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March 25, 2013

Sound thresholds. Sound impact criteria were developed in coordination with NMFS. Under MMPA and ESA, NMFS evaluates the effects to the species and authorizes the level of activity that Navy can conduct under the permit. The levels of activity authorized by NMFS are based upon the best available information and science. Because NMFS is designated as the regulating body responsible for enforcing the MMPA and ESA for ocean-based species, Georgia's policies regulating these same species are preempted by NMFS regulations under the MMPA and ESA.

Sound budget. The Navy is fully integrated with the NMFS Ocean Acoustics Program. Any modifications resulting from this program will be considered during consultation with NMFS and by NMFS during their rulemaking determination. Direction from the NMFS Ocean Acoustics Program will be part of the AFTT adaptive management process.

We invite your continued participation in the NMFS rulemaking process associated with Navy AFTT applications and to continue to monitor current and future Navy reports to NMFS on Navy compliance. It is the Navy's intent to fully disclose unclassified information from the monitoring reports. The Navy's contribution to a better understanding of NARW, other endangered species, and all marine mammals is important not only for the recovery of those species but also for the Navy's ability to effectively train. As a concerned steward of the ocean environment, the Navy appreciates your efforts to protect the NARW and other endangered species. We are available to answer questions and look forward to continuing the dialogue with you on these issues.

Because Georgia has no enforceable policies covering marine mammals that are not preempted by NMFS regulations under the MMPA and ESA, the Navy asks that you reconsider your conditional concurrence for the USWTR and find concurrence with all aspects of the AFTT Consistency Determination.

We appreciate your assistance. If you have any further questions, please contact Mr. Jene Nissen at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosure: North Atlantic Right Whale Calving Season Message

3

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/100
July 3, 2013

Mr. A. G. Woodward
Director, Coastal Resources Division
Department of Natural Resources
One Conservation Way
Brunswick, GA 31520-8687

Dear Mr. Woodward:

The United States Navy (Navy) is in receipt of your letter dated March 11, 2013 in which the Georgia Coastal Management Program concurred that activities proposed in the Atlantic Fleet Training and Testing (AFTT) Study Area comply with the Coastal Management Program to the maximum extent practicable with the condition that an Undersea Warfare Training Range (USWTR) Adaptive Management Plan be developed and implemented prior to USWTR operation. During a phone call on April 10, 2013, Navy and Georgia staffs further discussed Georgia's request for a USWTR adaptive management plan.

Georgia suggested that the Navy is not consistent with Official Code of Georgia (O.C.G.A.) 27-3-130 (Endangered Wildlife Act) which prohibits the capture, killing or selling of any endangered species listed by Georgia Ecological Services. Georgia's concern is that the Navy's proposed USWTR actions could kill a Georgia listed species, specifically the North Atlantic right whale. The Navy has reviewed O.C.G.A. 27-3-130 and has determined that the Navy is consistent to the maximum extent practicable with the enforceable policies of the statute. The Navy's proposed action, described in the consistency determination submitted to Georgia on December 12, 2012, does not propose to capture, kill or sell the North Atlantic right whale.

Georgia requested that the Navy, as a condition to full Coastal Zone Management Act (CZMA) concurrence, agree to consult with Georgia in the event that a North Atlantic right whale is killed as a result of Navy activities on the USWTR.

The Navy supports transparent discussions with the State of Georgia on Navy activities and North Atlantic right whale protections. With this in mind, the Navy agrees to make available to Georgia unclassified monitoring and activity reports associated with USWTR; make available to Georgia copies of the annual North Atlantic right whale calving season and migration message; and should there be an unanticipated ship strike of a North Atlantic right whale associated with USWTR activities, the Navy will open a dialogue with the State of Georgia. Because the take of marine mammals is preemptively regulated

5090
Ser N46/100
July 3, 2013

by the Marine Mammal Protection Act, should a right whale be struck, the Navy would be required to consult with National Marine Fisheries Service (NMFS) Office of Protected Resources. Should that consultation result in changes to Navy activities so that their effects on any land or water use or natural resource of the Georgia coastal zone are substantially different than the effects anticipated now, the Navy would enter into CZMA consultations with the State of Georgia on the new activities. Based upon this clarification of the process Navy will follow in the event of an unanticipated strike of a North Atlantic right whale, the Navy asks that Georgia provide concurrence with Navy's December 12, 2012 consistency determination.

We invite you to continue participating in the NMFS rulemaking process associated with Navy AFTT applications and to continue to monitor current and future Navy reports to NMFS on Navy compliance. It is the Navy's intent to fully disclose unclassified scientifically-based information from monitoring reports. The Navy's contribution to a better understanding of North Atlantic right whales, other endangered species, and all marine mammals is important not only for the recovery of those species but also for the Navy's ability to effectively train. As a concerned steward of the ocean environment, the Navy appreciates your efforts to protect the North Atlantic right whale and other endangered species. We are available to answer questions and look forward to continuing the dialogue with you on these issues.

We appreciate your assistance. If you have any further questions, please contact Mr. Jene Nissen at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

2

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

A.G. "SPUD" WOODWARD
DIRECTOR

July 19, 2013

Mr. J.W. Murphy
Navy Fleet Installations & Environmental Readiness
1562 Mitscher Avenue, Ste. 250
Norfolk, Virginia 23551-2487

RE: CZMA Consistency Determination Concurrence: AFTT Study Area Activities DEIS/DOIES

Dear Mr. Murphy:

Staff of Georgia's Coastal Management Program (GCMP) and Georgia Department of Natural Resources' Wildlife Resources Division (GaDNR/WRD) has reviewed your July 3, 2013 letter providing clarification on the Navy's intent to adopt an adaptive management plan as requested in our March 11, 2013 letter. We appreciate the Navy's effort to quantify and mitigate environmental impacts of proposed Atlantic Fleet Testing and Training (AFTT) activities as described in the December 12, 2012 Draft Environmental Impact Statement/Draft Overseas Environmental Impact Statement (DEIS/DOEIS) and accompanying Coastal Zone Management Act (CZMA) Federal Consistency Determination. We also appreciate the Navy's continued discussions with GCMP regarding potential impacts of AFTT activities on endangered North Atlantic right whales (NARW).

The Navy has agreed to open a dialogue with GCMP should there be an unanticipated ship strike of NARW associated with the Under Sea Warfare Training Range (USWTR), as well as make available unclassified USWTR monitoring and activity reports and copies of the annual NARW calving season and migration message. These adaptive management measures position the Navy to rapidly, transparently, and effectively address direct and cumulative negative impacts to NARW. Other AFTT activities found to contribute to the unforeseen death or serious injury of NARW, or that negatively affect NARW survival, distribution or habitat suitability would also trigger reinitiating discussions with GCMP through the Supplemental Federal Consistency Determination process described in 15 SFR §930.36.

The Georgia Coastal Management Program **concurs** that the Atlantic Fleet Testing and Training Study Area Activities comply with the Program to the maximum extent practicable and has been designed to comply with the Program's enforceable policies. Please feel free to contact Kelie Moore or me if we can be of further assistance.

Sincerely,

A.G. "Spud" Woodward
Director

ONE CONSERVATION WAY | BRUNSWICK, GEORGIA 31520-8686
912.264.7218 | FAX 912.262.3143 | WWW.COASTALGADNR.ORG

C.2.6 LOUISIANA

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1083
December 12, 2012

Mr. Keith Lovell
Department of Natural Resources
PO Box 44487
617 North 3rd St., Suite 1048
Baton Rouge, LA 70808-4487

Dear Mr. Lovell:

In accordance with the Coastal Zone Management Act 16 (United States Code § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area. The Navy has prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed Louisiana's Coastal Management Program and analyzed potential impacts to coastal zone uses and resources in preparing this consistency determination. Based on the analyses, the Navy will be fully consistent with Louisiana's Coastal Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

BOBBY JINDAL
GOVERNOR

STEPHEN CHUSTZ
INTERIM SECRETARY

State of Louisiana

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF COASTAL MANAGEMENT

February 6, 2013

J. W. Murphy
Deputy Chief of Staff
Department of the Navy
U. S. Fleet Forces Command
1562 Mitscher Avenue Suite 250
Norfolk, VA 23551-2487

RE: **C20120375,** Coastal Zone Consistency
Department of the Navy
Direct Federal Action
Draft EIS/OEIS to conduct Navy training and testing activities off the coast of Louisiana,
Gulf of Mexico, Offshore Louisiana

Dear Commander Murphy:

The above referenced project has been reviewed for consistency with the Louisiana Coastal Resources Program in accordance with Section 307 (c) of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in this application, is consistent with the LCRP provided that if, during the implementation of project actions the Navy consistency determination for the Louisiana Coastal Zone changes, the Navy will re-initiate consultation under CZMA, as agreed in email from Jene Nissen on January 24, 2013. If you have any questions concerning this determination please contact Brian Marcks of the Consistency Section at (225) 342-7939 or 1-800-267-4019.

Sincerely,

Keith Lovell
Acting Administrator
Interagency Affairs/Field Services Division

KOL/JDH/bgm
cc: Richard Nissen, Dept. of the Navy
David Butler, LDWF
Brian Cameron, BOEM 5412
Martin Mayer, COE-NOD

Post Office Box 44487 • Baton Rouge, Louisiana 70804-4487
617 North Third Street • 10th Floor • Suite 1078 • Baton Rouge, Louisiana 70802
(225) 342-7591 • Fax (225) 342-9439 • http://www.dnr.louisiana.gov
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C.2.7 MAINE

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1086
December 12, 2012

Ms. Kathleen Leyden
Maine Coastal Program
Bureau of Geology, Natural Areas,
and Coastal Resources
Department of Conservation
22 State House Station
Augusta, ME 04333

Dear Ms. Leyden:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed Maine's Coastal Program and analyzed potential impacts on coastal zone uses and resources in preparing this consistency determination. Based on the analyses, the Navy will be fully consistent with Maine's Coastal Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
DIVISION OF GEOLOGY, NATURAL AREAS, AND COASTAL RESOURCES
93 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0093

PAUL R. LEPAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

March 11, 2013

J.W. Murphy
Deputy Chief of Staff
For Fleet Installations and Environmental Readiness
Department of the Navy
Commander
U.S. Fleet Forces Command
1562 Mitschier Avenue Suite 250
Norfolk, VA 23551-2487

RE: CZMA Consistency Determination for Atlantic Fleet Training and Testing activities

Dear Mr. Murphy:

I am writing to provide the State of Maine's ("State") response to the Department of the Navy's ("Navy") determination pursuant to Section 307 of the Coastal Zone Management Act (16 U.S.C. §1456(c)) ("CZMA") and its implementing regulations (15 C.F.R. Part 930, Subpart C) ("consistency rules") that its proposed Atlantic Fleet Training and Testing ("AFTT") activities, as detailed in its consistency determination and accompanying information, "will be fully consistent with the enforceable policies of the Maine Coastal Program."[1] As explained below, the State concurs with the Navy's determination that its proposed AFTT activities are consistent with applicable enforceable policies of its coastal program. In addition, the State urges the Navy to avoid, minimize, and mitigate to the maximum extent practicable the potential for adverse effects on coastal uses and resources in accordance with the recommendations of the Maine Department of Marine Resources ("DMR").

Proposed action subject to consistency review

The Navy describes the AFTT activities as military readiness-related "training and testing activities, which may include the use of active sound navigation and ranging (sonar) and explosives, primarily within existing range complexes and testing ranges along the U.S. Atlantic coast; in the Gulf of Mexico; and at Navy pierside locations, in port transit channels, and in the lower Chesapeake Bay."[2]

Based on review of the Navy's proposal by the state agencies that administer the core laws that provide the enforceable policies of the Maine Coastal Program, the State finds that the Navy has provided adequate information for purposes of review of the proposed action for consistency with the enforceable policies of its

[1] Department of the Navy, Consistency Determination for Maine, dated December 12, 2012 ("consistency determination"), p. 13. The Navy provided its Draft Environmental Impact Statement/Overseas Environmental Impact Statement ("DEIS") assessing AFTT activities as information in support of its consistency determination.
[2] *Id.*, at 2.

MAINE COASTAL PROGRAM
KATHLEEN LEYDEN, DIRECTOR

17 ELKINS LANE – WILLIAMS PAVILLION
AUGUSTA

PH: (207) 287-2801
FAX: (207) 287-2353
www.maine.gov/acf/gnc

coastal program. Issues and concerns regarding the lack of specific information on the location and timing of the Navy's proposed activities are addressed below.

In accordance with the CZMA and consistency rules, the Navy's proposed action and the State's review of it concern AFTT activities that have potential to affect uses and resources in Maine's coastal zone. These activities are outlined in Table 3 of the Navy's consistency determination, with reference to Appendix A of the DEIS where these activities are further detailed.[3] These activities may be divided into two general categories - training and testing - and include a wide range of at-sea gunnery, missile, and torpedo-related exercises, testing and training employing various active and passive sonar technologies, ship and submarine maintenance and repair, anti-submarine training and testing, surface warfare testing, and biological and chemical simulant testing.

In addition to at-sea activities, the Navy's proposed activities include pier-side testing of active sonar at the Bath Iron Works ("BIW") facility in Bath, Maine, and the Portsmouth Naval Shipyard ("PNSY") in Kittery, Maine. None of the activities in the Navy's proposed action would be conducted on land in Maine.

With the exception of the above-noted pier-side testing, the Navy's consistency determination does not specify precisely where activities included in the proposed action would occur. "To maintain flexibility for training and testing in the Study Area, the Navy identified the locations of the majority of proposed activities only to the range complex or testing range level and not to specific areas within OPAREAs [operating areas]."[4] The Boston OPAREA lies off Maine's coast, for the most part seaward of the State's coastal waters, and includes a portion of the Gulf of Maine as well as coastal waters off Massachusetts and southern New England.

In consultation with state agencies, the Navy provided some additional clarification regarding the nature and location of its proposed activities. While it stated that "most AFTT activities don't have specific locations, but can happen anywhere in the study area", the Navy indicated that "training activities, especially, tend to be located relatively close to homeports to limit time away from home;" that an activity listed as occurring "outside" the coastal zone, will always occur outside the coastal zone; and that "most ship and submarine activities will occur outside of 3 miles from shore (outside Maine's coastal zone)."[5] Gunnery, torpedo, and missile-related activities involving explosives would occur outside Maine's coastal zone; maritime security operations involving anti-swimmer grenades and anti-submarine tracking involving explosive sonobuoys may occur in the coastal zone.[6] In addition, the Navy clarified that there are no activities included in its proposed action that entail seafloor or near seafloor explosions in Maine coastal waters.[7]

Federal consistency review process

The Maine Coastal Program ("MCP")[8] received the Navy's consistency determination and accompanying materials on December 17, 2012. The Navy agreed to extend the period for consistency review until March 11, 2013. The MCP provided a copy of the Navy's consistency determination and accompanying materials to and requested review of that determination by the Department of Environmental Protection

[3] The activities that the Navy has identified as having potential coastal effects include activities both within Maine's designated coastal zone, i.e., inside the three-mile limit, as well as activities that may occur outside the coastal zone. Maine's designated coastal zone includes the land area of all municipalities or unorganized places on water subject to tidal influence seaward to the three-mile limit of state ownership.
[4] Consistency determination at 7
[5] Navy summary of Maine/Navy Coastal Consistency Determination telecom, 23 January 2013, p. 3
[6] *See* Consistency determination, Table 3
[7] Above-referenced Navy summary of telecom, p. 7
[8] The Maine Coastal Program is within the Maine Department of Agriculture, Conservation and Forestry, Bureau of Geology, Natural Areas and Coastal Resources and is the "state agency" responsible for administration of Maine's federally-approved coastal zone management program.

("DEP"), the Land Use Planning Commission ("LUPC"), the Department of Marine Resources ("DMR"), and the Department of Inland Fisheries and Wildlife ("DIFW"), the state natural resources agencies that administer the core laws that provide the enforceable policies and participate in implementation of the State's networked coastal program. These agencies' findings, conclusions, and recommendations regarding the proposed action's consistency with the enforceable policies of the State's coastal program provide the basis for the State's response to the Navy's consistency determination. On January 27, 2013, the MCP published notice of opportunity to comment on the Navy's consistency determination in the *Kennebec Journal* and *Portland Press Herald;* the notice was published in the *Bangor Daily News* on January 29, 2013.

Summary of public comments

Over 400 public comments on the Navy's consistency determination were received. In summary, these comments expressed concerns about the adverse effects of the Navy's proposed activities on coastal resources, particularly the Northern right whale and other endangered species, marine mammals, commercial fisheries, and other wildlife; questioned the efficacy of the Navy's proposed mitigation measures; urged the State to hold the Navy to the highest standards in assessing potential impacts on endangered species; and generally asserted that the Navy's plans are inconsistent with Maine's coastal program. In addition, the State received comments from the Natural Resources Defense Council ("NRDC") and Citizens Opposed to Active Sonar Threats ("COAST").

In summary, NRDC commented that the Navy's analysis indicates that significant harm to multiple marine mammal and other species would result from AFTT activities; that the Navy's estimate of the number of potential AFTT-related "takes" of marine mammals from 2014-19 reflects a 95% increase over its "take" estimate for comparable Atlantic Fleet testing and training exercises from 2009-14; that the National Marine Fisheries Service's ("NMFS") estimates of "takes" to marine mammals that may result from AFTT activities exceeds the Navy's own estimate[9]; that potential for adverse effects on the Northern right whale is of particular concern due to that endangered species' greatly diminished population; that the Navy has not provided information needed for consistency review, including regarding the scope or geographic location of AFTT activities; that the Navy's proposed mitigation measures fail to protect the Northern right whale and other marine mammals, and that additional time and area restrictions and closures are needed to adequately protect the Northern right whale and other vulnerable species.

In summary, COAST commented that, in light of the potential adverse effects, including those on the Northern right whale and other species listed under the Maine Endangered Species Act ("MESA"), which the Navy has acknowledged in its consistency determination, the Navy's proposed AFTT activities are inconsistent with the enforceable policies of the Maine Coastal Program, in particular the Maine Endangered Species Act and Coastal Management Policies Act. COAST stated that the Navy's methodologies for assessing potential impacts are flawed and underestimate adverse impacts; that the Navy's proposed mitigation measures are inadequate; and that additional mitigation measures, such as seasonal and area restrictions on training and testing, could eliminate or significantly reduce potential adverse impacts. COAST's comments included a copy of comments previously submitted to the Navy by a number of organizations, including COAST, concerning the Navy's AFTT DEIS. As summarized by COAST, "these comments challenge the notion that the Navy undertook a rigorous investigation into the environmental impacts that will result from its activities, and explain why some of these impacts have been greatly underestimated, and how a number of common sense mitigation measures, if put into place, could greatly reduce impacts."

[9] As noted in its consistency determination, the Navy is in the process of seeking authorization from NMFS for AFTT-related "takes" of marine mammals under the Marine Mammal Protection Act.

3

Coastal effects

As detailed in the Navy's consistency determination and emphasized in the many public comments received, the Navy's proposed action may affect Maine's coastal uses and resources. The Navy's consistency determination and DEIS identify the potential for effects on the Northern right whale and other marine mammals and various bird, fish, and other species that are part of the ecology of Maine's coastal zone and help support its natural resources-based economy. Given the Navy's acknowledgement of the potential for such effects and based on state agencies' review of its consistency determination, the State has determined that impacts on Maine's coastal zone and uses are a reasonably foreseeable potential consequence of the Navy's proposed action.

Standard of review

The CZMA requires that federal agency activities affecting coastal uses or resources be "carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs."[10] The consistency rules define "consistent to the maximum extent practicable" to mean ". . . fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency."[11]

In its consistency determination, as noted above, the Navy has determined that its proposed action "will be fully consistent with the enforceable policies of the Maine Coastal Program" rather than "consistent to the maximum extent practicable."[12] Accordingly, the State's response to the Navy's consistency determination is based on whether it concurs with the Navy's determination that it is fully consistent with the State's enforceable policies.

Enforceable policies

Under the authority provided to a coastal state by the CZMA, an effect on the State's coastal uses or resources, regardless of its nature or magnitude, is not in and of itself a sufficient basis for an objection to a federal agency's consistency determination or for a state-imposed requirement that a federal agency take or refrain from certain actions. The federal rules governing the consistency review process require that a state objection to a federal agency's consistency determination must cite and be based directly on a specific enforceable policy of its program.[13] State statutes and rules that are not included in Maine's Coastal Program cannot be used as a basis for finding and objecting to an activity as inconsistent. Likewise, if an activity or effect is not addressed by one of the State's enforceable policies, the federal action is presumed to be consistent with the Maine Coastal Program.

The consistency rules define "enforceable policy" as -

> "State policies which are legally binding, through constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions, by which a State exerts control over private and public land and water uses and natural resources in the coastal zone . . . ."

which have been approved by OCRM for incorporation into the State's coastal program.[14] This rule further specifies that an "enforceable policy" "shall contain standards of sufficient specificity to guide

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[10] 16 U.S.C. §1456(c)(1)(A).
[11] 15 C.F.R. § 930.32(a)(1)
[12] Consistency determination at 13
[13] *See* 15 C.F.R. §§930.43(a) and 930.63(b)
[14] 15 C.F.R. § 930.11(h)

public and private uses."[15] (In addition, the federal consistency rules provide that "federal agencies should give consideration to management program provisions which are in the nature of recommendations" and do not meet the definition of an "enforceable policy."[16])

The enforceable policies of the Maine Coastal Program are provided by generally applicable state environmental and natural resources statutes (commonly referred to as the program's "core laws") and their implementing rules. Since the core laws are administered by various state agencies and municipalities, the MCP coordinates the consistency review process and serves as a single point of contact to receive and to provide the State's response to a federal agency's consistency determination. Maine's consistency review process uses the same standards and, to the extent practicable and applicable, the same procedures used in processing license and permit applications under the core laws.

In its consistency determination, the Navy provides its analysis of which of Maine's enforceable policies are applicable to its proposed action and which are not applicable.[17] The Navy concludes that, with exception of several provisions in the Coastal Management Policies Act,[18] there are no enforceable policies that apply to activities under its proposed action.

As discussed below, the State finds that specific enforceable policies regarding water quality and state-listed endangered species, which the Navy addresses in part under its discussion of the Coastal Management Policies Act, and land use regulation are applicable to review of activities under the proposed action.

The Coastal Management Policies Act ("CMPA") does not itself contain "enforceable policies" but articulates general state coastal management policy that is implemented through enforceable polices in other state core laws and their implementing rules.[19] The CMPA's general policy provisions are not themselves legally binding standards by which the State exerts control over private and public land and water uses and natural resources in its coastal zone and are not enforceable policies. As noted above, generally applicable state environmental and natural resources licensing and permitting laws provide the enforceable policy standards for Maine's coastal program. Accordingly, the CMPA's provisions themselves are not used as a basis for concurrence with or objection to the Navy's consistency determination.

Findings and conclusions regarding enforceable policies applicable for review

Water Quality

Activities included in the Navy's proposed action include chemical and biological simulant testing. Based on its review of the Navy's consistency determination and DEIS, DEP determined that chemical/biological simulant testing may occur within the coastal zone, may involve discharge of up to 200 gallons of triethyl phosphate, and may have water quality impacts. The Navy's DEIS notes that triethyl phosphate has a half-life of 5-10 years, is a common component of pesticides and is known to negatively affect marine organisms. Based on the information provided in the consistency determination, DEP found that such a discharge in Maine waters would require a license from DEP under 38 M.R.S. §413(1) as it would be considered a discharge of pollutants under 38 M.R.S. §§361-A(1) and (4-A). DEP encouraged the Navy to conduct this aspect of its testing outside of Maine's coastal zone. DEP notes that, as an authorized state under the Clean Water Act's National Pollutant Discharge Elimination System ("NPDES") Program, any permit issued

[15] *Id.*
[16] 15 C.F.R. §§930.39(c)
[17] *See* Consistency determination, pp. 8 -13.
[18] *See* 38 M.R.S. §1801
[19] In its consistency determination, the Navy discusses several provisions of the CMPA as "enforceable policies."

5

by the State for this type of discharge in Maine's coastal zone would also be consistent with any applicable NPDES requirements.

The Navy subsequently submitted additional information clarifying that these tests will not be conducted in or near Maine waters and will typically take place well south of the State. The Navy has proposed that if its plans change, and such an activity is later planned for waters in or near Maine, it will "re-initiate CZMA discussions and reach consensus before an event would occur." Based on DEP's review, the State finds that such supplemental consultation, which may be required under the consistency rules, would be appropriate and would likely result in determination by DEP that a discharge license under 38 M.R.S. §413(1) is required. Accordingly, the State concurs with the Navy's determination that its proposed action is consistent with 38 M.R.S. §413(1), with the understanding that prior to initiation of chemical/biological simulant testing as described in the DEIS or comparable activity that may result in a discharge of a pollutant into Maine's coastal waters, the Navy will consult with the State and obtain any license required by DEP pursuant to 38 M.R.S. §413(1) that is not preempted by Section 312 of the Clean Water Act or other applicable federal law.

Land use regulation

As discussed above, the Navy does not specify precisely where in Maine's coastal zone certain AFTT activities may occur. Maine's Land Use Planning Commission ("LUPC") is responsible for planning and management of the unorganized areas of the State which include some submerged lands areas in Maine's coastal zone. Accordingly, it is foreseeable that certain AFTT-related activities could occur in coastal waters within the LUPC's jurisdiction.

As noted above, the Navy has clarified that no AFTT activities would occur on land in Maine and that no activities included in its proposed action would entail seafloor or near seafloor explosions in Maine coastal waters. Based on its review of the Navy's consistency determination and related additional information provided, the LUPC has determined that the AFTT navigation, training, and testing-related activities that could occur in its jurisdiction are allowable under its potentially applicable submerged lands-related zoning and that further review of the Navy's proposed action by the LUPC is not required.

State-listed endangered species

Marine species. The Maine Endangered Species Act ("MESA") has two distinct lists of threatened or endangered species. DMR has management authority regarding marine mammals and other listed marine species; DIFW has such authority for other listed species, including various seabirds. By definition, the marine-listed species for which DMR has management authority under the MESA are also listed under the federal Endangered Species Act ("ESA").[20] In the case of marine mammals, these MESA-listed marine species are also covered by the federal Marine Mammal Protection Act ("MMPA").

The authority provided to state agencies by MESA over marine and non-marine species differs. Notably, MESA's provision regarding take or harassment of state-listed species does not apply to marine species subject to management by DMR, which include the Northern right whale and other marine mammals. There is no enforceable policy in MESA that directly addresses taking, harassment or other adverse effects on marine mammals or other state-listed marine species.[21] Therefore, as concerns state-listed marine species, MESA does not provide a basis for state concurrence with or objection to the Navy's consistency determination. For these marine-listed species, MESA is focused on efforts to assist and facilitate compliance with requirements of the federal ESA.[22]

[20] 12 M.R.S. §§6972, 6973(1)
[21] 12 M.R.S. §6971
[22] 12 M.R.S. §6972

The Navy is obligated to obtain express authorization from the NMFS and the United States Fish and Wildlife Service ("USFWS") for potential adverse effects on the Northern right whale, other marine mammals, and species (including the Northern right whale) listed under the federal ESA. As the Navy notes in its consistency determination, it is in the process of consulting with NMFS and USFWS and seeking the requisite authorizations under the ESA and MMPA. Consequently, the full scope and nature of mitigation measures that the Navy will be required to employ pursuant to the MMPA and ESA to avoid, minimize, and mitigate potential adverse effects on the Northern right whale and other listed marine species has not been finally determined.

As noted above, the consistency rules direct the Navy to consider management program provisions which are in the nature of recommendations and do not meet the definition of an "enforceable policy." In enacting MESA, the Maine Legislature found that "various species of fish or wildlife have been and are in danger of being rendered extinct within the State of Maine, and that these species are of esthetic, ecological, educational, historical, recreational and scientific value to the people of the State" and declared that "it is the policy of the State to conserve, by according such protection as is necessary to maintain and enhance their numbers, all species of fish or wildlife found in the State, as well as the ecosystems upon which they depend."

In keeping with MESA's general statement of state policy and the general policies expressed in the CMPA, the State requests that the Navy avoid, minimize, and mitigate to the fullest extent practicable the potential for adverse effects on marine, estuarine, and diadromous species, including the federally-listed threatened and endangered marine species listed in the MESA. To that end, the State urges the Navy to adapt its proposed action to implement to the maximum extent practicable the mitigation measures recommended by DMR in its attached letter dated March 4, 2013.

Non-marine species

In its consistency determination, the Navy states that "the inland species portion of the [MESA] statute is not applicable since the proposed activities will not impact inland species."[23] In its DEIS, the Navy explains that its AFTT activities have potential to affect but are not likely to adversely affect several avian species listed by the MESA as threatened or endangered, including the roseate tern and piping plover.

As noted above, DIFW administers MESA's provisions regarding non-marine listed species. DIFW reviewed the Navy's proposed activities at the BIW and PNSY locations for each of the non-marine MESA-listed species that frequents the coastal zone and is subject to its management authority. DIFW determined that these proposed activities will not result in a "take" of any such species and DIFW has not recommended additional management measures under the MESA.

DIFW suggests that if AFTT exercises were to occur within three miles of a DIFW-identified seabird nesting island during breeding season or within other DIFW-mapped "significant wildlife habitat" or mapped rare, threatened, or endangered species habitat additional consultation with DIFW and additional information would be beneficial to determine the need, if any, for additional management measures under the MESA. DIFW indicates that it is its understanding that the potential for such exercises to occur in proximity to most "significant wildlife habitat" (tidal waterfowl and wading bird habitat and shorebird habitat) is very low since these areas are tidal or near shore, and is likewise highly unlikely regarding state-listed species habitat. Addressing DIFW's comment, the Navy reiterated its determination that consultation under MESA is not required and stated that no actions are proposed to be conducted in these areas that could potentially result in a "may affect" determination. In the event that the Navy changes its plans to include such actions in the above-

[23] Consistency determination at 10

noted areas identified by DIFW, supplemental CZMA consultation would be appropriate to assess potential effects and additional measures, if any, needed to avoid, minimize, or mitigate them.

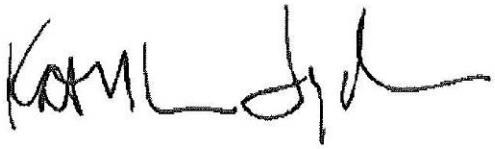
Based on its review of the Navy's consistency determination and related additional information provided, DIFW has determined that the AFTT navigation, training, and testing-related activities that could occur in the coastal zone are unlikely to adversely affect MESA-listed species subject to DIFW's management authority and that further consultation or provision for additional management measures under the MESA is not required at this time.

* * *

While, for the foregoing reasons, the State concurs that the Navy's proposed AFTT activities are consistent with applicable enforceable policies of its coastal program, the Navy's own analysis indicates these activities' potential for adverse effects on the Northern right whale and other coastal resources and uses. Accordingly, mindful and respectful of the Navy's mission to ensure the readiness of our nation's armed forces, the State reiterates its request that the Navy implement the Department of Marine Resources' attached recommendations to the maximum extent practicable.

Thank you for your consideration and cooperation during the review process. Please let me know if you have questions or need additional information.

Sincerely,



Kathleen Leyden
Director, Maine Coastal Program

cc:\ with attachment

Walter Whitcomb, Commissioner, DACF
Patrick Keliher, Commissioner, DMR

8

STATE OF MAINE
DEPARTMENT OF MARINE RESOURCES
21 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0021

PAUL R. LEPAGE
GOVERNOR

PATRICK C. KELIHER
COMMISSIONER

March 4, 2013

Ms. Kathleen Leyden
Director Maine Coastal Program
Bureau of Geology, Natural Areas, and Coastal Resources
Department of Agriculture, Conservation, and Forestry
93 State House Station
Augusta, Maine 04333

RE: The United States Navy's Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing (AFTT) Study Area

Dear Ms. Leyden:

The Maine Department of Marine Resources (DMR) recognizes the importance of Navy AFTT in ensuring military preparedness and addressing national security concerns. We do, however, wish to express concerns related to potential adverse impacts from the Navy's proposed activities in the Gulf of Maine and waters proximate to the Gulf of Maine including the Piscataqua and Kennebec Rivers, and to offer some suggestions for mitigating those potential impacts. Our comments are aimed at helping to ensure that the Navy avoid, minimize, and mitigate to the fullest extent practicable the potential for adverse effects on marine, estuarine and diadromous species including federally listed threatened and endangered species.

Activity Summary

It is DMR's understanding that the U.S. Navy is proposing ongoing training and testing activities within the Study Area that covers the waters of the United States East Coast and Gulf of Mexico including the Gulf of Maine outside of the state's coastal waters (beyond 3 nautical miles) and within the state's coastal waters (from Mean Low Water to 3 nautical miles). Training and testing outside of the state's coastal waters include a broad range of activities such as sonar and radar testing, acoustic counter measures, weapon systems development and testing (including anti-submarine, mine, sonobouy and torpedo training and testing), ship sea trials, ordnance and munitions testing and practice, and ship shock trials. Within the state's coastal waters activities would include pierside testing of ship sonar and other ship systems at Bath Iron Works (BIW) and at the Portsmouth Naval Shipyard (PNSY).

The Navy is seeking concurrence with its Federal Consistency Determination that these activities are consistent with Maine's coastal management program.

OFFICES AT 2 BEECH ST., BAKER BUILDING, HALLOWELL, MAINE
http://www.Maine.gov/dmr
PHONE: (207) 624-6550 FAX: (207) 624-6024

Resources of Concern

The Gulf of Maine's natural resources aside from their intrinsic value are of inestimable value to the people of Maine, those that visit, and those from Maine and outside of the state that utilize those resources to provide income. These proposed activities both inside and outside of Maine's territorial limits have the potential for direct adverse impacts to marine mammals, fish, sea turtles and innumerable other marine and estuarine organisms and their habitat and food sources. Of particular concern are marine mammals including the federally listed endangered North Atlantic right whale (*Eubalaena glacialis*), and diadromous fish including the federally listed endangered Atlantic salmon (*Salmo salar*) and shortnose sturgeon (*Acipenser brevirostrum*), and threatened Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) that utilize the Kennebec River in the proximity of Bath Iron Works. Both sturgeon species utilize the Piscataqua River in the proximity of the Portsmouth Naval Shipyard as well. DMR also is concerned about potential adverse impacts to eight other diadromous species that occur in these waters. These include Atlantic tomcod (*Microgadus tomcod*) and sea lamprey (*Petromyzon marinus*); three species that are being considered for listing under the federal Endangered Species Act (ESA), the alewife (*Alosa psuedoharengus*), blueback herring (*Alosa aestivalis*) and American eel (*Anguilla rostrata*); and three species that support important recreational fisheries, American shad, (*Alosa sapidissima*), striped bass (*Morone saxatilis*), and rainbow smelt (*Osmerus mordax*).

The Navy's proposed activities in the AFTT Study Area have the potential for an unprecedented number of takes, including behavioral impacts, harassment, injury, and mortality to many marine mammal, sea turtle, and diadromous fish species that are included on Maine's marine threatened and endangered species list. These species, including the North Atlantic right whale, are considered among the natural resources that make up the ecology of Maine's coastal zone. The precarious population status of the endangered right whale necessitates close scrutiny of activities with potential for adverse effects on the species and has prompted management measures, such as gear restrictions, to protect the species that have attendant economic effects on Maine's commercial fishing industry. In this instance, to the extent that the proposed action has some potential adverse effects on the right whale, DMR has determined that correlative effects on Maine's coastal zone and uses are a reasonable foreseeable potential consequence of the Navy's program in the AFTT Study Area.

The Maine Endangered Species Act (MESA) gives DMR state-level management authority regarding the North Atlantic right whale and other species listed on the State's marine threatened and endangered species list. These marine listed species are also protected under the ESA and in the case of marine mammals, the federal Marine Mammal Protection Act (MMPA) as well. To date, DMR has focused on working with Maine's fishing industry to facilitate its compliance with deferral ESA and MMPA-based management measures regarding whale species, particularly the right whale.

Recommendations

We urge the Navy to adapt its proposed action to fully implement mitigation measures to protect marine mammals and other listed marine species pursuant to the MMPA and ESA in order to ensure that all necessary and appropriate steps are taken to avoid and minimize adverse effects on marine listed species and thereby avoid and minimize the potential for related adverse effects on Maine's coastal zone. We urge the Navy to build seasonal restrictions into the mitigation scheme, with particular attention being paid to active sonar, torpedo, and use of explosives in right whale critical habitat areas such as the Great South Channel and Cape Cod Bay. Additionally, DMR recommends that the Navy utilize existing datasets to identify habitat and avoid areas of high marine mammal use seasonally for the use of active sonar, such as Marine Protected Areas including Stellwagen Bank Marine Sanctuary, and Jeffery's Ledge in the Northeast. An additional mitigation area should be employed offshore in the Jordan Basin/Outer Fall region during November through January to protect a recently discovered right whale habitat, with possible importance to the breeding success of the species. Right whales utilize vocalizations throughout the breeding process in what is known as Surface Active Groups (SAGs), making this area potentially more sensitive to acoustic disturbance before or during the formation of SAGs.

Additional measures that DMR recommends the Navy take into consideration include:

1) Increase safety zones that trigger measures such as power downs and shut downs in certain instances of active sonar and explosive use to encompass the entire range that causes temporary and permanent hearing threshold shifts. For example, the use of low-frequency and hull-mounted mid-frequency active sonar predicts an average range to permanent threshold shift of 281 yards but the recommended mitigation zone requires only a power

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http://www.Maine.gov/dmr
PHONE: (207) 624-6550 FAX: (207) 624-6024

down up to 200 yards when a shutdown would be triggered, having already potentially caused permanent hearing loss to the individual. Additionally, all ship shock trials come with a recommended mitigation zone that is within the predicted average range to temporary and sometime permanent threshold shifts on the basis that mitigation will only be used when the operational impact is acceptable. If these measures require the area for shipboard lookouts to cover to become too large, then aerial surveys should be deployed to cover the necessary range. The mitigation area should be maintained to ensure the correct level of protection.

2) The primary duties of lookouts should be the detection of marine mammals, sea turtles and other surface obstacles and therefore the enforcement of the relevant safety zones
3) When sonobuoys are being used to detect whale vocalizations, those capabilities should be used to create the relevant safety zones instead of simply informing the lookout of the occurrence. It is very rare that acoustic and visual surveys reveal the same (or as many) individuals. This method can be used to protect marine mammals in the area independent of visual observations, which can account for only 5% of the animals that are actually in the area.
4) Reduce or eliminate exercises during low visibility and night conditions, especially if safety zones are implemented only after visual detection.
5) Dedicated research should be undertaken to study methods in which to decrease the impacts of acoustic sources on marine mammals.

Recommendations regarding pierside testing at BIW and PNSY

Pierside testing of sonar systems at Bath Iron Works (BIW) should be avoided or at least minimized during the period between March 15 and November 30 when diadromous fish would be expected to be in the area.

Pierside testing of sonar systems at the Portsmouth Naval Shipyard (PNSY) should be avoided or at least minimized during the period between March 15 and July 15 when diadromous fish would be expected to be in that area. Personnel assigned to detect marine mammals in the vicinity (within 1000 yards) of those facilities should scan the area at least 30 minutes prior to testing to verify the absence of marine mammals.

Finally, it would be helpful if the Navy could provide the State with more detail on timing and location of particular testing in order for the State to provide more specific information on species that might be impacted and thus minimize those potential impacts.

Thank you for considering these comments.

Sincerely,

PATRICK C. KELIHER
Commissioner,
Maine Department of Marine Resources

Cc: P. Michael Payne, Office of Protected Resources, National Marine Fisheries Service
Linda Mercer, Erin Summers, Gail Wippelhauser, Brian Swan, DMR

OFFICES AT 2 BEECH ST., BAKER BUILDING, HALLOWELL, MAINE
http://www.Maine.gov/dmr
PHONE: (207) 624-6550 FAX: (207) 624-6024

C.2.8 MARYLAND

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1085
December 12, 2012

Mr. Elder A. Ghigiarelli, Jr.
Deputy Administrator Coastal Zone Consistency
Division Wetlands and Waterways Program
Department of the Environment
Montgomery Park Business Center
1800 Washington Blvd.
Baltimore, MD 21230

Dear Mr. Ghigiarelli:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area. The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed Maryland's Management Program for preparing this consistency determination. Based on the analyses, the Navy determined that the Proposed Action in the Study Area will be consistent to the maximum extent practicable with Maryland's Costal Program. The Navy is unable to be fully consistent with the program, because doing so would limit the Navy's ability to fulfill its mission as mandated by federal law (Title 10 U.S.C. § 5062), which charges the Chief of Naval Operations with the responsibility for ensuring the readiness of the nation's naval forces.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

MARYLAND
Smart, Green & Growing

Martin O'Malley, Governor

March 1, 2013

Mr. Jene Nissen
U.S. Department of Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue Suite 250
Norfolk, VA 23551-2487

VIA EMAIL TO: richard.j.nissen@navy.mil

Re: Maryland Coastal Program's Concurrence with the U.S. Department of the Navy's Federal Consistency Determination for its Atlantic Fleet Training and Testing

The Maryland Department of Natural Resources and the Maryland Department of the Environment have completed the State's review of the Department of the Navy's (Navy) Federal Consistency Determination, prepared pursuant to Section 307 of the Federal Coastal Zone Management Act of 1972, as amended, and the supporting information contained in the Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS), for the Atlantic Fleet Training and Testing. Pursuant to 15 CFR 930.41, the Maryland Coastal Program concurs with the Navy's determination that the proposed federal action is consistent, to the maximum extent practicable, with its enforceable policies.

However, while the Maryland Coastal Program concurs with the Navy's determination, we believe there are a number of issues that deserve additional attention. In this regard, the attached comments are provided to help frame future federal-state coordination efforts.

Thank you for the opportunity to review the Navy's Federal Consistency Determination and the supporting EIS/OEIS for the proposed training and testing activities. If you have any questions, please contact Mr. Joe Abe of my staff at (410) 260-8740 or by email at jabe@dnr.state.md.us, or Mr. Elder Ghigiarelli, Jr., Maryland Department of the Environment, at (410) 537-3763 or by email at eghigiarelli@mde.state.md.us.

Sincerely,

Matthew Fleming, Director
Chesapeake and Coastal Service

Cc: Elder Ghigiarelli (MDE)
Joe Abe (DNR)
Joseph Heckwolf (OAG)

C.2.9 MASSACHUSETTS

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1084
December 12, 2012

Mr. Robert L. Boeri
Acting Project Review Coordinator
Office of Coastal Zone Management
Executive Office of Environmental Affairs
251 Causeway Street, Suite 800
Boston, MA 02114

Dear Mr. Boeri:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed the Massachusetts Coastal Program and analyzed potential impacts to coastal zone uses and resources in preparing this consistency determination. Based on the analyses, the Navy will be fully consistent with the Massachusetts Coastal Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
251 Causeway Street, Suite 800, Boston, MA 02114-2136
(617) 626-1200 FAX: (617) 626-1240

February 15, 2013

J.W. Murphy
Deputy Chief of Staff
Department of the Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, VA 23551-2487

Re: CZM Federal Consistency Review for the Proposed Atlantic Fleet Training and Testing Study Area, and Associated Range Capability Enhancements; Offshore; Massachusetts.

Dear Mr. Murphy:

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the potential environmental impacts in the Study Area resulting from U.S. Navy training and testing activities and associated range capability enhancements.

Based upon our review of applicable information, we concur with your determination and find that the activity's effects on resources and uses in Massachusetts coastal zone as proposed are consistent with the CZM enforceable program policies.

If the above-referenced project is modified in any manner, including any changes resulting from permit, license or certification revisions, including those ensuing from an appeal, or the project is noted to be having effects on coastal resources or uses that are different than originally proposed, it is incumbent upon the proponent to notify CZM, submit an explanation of the nature of the change pursuant to 15 CFR 930, and submit any modified state permits, licenses, or certifications. CZM will use this information to determine if further federal consistency review is required. Thank you for your cooperation with CZM.

Sincerely,

Bruce K. Carlisle
Director

BKC/rlb
CZM#12299

C.2.10 MISSISSIPPI

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1087
December 12, 2012

Ms. Willa Brantley
Mississippi Coastal Program
Department of Marine Resources
1141 Bayview Avenue
Biloxi, MS 39530

Dear Ms. Brantley:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area. The Navy has prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed Mississippi's Coastal Program and analyzed potential impacts to coastal zone uses and resources in preparing this consistency determination. Based on the analyses, the Navy will be fully consistent with Mississippi's Coastal Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

MISSISSIPPI
DEPARTMENT OF MARINE RESOURCES

January 23, 2013

Mr. Jene Nissen
Department of the Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, VA 23551-2487

Re: DMR-130194; Department of the Navy, Atlantic Fleet Training and Testing Study Area

Dear Mr. Nissen:

The Department of Marine Resources in cooperation with other state agencies is responsible under the Mississippi Coastal Program (MCP) for managing the coastal resources of Mississippi. Proposed activities in the coastal area are reviewed to insure that the activities are in compliance with the MCP.

The applicant is requesting concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area within the Coastal Zone of Mississippi. The above activity has been reviewed based upon provisions of the Mississippi Coastal Program and Section 307 of the Coastal Zone Management Act of 1972 (as amended). The activity has been determined to be consistent to the maximum extent practicable with the Mississippi Coastal Program.

If you have any questions regarding this letter, please contact Willa Brantley with the Bureau of Wetlands Permitting at (228) 523-4108 or willa.brantley@dmr.ms.gov.

Sincerely,

Danny Guice, Jr.
Deputy Director

DG/wjb

cc: Mr. Damon Young, USACE
Ms. Florance Watson, OPC
Mr. Raymond Carter, SOS

1141 Bayview Avenue • Biloxi, MS 39530 • (228) 374-5000

C.2.11 NEW HAMPSHIRE

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1089
December 12, 2012

Mr. Christian Williams
Federal Consistency Coordinator
New Hampshire Coastal Program
Department of Environmental Services
Pease Field Office
222 International Drive, Suite 175
Portsmouth, NH 03801

Dear Mr. Williams:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed New Hampshire's Coastal Program and analyzed potential impacts to coastal zone uses and resources in preparing this consistency determination. Based on the analyses, the Navy will be fully consistent with New Hampshire's Coastal Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

February 11, 2013

J.W. Murphy
Deputy Chief of Staff
for Fleet Installations and Environmental Readiness
U.S. Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, VA 23551-2487

RE: File No. 2012-19; Atlantic Fleet Training and Testing Study Area

Dear Mr. Murphy:

The New Hampshire Coastal Program has received the Department of the Navy's federal consistency determination for proposed activities in the Atlantic Fleet Training and Testing Study Area, pursuant to Section 307(c)(1) of the Coastal Zone Management Act, 16 U.S.C. § 1456(c)(1). After reviewing the federal consistency determination and the Atlantic Fleet Training and Testing Draft Environmental Impact Statement/Overseas Environmental Impact Statement dated May 2012, we find the proposal to be consistent, to the maximum extent practicable, with the enforceable policies of New Hampshire's federally approved coastal management program.

Should you have any questions, please feel free to contact me at (603) 559-0025.

Sincerely,

Christian Williams
Federal Consistency Coordinator
New Hampshire Coastal Program

cc: Doug Grout, NH Fish & Game Department

DES Web Site: **www.des.nh.gov**
222 International Drive, Suite 175, Portsmouth, New Hampshire 03801
Telephone: (603) 559-1500 Fax: (603) 559-1510 TDD Access: Relay NH 1-800-735-2964

C.2.12 NEW JERSEY

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1090
December 12, 2012

Ms. Kim Springer
Coastal Management Office
Department of Environmental Protection
401-07D P.O. Box 420
401 East State Street
Trenton, NJ 08625-0420

Dear Ms. Springer:

In accordance with the Coastal Zone Management Act 16 (United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analyses of potential impacts. The Navy reviewed New Jersey's Coastal Management Program for preparing this consistency determination. Based on the analyses, the Navy determined that the Proposed Action in the Study Area is consistent to the maximum extent practicable with New Jersey's Coastal Management Program. The Navy is unable to be fully consistent with the program because doing so would limit the Navy's ability to fulfill its mission as mandated by federal law (Title 10 U.S.C. § 5062), which charges the Chief of Naval Operations with the responsibility for ensuring the readiness of the nation's naval forces.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Land Use Regulation
P.O. Box 439
Trenton, New Jersey, 08625
www.state.nj.us/dep/landuse

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

FEB 28 2013

J. W. Murphy
Deputy Chief of Staff for Fleet Installations and Environmental Readiness
Department of the Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, VA 23551-2487

RE: Federal Consistency
File No.: 0000-12-0026.1 CDT 130001
United States Navy's Atlantic Fleet Training and Testing Study Area

Dear Deputy Murphy:

The New Jersey Department of Environmental Protection, Division of Land Use Regulation, acting under Section 307 of the Federal Coastal Zone Management Act (P.L. 92-583) as amended, concurs with the certification that the above referenced project is consistent with the approved New Jersey Coastal Management Program.

Specifically, the project consists of training and testing activities within existing range complexes off of the U.S. Atlantic coast, which may include the use of active sonar, fleet training and testing exercises, gunnery exercises, missile testing, the use of explosives, anti-submarine training, electronic warfare and other associated training and testing activities. The proposed action is further described in Chapter 2 of "Atlantic Fleet Training and Testing Draft Environmental Statement/Overseas Environmental Impact Statement" (May 2012).

The Navy's proposed action is a continuation of existing training and testing activities, however the proposal includes an increase in the intensity and frequency of training/testing activities. However, the Navy states that adverse effects to the environmental resources will continue to be minimized through mitigation and monitoring.

New Jersey's environmental review consists of, but is not limited to, reviews from the State Historic Preservation Office (SHPO), Division of Fish and Wildlife's Endangered and Nongame Species Program (ENSP), and the Division of Land Use Regulation.

SHPO has reviewed the proposed activities with regard to the potential to affect historic and archeological resources. Based on the information submitted, it appears that the proposed activities will require consultation pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR §800, for the identification, evaluation and treatment of historic resources within the project area.

ENSP had concerns regarding the protection of fish, sea turtles, marine mammals and avian species. A comment letter was sent to the Navy on June 29, 2012 from the NJDEP Office of Permit Coordination and Environmental Review outlining the ENSP comments regarding the minimization of adverse effects on marine life from the project.

The Division has reviewed the submitted information and has determined that the project is consistent, to the maximum extent practicable, with New Jersey's Rules on Coastal Zone Management N.J.A.C. 7:7E-1.1 et seq., (as amended on November 5, 2012). The Division does encourage the Navy to be responsive to the concerns that have been expressed by the various State agencies, when conducting the training and testing exercises.

This Federal Consistency is authorized pursuant to all parties following the guidelines set forth, and agreed upon, for the proposed activities.

Pursuant to 15 CFR 930.44, the Division reserves the right to object and request remedial action if this proposal is conducted in a manner, or is having an effect on, the coastal zone that is substantially different than originally proposed.

Thank you for your attention to and cooperation with New Jersey's Coastal Zone Management Program. If you have any questions regarding this determination, please do not hesitate to call Kara Turner of our staff at (609) 777-0454.

Sincerely,

David B. Fanz

David B. Fanz, Manager
Division of Land Use Regulation

2/28/13
Date

c: Kim Springer, Coastal Planning

C.2.13 NEW YORK

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1091
December 12, 2012

Denise Caldwell, Consistency Coordinator
Consistency Review Unit
Office of Communities & Waterfronts
New York Department of State
99 Washington Avenue
One Commerce Place, Suite 1010
Albany, New York 12231-0001

Dear Ms. Caldwell:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed New York's Coastal Management Program for preparing this consistency determination. Based on the analyses, the Navy will be fully consistent with the policies of the New York Coastal Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/057
March 5, 2013

Terra Sturn
Consistency Review Unit
Office of Communities & Waterfronts
New York Department of State
Suite 1010
One Commerce Place, 99 Washington Avenue
Albany, New York 12231-0001

Dear Ms. Sturn:

The United States Navy (Navy) is in receipt of your letter, dated February 5, 2013, requesting additional information for the Navy's consistency determination for proposed activities in the Atlantic Fleet Training and Testing (AFTT) Study Area.

My staff has addressed the issues raised in your letter either through email or during a conference call held February 11, 2013. This letter addresses the last outstanding issue, the Long Island Sound Coastal Management Program (LISCMP).

The Navy reviewed the LISCMP and has determined that the proposed activities detailed in the AFTT Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) are fully consistent with the LISCMP's enforceable policies. An explanation of determination is provided in the enclosed addendum to our original consistency package that was forwarded to you on December 12, 2012. Accordingly, this fulfills our obligation to address all enforceable policies pursuant to 15 CFR Part 930 Subpart C. The Navy also offers an extension to the coastal consistency review period to March 11, 2013 in order to review the LISCMP addendum.

We appreciate your assistance in this federal consistency process. If you have any further questions, please contact Mr. Jene Nissen at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosure: Federal Agency Coastal Zone Management Act, Consistency Determination for New York, Addendum

STATE OF NEW YORK
DEPARTMENT OF STATE
ONE COMMERCE PLAZA
99 WASHINGTON AVENUE
ALBANY, NY 12231-0001

ANDREW M. CUOMO
GOVERNOR

CESAR A. PERALES
SECRETARY OF STATE

March 11, 2013

Mr. Jene Nissen
o/b/o J.W. Murphy, Commander
U.S. Fleet Forces Command
U.S. Department of the Navy
1562 Mitscher Avenue, Suite 250
Norfolk, VA 23551-2487

Re: **F-2012- 1067 (DA)**
U.S. Department of the Navy, Direct Action
Atlantic Fleet Training and Testing - AFTT or 'Study Area' (*DEIS/ OEIS to assess environmental impacts in the AFTT Study Area that may result from Navy training and testing activities and associated range capability enhancements); the conducting and mitigation of Navy activities addressed within the DEIS/ OEIS*

Dear Mr. Nissen:

The New York State Department of State (DOS) has completed its evaluation of the United States Department of the Navy's determination regarding the consistency of the referenced actions with the New York State Coastal Management Program (NYSCMP). Through submitting its consistency determination pursuant to 15 CFR § 930.36, rather than submitting a negative determination pursuant to 15 CFR §930.35, the Navy has acknowledged that the proposed activities would have reasonably foreseeable impacts on coastal uses or resources and also that the proposed activities are not the same as or similar to activities for which consistency determinations have been prepared in the past.[1]

The Navy has prepared, and submitted for review, a Draft Environmental Impact Statement/ Overseas Environmental Impact Statement (DEIS/OEIS, May 2012) to assess the potential environmental impacts from these activities. A final document (FEIS/OEIS) is anticipated during the summer of 2013. DOS has requested to stay the consistency review period pending the availability of the completed FEIS and provision of sufficient opportunity to review its contents. The Navy has denied this request on the basis that no additional substantive information is expected to be provided at that time.

DOS finds that in lieu of the ability to review a complete proposal, including responses to public comments, it does not, at this time, have the basis from which to draw a conclusive determination regarding either the consistency or inconsistency of the proposed activities with the New York State Coastal Management Program.

[1] 15CFR §930.35 a), a2), and b).

WWW.DOS.NY.GOV • E-MAIL: INFO@DOS.NY.GOV

F-2012-1067 (DA), p.2

The DOS provided an opportunity for public comment via a public notice which appeared in the New York State Register, February 13, 2013.

Comments were received from the following parties:
1) National Resources Defense Council (NRDC) on behalf of its membership, and
2) Artie Koppelman, Ph.D., President, on behalf of the Coastal Research and Education Society of Long Island (CRESLI).

No comments were received from individual members of the general public.

Sincerely,

Fred J. Anders
Natural Resources Bureau Chief

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/101
July 11, 2013

Fred J. Anders
Natural Resources Bureau Chief
New York Department of State
One Commerce Place, 99 Washington Avenue
Albany, New York 12231-0001

Dear Mr. Anders:

The United States Navy (Navy) is in receipt of your letter dated March 11, 2013, in which the State of New York Department of State (DOS) indicated evaluation of the Navy's consistency determination was complete. The DOS also requested a stay of the consistency review period pending the availability of the completed Final Environmental Impact Statement (FEIS).

The federal agency may presume state agency concurrence if the state agency's response is not received within 60 days from receipt of the federal agency's consistency determination and supporting information required by 15 C.F.R. § 930.39(a). The DOS letter of March 11, 2013 does not identify any missing information required by 15 C.F.R. § 930.39(a), and instead states that DOS cannot make a decision without the FEIS. In accordance with the 15 C.F.R. § 930.37 of the Coastal Zone Management Act (CZMA), a federal agency's federal consistency obligations under the CZMA are independent of those required under National Environmental Policy Act. Navy's consistency determination submission was a stand-alone document containing all required 15 C.F.R. § 930.39(a) information. As such, the Navy has determined that DOS's concurrence may be presumed because the Navy has fulfilled its obligation under 15 C.F.R. § 930.39(a) and the state agency has failed to respond within 60 days of submission of the consistency determination.

Based on the analyses contained in the consistency determination, the Navy will be fully consistent with the policies of the New York Coastal Management Program. Based on the your letter of March 11, 2013, the Navy can presume DOS concurrence with our Federal Consistency Determination.

My point of contact for this matter is Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Copy to: Ms. Denise Caldwell

C.2.14 NORTH CAROLINA

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1088
December 12, 2012

Mr. Steve Rynas
Division of Coastal Management
Department of Environment and Natural Resources
400 Commerce Avenue
Morehead City, NC 28557-3421

Dear Mr. Rynas:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c)and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area. The Navy has prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed North Carolina's Coastal Management Program for preparing this consistency determination. Based on the analyses, the Navy determined that the Proposed Action in the Study Area is fully consistent with North Carolina's Coastal Management Program

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Pat McCrory
Governor

Braxton C. Davis
Director

John E. Skvarla, III
Secretary

February 12, 2013

J. W. Murphy
Deputy Chief of Staff for Fleet Installations and Environmental Readiness
Commander
US Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, VA 23551-2487

SUBJECT: **CD13-010** – Consistency Concurrence for Proposed Atlantic Fleet Training, Testing, and Associated Range Capability Enhancements, Offshore, North Carolina (DCM#20120122)

Dear Mr. Murphy:

We received your consistency determination on December 14, 2012 for the proposed Atlantic Fleet (Fleet) training, testing, and associated range capability enhancements in the Atlantic Ocean. These various activities are anticipated to include but not be limited to: fleet training and testing exercises, sonar (testing and maintenance), gunnery exercises, missile testing, the use of explosives, anti-submarine training, electronic warfare, and other associated training and testing activities. The proposed action is further described in Chapter 2 of "*Atlantic Fleet Training and Testing Draft Environmental Statement/Overseas Environmental Impact Statement*" (EIS, May 2012). The Navy's preferred alternative is "*Alternative 2*" (Section 2.8).

Overall the study area encompasses the coastal zones of all states bordering the Atlantic Ocean and the Gulf of Mexico. Many of the proposed fleet activities, while in the Atlantic Ocean, will be outside of North Carolina's coastal area. Nevertheless, some Fleet activities, even if outside of North Carolinas coastal area, could potentially affect coastal uses and/or coastal resources located within North Carolina's coastal area. The Navy does not propose any activities on land within North Carolina. The applicability of this consistency concurrence, by the State of North Carolina, is limited to proposed Fleet activities that would affect North Carolina's coastal area.

The Navy's proposed action is a continuation of Fleet training which has been the subject of prior environmental review and subject to prior consistency concurrences. The current environmental

400 Commerce Ave., Morehead City, NC 28557-3421
Phone: 252-808-2808 \ FAX: 252-247-3330 Internet: www.nccoastalmanagement.net

impact statement is an analytical update and consolidation into one document of six previous environmental impact statements. Nevertheless, the proposed action under this review would be an increase (from the existing situation) in the intensity of training and testing activities. The Navy states, in the current EIS, that environmental resource impacts will remain essentially unchanged from the effects analyzed under the "*No Action*" alternative. Additionally, the Navy states that adverse effects to environmental resources will be minimized through mitigation and monitoring.

The prior three consistency concurrences were DCM#20080169, DCM#20080168, and DCM#20080118. These prior consistency concurrences acknowledged that Fleet training has been an ongoing activity that has spanned many years. The agency and public review process related to these prior Fleet activities did not disclose any inconsistencies with North Carolinas Coastal management program. Nevertheless, those commenting on the previous proposed Fleet actions expressed the following (summarized) concerns related to tourism, fishing, debris accumulation, the need to protect sensitive habitats, and protect threatened and endangered species.

North Carolina's coastal zone management program consists of, but is not limited to, the Coastal Area Management Act, the State's Dredge and Fill Law, Chapter 7 of Title 15A of North Carolina's Administrative Code, and the land use plan of the County and/or local municipality in which the proposed project is located. It is the objective of the Division of Coastal Management (DCM) to manage the State's coastal resources to ensure that proposed Federal activities would be compatible with safeguarding and perpetuating the biological, social, economic, and aesthetic values of the State's coastal waters.

To solicit public comments, DCM circulated a description of the proposed project to State agencies that would have a regulatory interest. No comments asserting that the proposed activity would be inconsistent with the State's coastal management program were received. Nonetheless, several State agencies reiterated concerns previously expressed. The North Carolina Wildlife Resources Commission (NCWRC) encourages the protection of marine mammals, reptiles, and avian species. Accordingly, the NCWRC endorsed the concerns expressed by the USFWS and NOAA regarding the necessity for Fleet activities to minimize adverse effects on marine life. The North Carolina Division of Parks and Recreation (NCDPR) and the North Carolina Natural Heritage Program (NCNHP) noted that Fleet (increased) activities could affect threatened and endangered species and significant natural heritage areas. Both the NCDPR and the NCNHP recommend that Fleet activities be conducted with extreme care and that monitoring and mitigation be utilized to minimize adverse effects. The North Carolina Division of Marine Fisheries (NCDMF) clarified that hard bottom habitat does not require a "*stony bottom, bedrock, or rubble*" as described in the EIS. Additionally, NCDMF encouraged the Navy to further study the effects of sonar and electromagnetic radiation on marine animals. The Navy provided a response to those comments on January 25, 2013. A copy of each of the comments received from the State agencies has been attached for reference.

DCM has reviewed the submitted information pursuant to the management objectives and enforceable policies of Subchapters 15A NCAC 07H and15A NCAC 07M of Chapter 7 of Title 15A of North Carolina's Administrative Code which are a part of the State's certified coastal

management program and concurs that the proposed Federal activity is consistent, to the maximum extent practicable, with the enforceable policies of North Carolina's coastal management program. This concurrence applies only to the Navy's implementation of Fleet actions as described in the consistency submission which also references adherence to the mitigation measures described in the "*Atlantic Fleet Training and Testing Draft Environmental Statement/Overseas Environmental Impact Statement*" (May 2012). Though we concur with the Navy's consistency determination, we continue to encourage the Navy, when conducting its training exercises, to be responsive to the concerns that have been expressed by the various State agencies.

Should the proposed action be modified, a revised consistency determination could be necessary. This might take the form of either a supplemental consistency determination pursuant to 15 CFR 930.46, or a new consistency determination pursuant to 15 CFR 930.36. Likewise, if further project assessments reveal environmental effects not previously considered by the proposed action or which become significant due to the long-term cumulative effects of the proposed action, a supplemental consistency certification may be required. If you have any questions, please contact Stephen Rynas at 252-808-2808 x209. Thank you for your consideration of the North Carolina Coastal Management Program.

Sincerely,

Doug Huggett

Doug Huggett
Manager, Major Permits and Consistency Unit

Cc: Jene Nissen, Fleet Installations and Environmental Readiness

Page: 3

C.2.15 PUERTO RICO

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1092
December 12, 2012

Ms. Rose A. Ortiz, Planning Analyst
Puerto Rico Planning Board
P.O. Box 41119
San Juan, Puerto Rico 00940-1119

Dear Ms. Ortiz:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed Puerto Rico's Coastal Zone Management Program for preparing this consistency determination. Based on the analyses, the Navy has determined that the Proposed Action in the Study Area will be fully consistent with Puerto Rico's Coastal Zone Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

Puerto Rico Planning Board
Office of the Governor
Commonwealth of Puerto Rico

Roberto Sanchez Vilella Government Center
De Diego Ave., Stop 22, Santurce, PR
P.O. Box 41119, San Juan PR 00940-1119

February 15, 2013

Mr. J.W. Murphy
Deputy Chief of Staff
For Fleet Installations and Environmental Readiness
Department of the Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue Suite 250
Norfolk, VA 23551-2487

Federal Consistency Determination
CZ-2013-0116-053
Atlantic Fleet Training and Testing Activities
Puerto Rico Jurisdiction

Dear Mr. Murphy:

The Puerto Rico Planning Board has been evaluating the Federal Consistency Determination and Environmental Impact Statement documents for the federal activity at reference. According to provided information, the Department of the Navy is evaluating alternatives as part of an effort to plan and organize the required training and testing activities to guarantee the readiness of the Navy's fleets and personnel for facing the actual National Security threats. The alternative number 2, (selected as preferred) include the Puerto Rico jurisdiction within the Atlantic Fleet Training and Testing (AFTT) Study Area. The proposed activities that have the potential to impact Puerto Rico Coastal Zone are the following:

Federal Activities	No. of events	Ordnance (Number per year)
Gunnery Exercise (Surface to-Air) – Medium-Caliber (GUNEX [S-A]) – Medium-Caliber	14	30,000 rounds
Gunnery Exercise (Surface to-Surface) – Ship Small-Caliber (GUNEX [S-S] – Ship) Small-Caliber	70	201,000 rounds

Federal Activities	No. of events	Ordnance (Number per year)
(GUNEX [S-S] - Ship) - Medium-Caliber	32	3,840 rounds (320 HE)
Gunnery Exercise (Surface to-Surface) - Ship Large-Caliber (GUNEX [S-S] - Ship) - Large-Caliber	18	633 rounds (96 HE)
Gunnery Exercise (Surface to-Surface) - Boat Small-Caliber (GUNEX [S-S] - Boat) - Small-Caliber	18	26,500 rounds
Sinking Exercise (SINKEX)	1	1 HE bomb; 11 HE missiles; 700 HE rounds; 1 HE torpedo (representative scenario)
Tracking Exercise/ Torpedo Exercise – Submarine (TRACKEX/ TORPEX – Sub)	44	
Tracking Exercise/ Torpedo Exercise – Surface (TRACKEX/ TORPEX – Surface)	98	
Tracking Exercise/ Torpedo Exercise – Helicopter (TRACKEX/ TORPEX – Helo)	24	
Surface Ship Sonar Maintenance (in OPAREAs and Ports)	32	N/A
Submarine Sonar Maintenance (in OPAREAs and Ports)	12	N/A
Air Combat Maneuver (ACM)	550	N/A
Air Platform/ Vehicle Test	468	N/A

Federal Activities		**No. of events**	**Ordnance (Number per year)**
ASW Tracking Test - Maritime Patrol Aircraft		16	368 HE sonobuoys
SUW Mission Package Testing	Gun Testing – Small-Caliber	5	2,500
	Gun Testing – Medium-Caliber	5	7,000
	Gun Testing – Large-Caliber	5	7,000
Missile Testing		1	1 missile
Kinetic Energy Weapon Testing		1	5,000
Torpedo (Explosive) Testing		2	28 torpedoes (8 HE torpedoes)
Countermeasure Testing		4	N/A
Radio-Frequency Communications Testing		13	N/A
Hydrodynamic Testing		2	N/A

Although none of the above listed training and testing activities will be conducted on lands within the Puerto Rico jurisdiction, these have the potential to impact the Puerto Rico Coastal Zone depending on their location and timing. Considering that precise information about location and timing of these activities cannot be provided in this phase of the proposed Federal Activities planning process, the Puerto Rico Planning Board provides the following recommendations in order to make the proposed activities consistent as maximum extent practicable with the Puerto Rico Coastal Zone Management Program (PRCZMP):

1- According to the enforceable Law Number 23 of June 20, 1972 (Organic Law of the Department of Natural and Environmental Resources) and applicable regulations, the Secretary of the Department of Natural and Environmental Resources (DNER) has the duty to exert vigilance and conservation of the territorial waters, submerged lands and maritime zone within the Puerto Rico jurisdiction. This Agency is the authority that administers and regulates public and private activities in the Puerto Rico coastal waters. Therefore, coordination with DNER will help the Navy to plan the proposed activities avoiding conflicts with other private and public uses that occur in the surroundings of the Puerto Rico Coastal Zone. The DNER would also provide information that will be helpful to avoid and minimize impacts on marine resources.

2- According to the Puerto Rico Environmental Policy Law (as amended by Law Number 416 of September 22, 2004), the Environmental Quality Board (EQB) is the agency with the duty to regulate activities that impact water and air quality within the Puerto Rico jurisdiction. This agency will be consulted in case that those activities with potential of impacting water and air quality are planned close to the Puerto Rico jurisdiction.

3- According to Law Number 89 of June 21, 1955 (Puerto Rico Culture Institute Organic Law), as amended, the Puerto Rico Culture Institute is the state Agency with the mission of implementing and enforcing the public policies directed to conserve and preserve cultural values of Puerto Rico. This agency safeguards the information about archaeological findings that are important for the Puerto Rico jurisdiction. Therefore, in case that the Navy plans an activity close to the Puerto Rico jurisdiction, coordination with this agency will help in identifying the location of archaeological sites in order to avoid impacts.

The Puerto Rico Planning Board is in the best disposition to collaborate with the Navy by providing required information and assistance in order to satisfy the National Security needs avoiding and minimizing impacts on the Puerto Rico Coastal Zone. For any question or assistance related to this matter, contact Rose A. Ortiz at (787) 722-0101, dial number 3, and extension 16705 or send an e-mail to: ortiz_r@jp.pr.gov

Thank you for the opportunity to comment.

Cordially,

Luis García Pelatti
Chairman

c. Hon. Carmen Guerrero Pérez, Secretary DNER
Mr. Ernesto Díaz, Director PRCZMP

C.2.16 RHODE ISLAND

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1093
December 12, 2012

Mr. Jeff Willis
Coastal Resources Management Council
Stedman Office Building
4808 Tower Hill Road
Wakefield, RI 02879-1900

Dear Mr. Willis:

In accordance with the Coastal Zone Management Act (16 United States Code § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. Based on the analyses, the Navy determined that the Proposed Action in the Study Area will be fully consistent with Rhode Island's Coastal Resources Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/047
February 21, 2013

Mr. Grover J. Fugate
Executive Director
Coastal Resources Management Council
Oliver H. Steadman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, RI 02879-1900

Dear Mr. Fugate:

The United States Navy (Navy) is in receipt of your letter, dated January 25, 2013, requesting that a review of Rhode Island's Ocean Special Area Management Plan (SAMP) be included in the Navy's consistency determination for proposed activities in the Atlantic Fleet Training and Testing (AFTT) Study Area and a 60 day extension be granted to Coastal Resources Management Council review period.

The Navy reviewed the Ocean SAMP and has determined that proposed activities detailed in the AFTT Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) are fully consistent with the Ocean SAMP's enforceable policies. An explanation of determination is provided in the enclosed table. In addition, this table is being submitted as an addendum to our original consistency package which was forwarded to you on December 14, 2012. Accordingly, this fulfills our obligation to address all enforceable policies pursuant to 15 CFR Part 930 Subpart C.

Regarding your request for a 60 day extension to the initial response date of February 17, 2013, we are only able to extend the review period to March 11, 2013. An extension beyond that date would impact our ability to meet the AFTT EIS/OEIS completion timeline which supports our National Marine Fisheries Service permit authorizations.

We appreciate your assistance in this federal consistency process. If you have any further questions, please contact Mr. Jene Nissen at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosure: Federal Agency Coastal Zone Management Act, Consistency Determination For Rhode Island, Addendum Table 4.

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/047
February 21, 2013

Mr. Grover J. Fugate
Executive Director
Coastal Resources Management Council
Oliver H. Steadman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, RI 02879-1900

Dear Mr. Fugate:

The United States Navy (Navy) is in receipt of your letter, dated January 25, 2013, requesting that a review of Rhode Island's Ocean Special Area Management Plan (SAMP) be included in the Navy's consistency determination for proposed activities in the Atlantic Fleet Training and Testing (AFTT) Study Area and a 60 day extension be granted to Coastal Resources Management Council review period.

The Navy reviewed the Ocean SAMP and has determined that proposed activities detailed in the AFTT Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) are fully consistent with the Ocean SAMP's enforceable policies. An explanation of determination is provided in the enclosed table. In addition, this table is being submitted as an addendum to our original consistency package which was forwarded to you on December 14, 2012. Accordingly, this fulfills our obligation to address all enforceable policies pursuant to 15 CFR Part 930 Subpart C.

Regarding your request for a 60 day extension to the initial response date of February 17, 2013, we are only able to extend the review period to March 11, 2013. An extension beyond that date would impact our ability to meet the AFTT EIS/OEIS completion timeline which supports our National Marine Fisheries Service permit authorizations.

We appreciate your assistance in this federal consistency process. If you have any further questions, please contact Mr. Jene Nissen at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosure: Federal Agency Coastal Zone Management Act, Consistency Determination For Rhode Island, Addendum Table 4.

State of Rhode Island and Providence Plantations
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, RI 02879-1900

(401) 783-3370
Fax (401) 783-3767

March 6, 2013

J. W. Murphy, Deputy Chief of Staff
Fleet Installations and Environmental Readiness
United States Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, VA 23551-2487

RE: The Department of the Navy Consistency Determination regarding proposed activities in the Atlantic Fleet Training and Testing (AFTT) Study Area

Dear Sirs/Madam:

In accordance with Title 15 of the code of Federal Regulations, Part 930, subpart C (Consistency for Federal Activities) and review of the consistency determinations filed by the U.S. Navy on December 17, 2012, and further on February 21, 2013, the Coastal Resources Management Council hereby concurs with the determination that the referenced project is consistent with the Federally approved Rhode Island Coastal Resources Management Council Program and applicable regulations therein.

Please contact this office upon initiation of construction, or if you should have any questions regarding this project.

Sincerely,

Grover J. Fugate, Executive Director
Coastal Resources Management Council

/kc
cc: Jeffrey M. Willis, Deputy Director
Jene Nissen, USN
James Boyd, CRMC Coastal Policy Analyst
CRMC members
Brian Goldman, CRMC Legal Counsel

C.2.17 SOUTH CAROLINA

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1094
December 12, 2012

Ms. Barbara Neale, Director
Regulatory Programs
Office of Ocean and Coastal Resource Management
Department of Health and Environmental Control
1362 McMillan Avenue, Suite 400
Charleston, SC 29405-2029

Dear Ms. Neale:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy has prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed South Carolina's Coastal Zone Management Program for preparing this consistency determination. Based on the analyses, the Navy has determined that the Proposed Action in the Study Area will be fully consistent with South Carolina's Coastal Zone Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

C.2.18 TEXAS

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1095
December 12, 2012

Ms. Kate Zultner
Consistency Review Coordinator
Coastal Resources Division
Texas General Land Office
P.O. Box 12873
Austin, TX 78711-2873

Dear Ms. Zultner:

In accordance with the Coastal Zone Management Act (16 United States Code § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analyses of potential impacts. The Navy reviewed the Texas Coastal Management Program for preparing this consistency determination. Based on the analyses, the Navy has determined that the Proposed Action in the Study Area will be fully consistent with Texas' Coastal Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

C.2.19 U.S. VIRGIN ISLANDS

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1096
December 12, 2012

Mr. Norman Williams
Division of Coastal Zone Management
Department of Planning and Natural Resources
45 Mars Hill
Frederiksted, St. Croix, VI 00840

Dear Mr. Williams:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the United States Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy prepared a Draft Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy reviewed the U.S. Virgin Islands Coastal Management Program for preparing this consistency determination. Based on the analysis, the Navy determined that the Proposed Action in the Study Area is fully consistent with the U.S. Virgin Islands Coastal Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Mr. Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. Hard copy of the Draft EIS/OEIS
2. CD with electronic copy of Draft EIS/OEIS
3. Federal Consistency Determination

C.2.20 VIRGINIA

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1078
December 12, 2012

Ms. Ellie Irons
Department of Environmental Quality
629 E. Main Street
Richmond, VA 23219

Dear Ms. Irons:

In accordance with the Coastal Zone Management Act (16 United States Code [U.S.C.] § 1456(c) and 15 Code of Federal Regulations [C.F.R.] Part 930 Subpart C), the U.S. Department of the Navy (Navy) requests concurrence with its Federal Consistency Determination for proposed activities in the Atlantic Fleet Training and Testing Study Area (Study Area). The Navy has prepared a Draft Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) to assess the potential environmental impacts in the Study Area that may result from Navy training and testing activities and associated range capability enhancements.

The enclosed Draft EIS/OEIS contains detailed information and analysis of potential impacts. The Navy has reviewed Virginia's Coastal Zone Management Program for preparing this consistency determination. Based on the analyses, the Navy has determined that the Proposed Action in the Study Area will be fully consistent with Virginia's Coastal Zone Management Program.

We look forward to your timely review of and concurrence with the Navy's determination. My point of contact for this matter is Jene Nissen and he can be reached at 757-836-5221 or richard.j.nissen@navy.mil.

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

February 11, 2013

Mr. J. W. Murphy
Fleet Installations and Environmental Readiness
Department of the Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, Virginia 23551-2487

RE: Federal Consistency Determination for the Atlantic Fleet Training and Testing, Department of the Navy (DEQ 12-228F).

Dear Mr. Murphy:

The Commonwealth of Virginia has completed its review of the Federal Consistency Determination (FCD) for the above-referenced project. The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of Federal Consistency Determinations and responding to appropriate officials on behalf of the Commonwealth. This letter is in response to your submission dated December 12, 2012 (received December 14, 2012) requesting concurrence with the Federal Consistency Determination prepared by the Department of the Navy (Navy). In addition, DEQ conducted a coordinated review of the draft Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) previously submitted by the Navy and responded on behalf of the Commonwealth on July 9, 2012. The following agencies and planning district commission participated in this review:

Department of Environmental Quality
Department of Conservation and Recreation
Virginia Marine Resources Commission
Department of Game and Inland Fisheries
Department of Aviation
Department of Health
Department of Historic Resources
Hampton Roads Planning District Commission

Mr. J.W. Murphy
Atlantic Fleet Training and Testing

In addition, the Department of Mines, Minerals, and Energy, Virginia Institute of Marine Science, and Accomack-Northampton Planning District Commission were invited to comment on the proposal.

PROJECT DESCRIPTION

The Department of the Navy (Navy) proposes to conduct military readiness training and research, development, test and evaluation activities within the Atlantic Fleet Training and Testing (AFTT) Area. The AFTT Area is in the western Atlantic Ocean and encompasses the waters off the east coast of North America and the Gulf of Mexico. The area covers approximately 2.6 million nautical square miles of ocean area, and includes designated Navy operating areas and special use airspace. Virginia offshore and inland coastal waters in the Study Area includes the Virginia Capes (VACAPES) Range Complex and the lower Chesapeake Bay. The VACAPES Range Complex spans 270 miles along the coast from Delaware to North Carolina from the shoreline to 155 nautical miles (nm) seaward, and includes special use airspace with associated warning and restricted areas, and surface and subsurface sea space of the VACAPES Operations Area (OPAREA). The VACAPES Range Complex also includes established mine warfare training areas located within the lower Chesapeake Bay and off the coast of Virginia. Proposed activities have the potential to impact sediments and water quality, air quality, marine habitats, marine mammals, sea turtles and other marine reptiles, birds, marine vegetation, marine invertebrates, fish, cultural resources, socioeconomic resources, and public health and safety.

PUBLIC PARTICIPATION

In accordance with 15 CFR §930.2, the public was invited to participate in the review of the FCD. Public notice of this proposed action was published on the DEQ website from December 18, 2012 through January 15, 2013. No public comments were received in response to the notice. On January 23, 2013 (eight days after the public comment period closed) the Natural Resources Defense Council (NRDC) requested that DEQ reopen the public comment period to facilitate members of NRDC to submit comments. DEQ agreed to accept a coordinated response from NRCD on behalf of its members in lieu of several hundred comments from individual members. NRDC accepted the offer but failed to submit any comments to date.

FEDERAL CONSISTENCY CONDITIONAL CONCURRENCE

Based on our review of the Navy's consistency determination and the comments submitted by agencies administering the enforceable policies of the VCP, DEQ conditionally concurs that the proposal is consistent with the VCP provided the proposal complies with all the applicable permits, approvals, and conditions of the enforceable policies of the VCP.

Mr. J.W. Murphy
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The conditions of this concurrence include, but are not limited to, receiving applicable permits for activities affecting the territorial waters of Virginia prior to commencing such activities. Potential applicable permits are related to the following enforceable policies of the VCP:

(i) subaqueous lands management (Virginia Code § 28.2-1200 – 28.2-1213)
(ii) wetlands management (and water quality) (Virginia Code § 62.1-44.15:5 and § 401 of the Clean Water Act)
(iii) dunes management (Virginia Code § 28.2-1400 – 28.2-1420)
(iv) air pollution control (Virginia Code § 10.1-1300 – 10.1-1320)
(v) coastal lands management (Virginia Code § 10.1-2100 – 10.1-2114)

In accordance with the *Federal Consistency Regulations* at 15 CFR Part 930, section 930.4, this conditional concurrence is based on the Navy obtaining necessary authorizations prior to any actions that would impact any of the enforceable policies. If the requirements of section 930.4, sub-paragraphs (a)(1) through (a)(3) are not met, this conditional concurrence becomes an objection under 15 CFR Part 930, section 940.43.

Other state approvals which may apply to this project are not included in this conditional concurrence. Therefore, the Navy must ensure that these activities are conducted in accordance with all applicable federal, state, and local laws and regulations.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972 (§ 1456(c)), as amended, and the federal consistency regulations implementing the CZMA (15 CFR Part 930, Subpart C, § 930.30 *et seq.*) federal actions that can have reasonably foreseeable effects on Virginia's coastal uses or resources must be conducted in a manner which is consistent, to the maximum extent practicable, with the Virginia Coastal Zone Management Program (VCP). The VCP is comprised of a network of programs administered by several agencies. In order to be consistent with the VCP, the federal agency activities must be consistent with all the applicable enforceable policies of the VCP prior to commencing the project.

FEDERAL CONSISTENCY ANALYSIS

The analysis that follows addresses the enforceable policies of the Virginia Coastal Zone Management Program that apply to the proposed action. In order to be consistent with the VCP, the Navy must obtain all the applicable permits and approvals listed under the enforceable policies of the VCP prior to commencing with the proposed activities.

According to information in the FCD, the proposed activities would have no effect on the following enforceable policies: subaqueous lands management; wetlands management; dunes management; nonpoint source pollution control; point source pollution control; shoreline sanitation; and coastal lands management. The Navy must ensure that the

proposed action is consistent with the aforementioned policies. In addition, DEQ encourages the Navy to consider the effects of the proposed activities on the advisory policies of the VCP (Attachment 2). The analysis which follows responds to the Navy's discussion of the enforceable policies of the VCP that apply to this project and review comments submitted by agencies that administer the enforceable policies.

1. Fisheries Management. According to the FCC (page 8), the proposed activities have the potential to affect commercial and recreational fisheries. Activities involving repeated ordinance use (particularly explosive ordinance) military expended material, and shallow-water ship and submersible activity could temporarily limit access to areas of the coastal zone, including popular fishing locations. The document finds that there is a remote possibility that individual fish could encounter explosive or non-explosive ordnance or other expended materials. Long-term consequences for populations due to acoustic stressors would not be expected. The Navy has submitted an Essential Fish Habitat Assessment to National Marine Fisheries Service pursuant to the *Magnuson-Stevens Fishery Conservation and Management Act*, and is engaged in consultation.

1(a) Agency Jurisdiction.

(i) Virginia Marine Resources Commission and the Department of Game and Inland Fisheries

The fisheries management enforceable policy is administered by the Virginia Marine Resources Commission (VMRC) (Virginia Code 28.2-200 to 28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Virginia Code 29.1-100 to 29.1-570).

(ii) Virginia Department of Health

The Virginia Department of Health's (VDH) Division of Shellfish Sanitation (DSS) is responsible for protecting the health of the consumers of molluscan shellfish and crustacea by ensuring that shellfish growing waters are properly classified for harvesting, and that molluscan shellfish and crustacea processing facilities meet sanitation standards. The mission of this Division is to minimize the risk of disease from molluscan shellfish and crustacea products at the wholesale level by classifying shellfish waters for safe commercial and recreational harvest; by implementing a statewide regulatory inspection program for commercial processors and shippers; and by providing technical guidance and assistance to the shellfish and crustacea industries regarding technical and public health issues.

1(b) Agency Findings.

(i) Virginia Marine Resources Commission

VMRC finds that, while the majority of activities will occur outside Virginia's designated coastal zone, it appears that many, if not most, of the activities in Virginia waters are the

same or similar training activities that have been occurring or ongoing in the area for some time without significant impact on fishery resources.

Comments on fisheries for the Navy's draft EIS/OEIS were provided by VMRC in May of 2012 and are reproduced as follows.

> *VMRC finds that the Navy's proposed training and testing activities, which may include the use of active sonar and explosives, could be harmful to a spawning run of adult female sturgeon, striped bass, or any alosine species, preparing to migrate into the Chesapeake Bay and also to any young or mature adults returning to the ocean after their spawning migrations are complete.*
>
> *Atlantic sturgeon, currently listed as endangered, and candidate endangered species, alewife, blueback herring, and American eel, have incurred notable declines due to both overfishing and habitat degradations and loss. The National Marine Fisheries Service estimates that the adult population of Atlantic sturgeon in the Chesapeake Bay consists of only 329 adults and 987 sub-adults. Alosine species, such as American shad, alewife, and blueback herring are currently under harvest moratoriums due to population declines. A commercial and recreational harvest moratorium on American shad has been in effect since 1994 (Chesapeake Bay) and 2005 (territorial waters of Virginia). A commercial and recreational harvest moratorium on river herring (alewife and blueback herring) has been in effect since January 1, 2012. Alosines congregate in the offshore waters of Virginia prior to their spawning runs, which can span a time period extending from February 15 through June 30. Any use of active sonar or explosives near these congregations could disrupt spawning behavior.*
>
> *In addition, biological impacts by sonar and explosives to burrowed blue crabs in winter aggregates in the lower Chesapeake Bay, near the Territorial Sea, should be addressed, as this stock is still recovering from a near-collapse of the Chesapeake Bay stock in 2008. Over-wintering female hard crabs represent the harvest potential for the upcoming year's fishery, and the future potential for the population, as the crabs congregate in the lower Chesapeake Bay, and offshore waters of the Territorial Sea, to release their eggs during the spring.*
>
> *The most recent fishery independent winter-dredge survey noted that the number of spawning age females recorded by the survey dropped by roughly 50 percent from 2011 levels, down to 97 million. That level is above the healthy-species threshold, but the low recorded number of spawning age females is a warning signal that requires a risk-averse, prudent management strategy to avert another stock decline. Crab abundance from 1998 through 2008 was at a much reduced level before the bay-wide stock rebuilding program began four years ago.*

In comments to the draft EIS/OEIS VMRC noted the possible need to further consider certain fishery resources impacts. VMRC notes that it does not appear those comments have been specifically addressed to date in the documentation provided for the FCD.

(ii) Department of Game and Inland Fisheries

The Department of Game and Inland Fisheries (DGIF) has no comments on the proposed action.

(iii) Virginia Department of Health

According to the VDH-DSS, the project area includes both condemned and approved shellfish waters.

1(c) Recommendation.

VMRC recommends that the final EIS/OEIS should address its previous fishery related comments.

1(d) Conclusion.

(i) Virginia Marine Resources Commission

VMRC has no objection to ongoing Navy operations or activities with respect to their consistency with the fisheries management enforceable policy of the VCP.

(ii) Department of Game and Inland Fisheries

DGIF did not indicate that the proposed action is inconsistent with the fisheries management enforceable policy of the VCP under its jurisdiction.

(iii) Virginia Department of Health

VDH-DSS concludes that there would be no changes to the number or extent of existing shellfish condemnations based on the activities described.

For further information, contact VMRC, Justine Woodward at (757) 247-8027, DGIF, Amy Ewing at (804) 367-2211, and/or VDH-DSS, Keith Skiles at (804) 864-7487.

2. Subaqueous Lands Management. According to the FCC (page 8), this policy is not applicable as the proposed activities are not of the type that requires permits.

2(a) Agency Jurisdiction. The Virginia Marine Resources Commission, pursuant to Section 28.2-1200 *et seq.* of the *Code of Virginia*, has jurisdiction over any encroachments in, on, or over any state-owned rivers, streams, or creeks in the Commonwealth. VMRC administers the subaqueous lands management enforceable policy of the VCP.

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The VMRC serves as the clearinghouse for the Joint Permit Application (JPA) used by:

- VMRC for encroachments on or over state-owned subaqueous beds as well as tidal wetlands;
- U.S. Army Corps of Engineers for issuing permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act;
- DEQ for issuance of a Virginia Water Protection Permit; and
- local wetlands board for impacts to wetlands.

2(b) Findings. VMRC finds that the activities described appear to be similar to many that have previously occurred in Virginia waters in the lower Chesapeake Bay and the Atlantic Ocean without significant impact on submerged lands. In addition, previous VMRC comments on the draft EIS/OEIS regarding agency jurisdiction and permitting for activities impacting state-owned subaqueous lands were provided by VMRC in June of 2012. Those comments are as follows.

> *In accordance with §28.2-1203 of the Code of Virginia, permits from the Habitat Management Division of VMRC may be necessary for certain training or testing activities that are to occur over, or that may otherwise impact, the identified state-owned submerged bottomlands. Without identifying all of the potential training activities that could occur, specific activities that will result in the filling or encroachment over state-owned submerged bottomlands will require a VMRC permit. In addition, activities that will result in the disturbance to identified areas of submerged aquatic vegetation (SAV) or the abandonment of vessels, structures, or materials over the state's submerged bottomlands will require a VMRC permit.*
>
> *To obtain a VMRC permit, the Navy must complete and submit a JPA detailing the proposed activities and their impacts and locations. Prior to submitting a JPA, the Navy should contact Habitat Management staff to review all proposed activities and impacts over state-owned submerged bottomlands. Staff will determine if a VMRC permit is required, and then provide guidance and direction for the completion of the JPA, if necessary.*

VMRC finds that it does not appear its previous comments have been specifically addressed in the documentation provided for the consistency review. The activities requiring a permit would be those that could possibly result in, or act as, a fill on state-owned submerged lands. Although the FCD suggests no activities will occur that require a permit pursuant to the subaqueous lands management enforceable policy of the VCP, permits have been issued in the past for Navy training exercises involving the installation of temporary causeways on, and adjacent to the beach over submerged land at both Fort Story and Little Creek.

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2(c) Recommendation.

VMRC recommends that the final EIS/OEIS should address activities that could result in impacts to submerged lands.

2(d) Conclusion. VMRC has no objection to a finding of consistency for ongoing Navy operations or activities, and those that previously received permits, that may result in impacts to state-owned submerged lands. Such activities will require review through the local-state-federal Joint Permit Application process.

For additional information and coordination, contact VMRC, Justine Woodward at (757) 247-8027.

3. Wetlands Management. According to the FCD (page 8), the wetlands management enforceable policy is not applicable to the proposed action. The document states that proposed activities would not take place in tidal wetlands and, therefore, wetlands would not be affected.

3(a) Agency Jurisdiction. The wetlands management enforceable policy is administered by VMRC and DEQ. The tidal wetlands program is administered by VMRC in accordance with Virginia Code 28.2-1301 through 28.2-1320. The Virginia Water Protection Permit program is administered by DEQ and includes the protection of both tidal and non-tidal wetlands in accordance with Virginia Code §62.1-44.15:5 and Water Quality Certification pursuant to Section 401 of the Clean Water Act.

3(b) Agency Findings.

(i) Virginia Marine Resources Commission

VMRC finds that the activities described appear to be similar to many that have previously occurred in Virginia waters in the lower Chesapeake Bay and the Atlantic Ocean without significant impact on tidal wetlands. Although the FCD finds that no activities will occur that require a permit pursuant to the tidal wetlands program, permits have been issued in the past for Navy training exercises.

(ii) Department of Environmental Quality

The Virginia Water Protection Permit (VWPP) program at the DEQ Tidewater Regional Office (TRO) finds that it appears that much of the proposed activity will fall outside the regulatory purview of the VWPP program as they will occur outside of Virginia's Territorial Sea. In addition, specific activities may not be subject to regulation under the VWPP program.

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3(c) Agency Requirements.

(i) Virginia Marine Resources Commission

The activities requiring a permit would be those that may result in, or act as, a fill in tidal wetlands. Such activities would be reviewed through the local-state-federal Joint Permit Application process.

(ii) Department of Environmental Quality

A VWPP or other authorizations may be required for those regulated activities that may occur within Virginia waters. Based on the diverse training and testing activities described for this action, it is not possible to provide a definitive assessment of specific regulatory requirements. Should specific activities regulated under Virginia Code Section 62.1-44.15:20 and Virginia Administrative Code Section 9 VAC 25-210 be proposed, all necessary authorizations must be obtained and complied with. In the event of uncertainty concerning a specific activity, early coordination with the VWPP program at DEQ-TRO is recommended.

3(d) Conclusion.

(i) Virginia Marine Resources Commission

VMRC has no objection to a finding of consistency for ongoing Navy operations or activities, and those activities that previously received permits, that may result in impacts to tidal wetlands.

(ii) Department of Environmental Quality

DEQ did not indicate that the proposed action is inconsistent with the wetlands management enforceable policy of the VCP under the agency's jurisdiction.

For additional information and coordination, contact VMRC, Justine Woodward at (757) 247-8027 and/or the VWPP program at DEQ-TRO, Bert Parolari at (757) 518-2166, for additional information,

4. Dunes Management. The FCC (page 8) states that the dunes management enforceable policy is not applicable to the proposed activities. The proposed activities would not impact dunes or dune management since no land activities would occur.

4(a) Agency Jurisdiction. Dune protection is carried out pursuant to The Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. In accordance with the commonwealth's Coastal Primary Sand Dune/Reaches Guidelines: Barrier Island Policy (4 VAC 20-440-10 B. 1), no construction or any other activity which has the potential for encroaching on or otherwise damaging coastal primary sand dunes or state-owned beaches shall occur

without review and approval by VMRC (Virginia Code 28.2-1400 through 28.2-1420) or a local wetland board, or both.

4(b) Agency Findings. As previously noted, VMRC finds that the activities described appear to be similar to many that have previously occurred in Virginia waters in the lower Chesapeake Bay and the Atlantic Ocean. These activities have not resulted in significant impacts to primary sand dunes or state-owned beaches. Although the FCD finds that no activities will occur that require authorization, permits have been issued by VMRC in the past for Navy training exercises that involved the installation of temporary causeways on, and adjacent to the beach at both Fort Story and Little Creek.

4(c) Requirements. According to VMRC, Navy activities requiring a permit would be those that result in impacts to primary sand dunes and state-owned beaches. Such activities must be reviewed through the local-state-federal Joint Permit Application process.

4(d) Conclusion. VMRC has no objection to a finding of consistency for ongoing Navy operations or activities, and those that previously received permits, that may result in impacts to primary sand dunes and beaches.

For further information, contact VMRC, Justine Woodward at (757) 247-8027.

5. Nonpoint Source Pollution Control. According to the FCD (page 8), no soil-disturbing projects would be initiated with the proposed activities. Navy training occurs in coastal and offshore waters, and activities do not include any construction.

5(a) Agency Jurisdiction. The Department of Conservation and Recreation (DCR) Division of Stormwater Management (DSM) administers the nonpoint source pollution control enforceable policy of the VCP through the *Virginia Erosion and Sediment Control Law and Regulations* (*VESCL&R*) and *Virginia Stormwater Management Law and Regulations* (*VSWML&R*).

5(b) Agency Findings. DCR-DSM has no comments on the proposed action.

5(c) Conclusion. The action, as proposed, is consistent with the nonpoint source pollution control enforceable policy of the VCP.

6. Point Source Pollution Control. The FCD (page 8) states that the proposed activities would not result in point source pollution discharges. A National Pollutant Discharge Elimination System permit is not required for the proposed activities.

6(a) Agency Jurisdiction. The point source pollution control enforceable policy is administered by the State Water Control Board (DEQ) pursuant to Virginia Code 62.1-44.15. Point source pollution control is accomplished through the implementation of: (1) the National Pollutant Discharge Elimination System (NPDES) permit program established pursuant to Section 402 of the federal Clean Water Act and administered in Virginia as the

Virginia Pollutant Discharge Elimination System (VPDES) permit program; and (2) the Virginia Water Protection Permit program administered by DEQ; Virginia Code §62.1-44.15:5 and Water Quality Certification pursuant to Section 401 of the Clean Water Act.

6(b) Agency Finding. The VPDES program at DEQ TRO has no concerns with proposed action provided water quality and designated uses are maintained as stated in the FCD.

6(c) Conclusion. The action, as proposed, is consistent with the point source pollution control enforceable policy of the VCP.

For additional information, contact DEQ-TRO, Mark Sauer at (757) 518-2105.

7. Air Pollution Control. According to the FCD (page 9), the proposed activities have the potential to temporarily impact air quality in localized areas of the coastal zone. Effects could result from explosive ordnance use (particularly in-air explosive ordnance) and ship and aircraft activity. Emissions from aircraft and surface vessels and byproducts from explosive ordnance could introduce contaminants into the air, temporarily degrading air quality. Air pollutant emissions due to the proposed activities in the Hampton Roads Intrastate Air Quality Control Region was estimated and determined to be below the *de minimis* thresholds for a full conformity determination. The FCD finds that no health effects would result from training- or testing-related emissions of hazardous air pollutants. Residual hazardous air pollutant impacts during respites between the proposed activities would not be detectable and would be below or within historical or desired air quality conditions.

7(a) Agency Jurisdiction. DEQ's Air Quality Division, on behalf of the State Air Pollution Control Board, is responsible to develop regulations that become Virginia's *Air Pollution Control Law*. DEQ is charged to carry out mandates of the state law and related regulations as well as Virginia's federal obligations under the *Clean Air Act* as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate regional office is directly responsible for the issue of necessary permits to construct and operate all stationary sources in the region as well as to monitor emissions from these sources for compliance. As a part of this mandate, the environmental documents of new projects to be undertaken in the state are also reviewed. In the case of certain projects, additional evaluation and demonstration must be made under the general conformity provisions of state and federal law.

7(b) Agency Findings. According to the DEQ Air Division, the range area is located in an ozone (O_3) maintenance area and an emission control area for the contributors to ozone pollution, which are volatile organic compounds (VOCs) and nitrogen oxides (NO_x).

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Atlantic Fleet Training and Testing

7(c) Recommendations. The Navy should take all reasonable precautions to limit emissions of VOCs and NO_x, principally by controlling or limiting the burning of fossil fuels.

7(d) Conclusion. The action, as proposed, is consistent with the air pollution control enforceable policy of the VCP.

For further information, contact the DEQ Air Division, Kotur Narasimhan at (804) 698-4415

8. Coastal Lands Management. According to the FCD (page 8), the coastal lands management enforceable policy is not applicable to the proposed action. The document states that the proposed activities will not impact the water quality and economic resources of the Chesapeake Bay.

8(a) Agency Jurisdiction. DCR-DSM Local Implementation (LI) (previously called the Division of the Chesapeake Bay local Assistance) administers the coastal lands management enforceable policy of the VCP which is governed by the *Chesapeake Bay Preservation Act* (Virginia Code §10.1-2100-10.1-2114) and *Chesapeake Bay Preservation Area Designation and Management Regulations* (9 VAC 10-20 *et seq.*).

8(b) Agency Findings. DCR-DSM-LI notes that the action proposes to conduct various training and testing maneuvers for the Navy's Atlantic Fleet, with the project area affecting the waters and, in some cases, the subaqueous bottomlands of various tidal water bodies. However, DCR-DSM-LI finds that in no case is the land affected. Since the Chesapeake Bay Preservation Act program applies solely to land-disturbing activities, there are no requirements under the *Bay Act* for the Atlantic Fleet Training and Testing project.

8(c) Conclusion. The proposed action is consistent with the coastal lands management enforceable policy of the VCP as administered under the *Chesapeake Bay Preservation Act.*

ADDITIONAL ENVIRONMENTAL CONSIDERATIONS

In addition to the enforceable policies of the VCP, comments were also provided with respect to applicable requirements and recommendations of the following programs:

1. Solid and Hazardous Waste Management.

1(a) Agency Jurisdiction. Solid and hazardous wastes in Virginia are regulated by the Virginia Department of Environmental Quality, the Virginia Waste Management Board (VWMB) and the U.S. Environmental Protection Agency. They administer programs created by the federal Resource Conservation and Recovery Act, Comprehensive Environmental Response Compensation and Liability Act, commonly called Superfund,

and the Virginia Waste Management Act. DEQ administers regulations established by the VWMB and reviews permit applications for completeness and conformance with facility standards and financial assurance requirements. All Virginia localities are required, under the Solid Waste Management Planning Regulations, to identify the strategies they will follow on the management of their solid wastes to include items such as facility siting, long-term (20-year) use, and alternative programs such as materials recycling and composting.

1(b) Agency Recommendations. The DEQ Division of Land Protection and Revitalization (DLPR) recommends that, should any on-shore sites in Virginia be impacted, the Navy should conduct an environmental investigation to identify any solid or hazardous waste sites or issues related to related on-shore activities related to the training operations.

(i) Data Base Searches

DEQ-DLPR recommends that the Navy access and analyze the data in DEQ's web-based databases to determine if Navy activities would affect or be affected by any sites identified in the databases. The databases include:

- Permitted Solid Waste Management Facilities;
- Virginia Environmental Geographic Information Systems (Solid Waste, Voluntary Remediation Program, and Petroleum Release sites);
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Facilities; and
- Hazardous Waste Facilities.

Instructions on accessing the data bases are attached to this response. These database searches will include most waste-related site information for each locality based upon the radius of the address selected (such as .5 miles, .25 miles, or .1 mile). In many cases, especially when the project is located in an urban area, the database output for that locality will be extensive. This information is important to identify possible environmental concerns that may impact a new project.

(ii) Pollution Prevention

DEQ encourages the implementation of pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

1(c) Requirements. Soil that is suspected of contamination or wastes that are generated as a result of training and testing activities in Virginia must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations. Some of the applicable state laws and regulations are: *Virginia Waste Management Act*, Code of Virginia Section 10.1-1400 *et seq.*; *Virginia Hazardous Waste Management Regulations* (*VHWMR*) (9 VAC 20-60); *Virginia Solid Waste Management Regulations*

(*VSWMR*) (9 VAC 20-81); and *Virginia Regulations for the Transportation of Hazardous Materials* (9 VAC 20-110). Some of the applicable federal laws and regulations are: the *Resource Conservation and Recovery Act* (*RCRA*), 42 U.S.C. Section 6901 *et seq.*, the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous materials, 49 CFR Parts 107.

For additional information regarding waste comments, contact Steve Coe, DEQ-DLPR at (804) 698-4029.

2. Natural Heritage Resources.

2(a) Agency Jurisdiction.

(i) Department of Conservation and Recreation

The mission of the Virginia Department of Conservation and Recreation (DCR) is to conserve Virginia's natural and recreational resources. The DCR-Natural Heritage Program's (DCR-DNH) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The *Virginia Natural Area Preserves Act*, 10.1-209 through 217 of the *Code of Virginia*, was passed in 1989 and codified DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources (the habitats of rare, threatened, and endangered species, significant natural communities, geologic sites, and other natural features).

(II) Department of Agriculture and Consumer Services

The Endangered Plant and Insect Species Act of 1979, Chapter 39, §3.1-102- through 1030 of the *Code of Virginia*, as amended, authorizes the Virginia Department of Agriculture and Consumer Services (VDACS) to conserve, protect and manage endangered species of plants and insects. The VDACS Virginia Endangered Plant and Insect Species Program personnel cooperates with the U.S. Fish and Wildlife Service, DCR-DNH and other agencies and organizations on the recovery, protection or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In those instances where recovery plans, developed by the U.S. Fish and Wildlife Service, are available, adherence to the order and tasks outlines in the plans are followed to the extent possible.

2(b) Agency Findings. The Parramore Island and Wreck Island Natural Area Preserves are adjacent to the project area and support several different populations of rare nesting birds including the:

- piping plover (*Charadrius melodus,* G3/S2B/S1N/LT/LT);

- least tern (*Sternula antillarum,* G4/S2B/NL/NL); and
- black skimmer (*Rynchops niger,* G4/S2BS1N/NL/NL).

In addition, several state- and federally-listed sea turtles, whales and other marine mammals are located in the project vicinity and may be affected by the proposed activities.

(i) Threatened and Endangered Plant and Insect Species

VDACS has regulatory authority to conserve rare and endangered plant and insect species through the Virginia Endangered Plant and Insect Species Act. Under a Memorandum of Agreement established between VDACS and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species. DCR finds that the current activity will not affect any documented state-listed plants or insects.

2(c) Recommendations. DCR recommends the Navy consider the following:

- restrict any activities near Natural Area Preserves from April until August during migration and nesting activities for sea turtles and migratory birds due to the legal status of many of these species;
- coordinate with the Virginia Department of Game and Inland Fisheries (DGIF), United States Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) for information regarding the possible impacts and to ensure compliance with protected species legislation; and
- access the Virginia Department of Game and Inland Fisheries database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters.

3. Aviation Impacts.

3(a) Agency Jurisdiction. The Virginia Department of Aviation's (DoAv) Airport Services Division provides airport sponsors and managers with technical assistance on a wide range of projects and issues, including the planning, design, construction and maintenance of airport facilities. The division manages funding programs for capital improvements, facilities and equipment, airport maintenance projects, and airport security; the General Aviation Voluntary Security Certification Program; the licensing program for public-use airports; and the registration program for private-use airports. This division conducts statewide aviation system planning and maintains the Virginia Air Transportation System Plan.

3(b) Agency Response. DoAv has no comments on the proposed action.

For additional information, contact DoAv, Rusty Harrington at (804) 236-3624.

Mr. J.W. Murphy
Atlantic Fleet Training and Testing

4. Historic and Archaeological Resources.

4(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office, ensures that federal actions comply with *Section 106 of the National Historic Preservation Act of 1966* (NHPA), as amended, and its implementing regulation at 36 CFR Part 800. The NHPA requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding.

4(b) Requirement. According to DHR, the Navy or its agents must consult directly with DHR, as necessary, pursuant to *Section 106 of the National Historic Preservation Act* (as amended) and its implementing regulations codified at 36 CFR Part 800 which require Federal agencies to consider the effects of their undertakings on historic properties.

5. Regional Planning Area.

5(a) Agency Jurisdiction. In accordance with CFR 930, Subpart A, § 930.6(b) of the *Federal Consistency Regulations*, DEQ, on behalf of the state, is responsible for securing necessary review and comment from other state agencies, the public, regional government agencies, and local government agencies, in determining the Commonwealth's concurrence or objection to a federal consistency certification.

5(b) Agency Comments. The staff of the Hampton Roads Planning District Commission (HRPDC) reviewed the FCD and finds the proposal appears to be consistent with local and regional plans and policies.

For additional information contact Ben McFarlane, HRPDC at (757) 420-8300.

REGULATORY AND COORDINATION NEEDS

1. Subaqueous Lands Management. In accordance with §28.2-1203 of the Code of Virginia, permits from VMRC may be required for activities that occur over, or that may otherwise impact, state-owned subaqueous lands. The Navy must submit a JPA detailing the proposed activities, their impacts, and locations to initiate the review process. It is recommended the Navy contact VMRC Habitat Management staff to review all proposed activities and impacts over state-owned submerged bottomlands to determine if a VMRC permit is required. For additional information and coordination, contact VMRC, Tony Watkinson at (757) 247-2255.

2. Wetlands Management. Tidal wetland impacts associated with this proposal may require authorization from VMRC in accordance with Virginia Code 28.2-1301 through 28.2-1320. In addition, a Virginia Water Protection Permit from the DEQ Tidewater

Regional Office may be required for both tidal and nontidal impacts, including surface waters, pursuant to Virginia Code §62.1-44.15:5. The permit review process is initiated through the submission of a JPA to VMRC. VMRC will distribute the JPA to the appropriate agencies for review. For additional information and coordination contact VMRC, Tony Watkinson at (757) 247-2255 and/or contact DEQ-TRO, Bert Parolari at (757) 518-2166.

3. Dunes Management. Activities impacting primary sand dunes and state-owned beaches require authorization pursuant to The Coastal Primary Sand Dune Protection Act and the Commonwealth's Coastal Primary Sand Dune/Reaches Guidelines: Barrier Island Policy (4 VAC 20-440-10 B.1). No activity which has the potential for encroaching on or otherwise damaging coastal primary sand dunes or state-owned beaches shall occur without review and approval by VMRC (Virginia Code 28.2-1400 through 28.2-1420). The review process is initiated through the submission of a JPA to VMRC. For additional information and coordination contact VMRC, Tony Watkinson at (757) 247-2255.

4. Air Pollution Control. This action is subject to air pollution control regulations administered by the Department of Environmental Quality. Guidance on minimizing the emission of volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) may be obtained from DEQ-TRO. For additional information, contact the DEQ Air Division, Kotur Narasimhan at (804) 698-4415.

5. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Some of the applicable state laws and regulations are:

- *Virginia Waste Management Act* (Code of Virginia Section 10.1-1400 *et seq.*);
- *Virginia Hazardous Waste Management Regulations* (*VHWMR*) (9 VAC 20-60);
- *Virginia Solid Waste Management Regulations* (*VSWMR*) (9 VAC 20-81); and
- *Virginia Regulations for the Transportation of Hazardous Materials* (9 VAC 20-110).

Some of the applicable Federal laws and regulations are:

- *Resource Conservation and Recovery Act* (*RCRA*) (42 U.S.C. Section 6901 *et seq.*);
- Title 40 of the Code of Federal Regulations; and
- U.S. Department of Transportation Rules for Transportation of Hazardous materials (49 CFR Part 107).

For additional information, contact DEQ-DLPR, Steve Coe at (804) 698-4029.

6. Natural Heritage Resources. Contact DCR-DNH, Rene Hypes at (804) 371-2708, to secure updated information on natural heritage resources if a significant amount of

Mr. J.W. Murphy
Atlantic Fleet Training and Testing

time passes before the project is implemented, since new and updated information is continually added to the Biotics Data System.

7. Wildlife Resources and Protected Species. DGIF's database may be accessed to identify the locations of threatened and endangered species, trout streams, and anadromous fish waters. This information may be accessed at http://vafwis.org/fwis/ or contact Gladys Cason at (804) 367-0909 or gladys.cason@dgif.virginia.gov).

8. Historic Resources. Coordination of these activities with the Department of Historic Resources pursuant to *Section 106 of the National Historic Preservation Act* (as amended) and its implementing regulations at 36 CRF Part 800 may be accomplished by contacting DHR, Roger Kirchen at (804) 482-6091.

Thank you for the opportunity to comment on this FCD. The detailed comments of reviewing agencies are attached for your review. If you have questions, please call me at (804) 698-4325 or John Fisher at (804) 698-4339.

Sincerely,

Ellie Irons, Program Manager
Environmental Impact Review

Enclosures

Ec: Richard Weeks, DEQ Chief Deputy
Cindy Keltner, DEQ-TRO
Steve Coe, DEQ-DLPR
Kotur Narasimhan, DEQ-Air
Tony Watkinson, VMRC
Robbie Rhur, DCR
Barry Matthews, VDH
Amy Ewing, DGIF
David Spears, DMME
Roger Kirchen, DHR
Pam Mason, VIMS
R.N. Rusty Harrington, DoAv
Ben McFarlane, Hampton Roads PDC
Lauren Packard, NRDC

Cc: Elaine Meil, Accomack-Northampton PDC

18

C.3 ENDANGERED SPECIES ACT

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1026
September 21, 2012

Ms. Helen M. Golde
Acting Director, Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway, SSMC3, Room 13821
Silver Spring, MD 20910-3282

SUBJECT: REQUEST FOR INITIATION OF ENDANGERED SPECIES ACT SECTION 7 FORMAL CONSULTATION FOR U.S. NAVY ATLANTIC FLEET TRAINING AND TESTING ACTIVITIES

In accordance with section 7 of the Endangered Species Act (ESA) the U.S. Navy requests initiation of formal consultation on Atlantic Fleet Training and Testing (AFTT) activities occurring within the Gulf of Mexico and Atlantic Ocean.

The proposed action may affect listed species that reside within the AFTT study area to sound and other environmental stressors associated with training and testing activities. The AFTT Environmental Impact Statement (EIS) (Enclosure (1)) is the Navy's primary document that provides the required information pursuant to 50 C.F.R. §402.12(f). The U.S. Navy is requesting formal consultation on alternative 2 within the EIS. The enclosed supplemental information document (Enclosure (2)) serves as a roadmap for identifying the required information within the EIS, and provides additional, supporting information not found within the EIS. Enclosures 3 and 4 contain detailed tables on Navy activities and sound exposure model output as requested by the National Marine Fisheries Service (NMFS) during the pre-consultation process.

Based on the U.S. Navy's may affect, likely to adversely affect determinations, we are requesting formal consultation on the North Atlantic right whale (*Eubalaena glacialis*), humpback whale (*Megaptera novaeangliae*), sei whale (*Balaenoptera borealis*), fin whale (*Balaenoptera physalus*), blue whale (*Balaenoptera musculus*), sperm whale (*Physeter macrocephalus*), green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), Kemp's ridley turtle (*Lepidochelys kempii*), loggerhead turtle (*Caretta caretta*), leatherback turtle (*Dermochelys coriacea*), largetooth sawfish (*Pristis pristis*), smalltooth sawfish (*Pristis pectinata*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and Gulf sturgeon (*Acipenser oxyrinchus desotoi*). We request concurrence on our may affect, not likely to adversely affect determinations for the bowhead whale (*Balaena mysticetus*), Atlantic salmon (*Salmo salar*), shortnose sturgeon (*Acipenser brevirostrum*), elkhorn coral (*Acropora palmata*),

5090
Ser N46/1026
September 21, 2012

staghorn coral (*Acropora cervicornis*), and designated critical habitats for the Atlantic salmon, smalltooth sawfish, Gulf sturgeon, staghorn coral, and elkhorn coral. The U.S. Navy requests a conference on the ringed seal (*Pusa hispida*), which is proposed for listing under the ESA.

We appreciate your continued support in helping the U.S. Navy to meet its environmental responsibilities.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Shore and Environmental
Readiness

Enclosures: 1) AFTT EIS (CD)
2) AFTT ESA Consultation Supplemental Information (CD)
3) Excel File of Master Activity Tables (CD)
4) Excel Files of 1db and 6db Bin Exposure Data (CD)

Copy to: Ms. Jolie Harrison, NMFS Office of Protected Resources
Ms. Gina Shultz, NMFS Office of Protected Resources

2

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/046
February 20, 2013

Ms. Helen M. Golde
Acting Director, Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway, SSMC3, Room 13821
Silver Spring, MD 20910-3282

SUBJECT: REQUEST FOR INITIATION OF ENDANGERED SPECIES ACT SECTION 7 CONFERENCE FOR U.S. NAVY ATLANTIC FLEET TRAINING AND TESTING ACTIVITIES

In accordance with section 7 of the Endangered Species Act (ESA) the U.S. Navy requests initiation of a conference on Atlantic Fleet Training and Testing (AFTT) activities occurring within the Gulf of Mexico and Atlantic Ocean. The Navy requests this conference on several species of coral proposed for listing on December 7, 2012. The Navy further requests the conference be included within the broader AFTT consultation initiated on September 21, 2012.

AFTT training and testing activities may affect proposed coral species that reside within the AFTT study area. As explained in the Navy's September 2012 AFTT ESA consultation initiation package, the AFTT Environmental Impact Statement (EIS) and supplemental consultation package contain the supporting analysis for the consultation. The enclosed revision to the invertebrate section of the EIS serves as the supporting analysis for the conference on the proposed coral species.

Based on the enclosed analysis, the Navy is requesting concurrence on our may affect, not likely to adversely affect determinations for the proposed boulder star coral (*Montastraea annularis*), mountainous star coral (*Montastraea faveolata*), pillar coral (*Dendrogyra cylindrus*), rough cactus coral (*Mycetophyllia ferox*), star coral (*Montastraea franksi*), elliptical star coral (*Dichocoenia stokesii*), and Lamarck's sheet coral (*Agaricia lamarcki*).

We appreciate your continued support in helping the U.S. Navy to meet its environmental responsibilities.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosure: AFTT EIS Revised Invertebrate Section (CD)

Copy to: Ms. Jolie Harrison, NMFS Office of Protected Resources
Ms. Gina Shultz, NMFS Office of Protected Resources

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/052
February 21, 2013

Kenneth Graham
Regional Section 7 Coordinator
U.S. Fish and Wildlife Service
1875 Century Boulevard
Atlanta, GA 30345

SUBJECT: ENDANGERED SPECIES ACT SECTION 7 CONSULTATION FOR U.S. NAVY ATLANTIC FLEET TRAINING AND TESTING ACTIVITIES

In accordance with section 7 of the Endangered Species Act (ESA), the U.S. Navy requests concurrence on our determination that Atlantic Fleet Training and Testing (AFTT) activities occurring within the Gulf of Mexico and Atlantic Ocean will not adversely affect listed species.

The proposed action may affect listed species, that reside within the AFTT action area, to sound and other environmental stressors associated with training and testing activities. The enclosed AFTT Draft Environmental Impact Statement (EIS) is the Navy's primary document that provides the required information pursuant to 50 C.F.R. §402.12(f). The U.S. Navy is requesting consultation on alternative 2 within the EIS. The enclosed supplemental information document serves as a roadmap for identifying the required information within the EIS, and provides additional, supporting information not found within the EIS. Please note that the supplemental information document provides updated analysis and affect determinations (not likely to adversely affect) for the West Indian manatee. The updated manatee analysis and determination reflects the elimination of one activity from the proposed action and a correction in the acoustic modeling at Naval Submarine Base Kings Bay, GA. Also enclosed is a summary of the U.S. Fish and Wildlife Service's comments on the draft consultation package and Navy's responses.

We request USFWS concurrence on our may affect, not likely to adversely affect determinations for the following species: Bermuda petrel (*Pterodroma cahow*), roseate tern (*Sterna dougallii*), piping plover (*Charadrius melodus*), West Indian manatee (*Trichechus manatus*), polar bear (*Ursus maritimus*), American crocodile (*Crocodylus acutus*), and American alligator (*Alligator mississippiensis*). In addition, based on a recommendation from USFWS, an ESA determination has been included for the candidate red knot (*Calidris canutus rufa*) because of its anticipated ESA listing by September 2013. Although sea turtles occur within the AFTT action area, the proposed action does not include activities above the mean high tide line where nesting occurs; therefore, sea turtles are not included in this consultation package.

We appreciate your support in helping the U.S. Navy to meet its environmental responsibilities. Please direct any questions to Mr. David MacDuffee (757-836-8473).

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT EIS (CD)
2. AFTT ESA Consultation Supplemental Information (CD)
3. Comments/Responses on Draft Consultation Package (CD)

2

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/050
February 21, 2013

Delfinia M. Montano
Regional Section 7 Coordinator
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, NM 87103

SUBJECT: ENDANGERED SPECIES ACT SECTION 7 CONSULTATION FOR U.S. NAVY ATLANTIC FLEET TRAINING AND TESTING ACTIVITIES

In accordance with section 7 of the Endangered Species Act (ESA), the U.S. Navy requests concurrence on our determination that Atlantic Fleet Training and Testing (AFTT) activities occurring within the Gulf of Mexico and Atlantic Ocean will not adversely affect listed species.

The proposed action may affect listed species, that reside within the AFTT action area, to sound and other environmental stressors associated with training and testing activities. The enclosed AFTT Draft Environmental Impact Statement (EIS) is the Navy's primary document that provides the required information pursuant to 50 C.F.R. §402.12(f). The U.S. Navy is requesting consultation on alternative 2 within the EIS. The enclosed supplemental information document serves as a roadmap for identifying the required information within the EIS, and provides additional, supporting information not found within the EIS. Please note that the supplemental information document provides updated analysis and affect determinations (not likely to adversely affect) for the West Indian manatee. The updated manatee analysis and determination reflects the elimination of one activity from the proposed action and a correction in the acoustic modeling at Naval Submarine Base Kings Bay, GA. Also enclosed is a summary of the U.S. Fish and Wildlife Service's comments on the draft consultation package and Navy's responses.

We request USFWS concurrence on our may affect, not likely to adversely affect determinations for the following species: Bermuda petrel (*Pterodroma cahow*), roseate tern (*Sterna dougallii*), piping plover (*Charadrius melodus*), West Indian manatee (*Trichechus manatus*), polar bear (*Ursus maritimus*), American crocodile (*Crocodylus acutus*), and American alligator (*Alligator mississippiensis*). In addition, based on a recommendation from USFWS, an ESA determination has been included for the candidate red knot (*Calidris canutus rufa*) because of its anticipated ESA listing by September 2013. Although sea turtles occur within the AFTT action area, the proposed action does not include activities above the mean high tide line where nesting occurs; therefore, sea turtles are not included in this consultation package.

We appreciate your support in helping the U.S. Navy to meet its environmental responsibilities. Please direct any questions to Mr. David MacDuffee (757-836-8473).

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT EIS (CD)
2. AFTT ESA Consultation Supplemental Information (CD)
3. Comments/Responses on Draft Consultation Package (CD)

2

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/051
February 21, 2013

Glenn S. Smith
Assistant Regional Endangered Species
Chief Northeast Region
U.S. Fish and Wildlife Service
300 Westgate Center Drive
Hadley, MA 01035-9589

SUBJECT: ENDANGERED SPECIES ACT SECTION 7 CONSULTATION FOR U.S. NAVY ATLANTIC FLEET TRAINING AND TESTING ACTIVITIES

In accordance with section 7 of the Endangered Species Act (ESA), the U.S. Navy requests concurrence on our determination that Atlantic Fleet Training and Testing (AFTT) activities occurring within the Gulf of Mexico and Atlantic Ocean will not adversely affect listed species.

The proposed action may affect listed species, that reside within the AFTT action area, to sound and other environmental stressors associated with training and testing activities. The enclosed AFTT Draft Environmental Impact Statement (EIS) is the Navy's primary document that provides the required information pursuant to 50 C.F.R. §402.12(f). The U.S. Navy is requesting consultation on alternative 2 within the EIS. The enclosed supplemental information document serves as a roadmap for identifying the required information within the EIS, and provides additional, supporting information not found within the EIS. Please note that the supplemental information document provides updated analysis and affect determinations (not likely to adversely affect) for the West Indian manatee. The updated manatee analysis and determination reflects the elimination of one activity from the proposed action and a correction in the acoustic modeling at Naval Submarine Base Kings Bay, GA. Also enclosed is a summary of the U.S. Fish and Wildlife Service's comments on the draft consultation package and Navy's responses.

We request USFWS concurrence on our may affect, not likely to adversely affect determinations for the following species: Bermuda petrel (*Pterodroma cahow*), roseate tern (*Sterna dougallii*), piping plover (*Charadrius melodus*), West Indian manatee (*Trichechus manatus*), polar bear (*Ursus maritimus*), American crocodile (*Crocodylus acutus*), and American alligator (*Alligator mississippiensis*). In addition, based on a recommendation from USFWS, an ESA determination has been included for the candidate red knot (*Calidris canutus rufa*) because of its anticipated ESA listing by September 2013. Although sea turtles occur within the AFTT action area, the proposed action does not include activities above the mean high tide line where nesting occurs; therefore, sea turtles are not included in this consultation package.

We appreciate your support in helping the U.S. Navy to meet its environmental responsibilities. Please direct any questions to Mr. David MacDuffee (757-836-8473).

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT EIS (CD)
2. AFTT ESA Consultation Supplemental Information (CD)
3. Comments/Responses on Draft Consultation Package (CD)

2

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

In Reply Refer To:
FWS/R4/ES

JUL 0 3 2013

Mr. J. W. Murphy
Deputy Chief of Staff
Fleet Installations and Environmental Readiness
U.S. Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, Virginia 23551-2487

Dear Mr. Murphy:

On February 22, 2013, the U.S. Fish and Wildlife Service (Service) received your consultation request for Atlantic Fleet Training and Testing (AFTT) activities occurring within the Gulf of Mexico and Atlantic Ocean. Your consultation package addressed the effects of your preferred action alternative on: Bermuda petrel, roseate tern, piping plover, West Indian manatee, polar bear, American crocodile, and American alligator. In addition, the Navy included a discussion of the potential effects of the action on the red knot, a candidate species, because of its potential listing in the near future. In your consultation package, the U.S. Navy (Navy) has concluded that the proposed AFTT activities would have no effect or would not be likely to adversely affect all of the federally-listed species, candidate species, and potentially affected critical habitats considered. As a part of the proposed action, the Navy has included a number of conservation measures including standard operating procedures and mitigating measures to reduce the likelihood that listed species, candidate species or designated critical habitats would be adversely affected. Although sea turtles occur within the AFTT action area, the proposed action does not include activities above the mean high tide line where nesting occurs, therefore, sea turtles were not included as a part of your consultation request.

In response to your consultation request, the Service coordinated your consultation package with all of our affected Field Offices in the Southeast, Southwest, and Northeast Regions. Throughout the Service's coordination process, we discussed any questions or concerns that arose with Mr. David MacDuffee of your office. In every case, Mr. MacDuffee was kind enough to provide information to clarify details of the proposed action or to suggest modifications to the proposed conservation measures to address the Service's concerns.

On April 15, 2013, the Navy responded to comments and concerns about the potential effects of the proposed action on the manatee. The response proposed a modification in Section 3.4.3.3.1.6, Alternative 2, Training Activities, within the AFTT Service Consultation Supplemental Information document. This wording change would apply specifically to the last sentence on page 41, carrying over to page 42. The Navy's proposed change would be "Within the turning basin, basin entrance channel, and all other waterways adjacent to these water bodies at Naval Station (NAVSTA) Mayport, Navy vessels comply with all federal, state, and local Manatee Protection Zones and reduce speed in accordance with established operational safety

and security procedures. Pursuant to the NAVSTA Mayport INRMP, the Station provides training to Harbor Ops personnel to report manatee observations to other vessels in the basin and posts signs at select occasions alerting personnel of the potential presence of manatees and how to report sightings."

In response to North Carolina manatee concerns, the Navy developed the enclosed mitigation measures for pile driving activities at Camp Lejeune. As proposed, the measures would only apply to the pile driving activities addressed in the AFTT proposed action and only at Camp Lejeune. To develop these measures the Navy relied on the Raleigh Ecological Services Field Office's manatee protection guidelines for pile driving activities. For the other activities associated with Joint Logistics Over-the-Shore (JLOTS) training in North Carolina and Virginia, the Navy has proposed to use the same guidelines to develop additional measures and include those in the forthcoming JLOTS BA for Service review.

With regard to the Navy's planned training activities' potential impacts to the piping plover, the Service's Virginia Field Office expressed concern with the Navy's planned flights between Norfolk Naval Station and off-shore training areas. These flights would result in overflights of the southern barrier islands of the Eastern Shore of Virginia, which support the federally listed endangered piping plover. The Navy's subsequent adoption of a one nautical mile buffer between helicopter flights and the southern barrier islands is a sufficient avoidance and minimization effort that will establish an adequate protective buffer from activities which could result in negative effects to plovers. The implementation of these conservation measures allows the Service to concur with the no effect or not likely to adversely affect determinations for the federally listed piping plover within the Northeast Region.

The Service concurs with the Navy's not likely to adversely affect determination for federally endangered Northeastern population of roseate terns. Northeastern roseate terns are most likely to encounter naval training and testing activities during the breeding and post-breeding staging season when large numbers of roseate terns congregate at and near breeding islands and staging areas in New York and New England. However, the Service concurs with the Navy's determination based on impacts to roseate tern prey being negligible and insignificant (only very small numbers of fish may be killed during some exercises) and the extremely low likelihood of post-breeding roseates encountering sonar, explosives or other training exercises off of the coast of Massachusetts (we consider the likelihood for these potential effects to be discountable). The Navy provided the supporting effects assessment in the response to Service comments.

We appreciate the Navy's inclusion of effects analyses for the candidate species, red knot. For the vast majority of planned Naval activities, the Service was able to concur with the Navy's "no effect" and "not likely to adversely affect" determinations. These determinations were made based on numerous factors such as the small number of birds potentially present in the action area; the timing of actions, i.e. the bird's migratory habits don't put it in harms way during Naval exercises; the frequency of potential exposures creates only a discountable risk in most situations; and the likelihood that behavioral and physiological responses rising to an adverse level is insignificant.

Our initial concern for red knot was that the Final Environmental Impact Statement (FEIS) states that birds using wetlands, mud flats, beaches, and other shoreline habitats would be exposed to noise from nearshore helicopter training and aircraft in transit to offshore training areas, as well as intermittent aircraft noise from aircraft originating from airfields located along the coast and

vessel noise from nearshore boats. Beaches, mudflats, and coastal wetlands are the primary habitats of red knots. Disturbance is a threat to non-breeding red knots, as excessive disturbance can impact energy budgets and can preclude use of otherwise preferred habitats. Red knots are known to show disturbance responses to vessels and aircraft. Additional information that was recently provided by the Navy, however, has narrowed down high coastal traffic areas to Norfolk, Virginia, Jacksonville Florida, and Panama City, Florida. Nearshore aircraft/vessel use around Norfolk is not likely to adversely affect red knot based on: (1) Minimal records of knots in or around the station where the flights originate; (2) the 3,000-foot buffer on Fisherman's Island; and (3) aircraft do not operate along Virginia's other Atlantic barrier islands (north of Fisherman's Island).

Our response is based on our review of your consultation package received on February 22, 2013, the clarifications and conservation measures provided by the Navy throughout the consultation process. Our response represents the combined response for the Northeast, Southwest, and Southeast Regions, and is the result of review by all Service Field Offices within the area affected by your proposed action. We concur that the proposed action, and preferred alternative (as described for the Navy's proposed AFTT activities) will have no effect on, or is not likely to adversely affect the federally-listed species, candidate species or designated critical habitat as determined in your consultation package of February 21, 2013. We greatly appreciate your willingness to clarify the proposed action and include conservation measures for the protection of federally-listed species.

Please be reminded that it may be necessary for you to contact the Service for reconsideration of the effects of this proposed action if:

(1) New information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in your current determination;
(2) the action is later modified in a manner that causes an effect to the listed species or critical habitat not considered in this informal consultation; or
(3) a new species is listed or critical habitat designated that may be affected by this action.

Please address any questions concerning this response to Janet Mizzi, Chief, Endangered Species, Southeast Region, at (404) 679-7169, Delfinia Montano, at (505) 248-6401, or Glenn Smith, at (413) 253-8627.

Sincerely yours,

Leopoldo Miranda
Assistant Regional Director
Ecological Services

Enclosures

AFTT Manatee Mitigation Measures Applicable to Elevated Causeway (ELCAS) Pile Driving at Camp Lejeune, NC

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered marine mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.

2. The project manager and/or the contractor will advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active pile driving, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of pile driving if a manatee comes within 60 yards of the pile driving equipment. Activities will not resume until the manatee has departed the 60-yard shutdown area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919.856.4520 ext. 28), the National Marine Fisheries Service (ph. 252.728.8762), and the North Carolina Wildlife Resources Commission (ph. 252.448.1546).

5. A log detailing all sightings and/or injuries to manatees during pile driving will be maintained. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

C.4 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/968
June 4, 2012

Mr. Lou Chiarella
Acting Assistant Regional Administrator
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930

Dear Mr. Chiarella:

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the U.S. Navy has prepared an Essential Fish Habitat (EFH) assessment for Atlantic Fleet Training and Testing (AFTT) activities in the Atlantic Ocean and Gulf of Mexico (see enclosure). The U.S. Navy's assessment concludes that EFH may be adversely affected by training and testing activities and requests initiation of the MSA's EFH consultation process.

Additional information on AFTT may be found at the project website, including the EFH Assessment and the Draft Environmental Impact Statement (EIS), located at: http://aftteis.com. The U.S. Navy's preferred alternative in the Draft EIS and analyzed in the EFH Assessment is Alternative 2.

We appreciate your continued support in helping the U.S. Navy to meet its environmental responsibilities. Please note that due to the large AFTT study area, a similar letter is concurrently being sent to the National Marine Fisheries Service's Southeast Regional Office, Habitat Conservation Division. You may contact Mr. David MacDuffee ((757) 836-8473 or David.MacDuffee@navy.mil) at U.S. Fleet Forces Command should you have additional questions on this matter.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Shore and Environmental
Readiness

Enclosure: 1. EFH Assessment for AFTT CD

Copy to: Mr. Brian Hopper, NMFS Office of Protected Resources
Dr. Kelly Ebert, OPNAV N45

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/969
June 4, 2012

Ms. Virginia Fay
Assistant Regional Administrator
National Marine Fisheries Service
263 13th Avenue South
Saint Petersburg, Florida 33701

Dear Ms. Fay:

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the U.S. Navy has prepared an Essential Fish Habitat (EFH) assessment for Atlantic Fleet Training and Testing (AFTT) activities in the Atlantic Ocean and Gulf of Mexico (Enclosure [1]). The U.S. Navy's assessment concludes that EFH may be adversely affected by training and testing activities and requests initiation of the MSA's EFH consultation process.

Additional information on AFTT may be found at the project website, including the EFH Assessment and the Draft Environmental Impact Statement (EIS), located at: http://aftteis.com. The U.S. Navy's preferred alternative in the Draft EIS and analyzed in the EFH Assessment is Alternative 2.

We appreciate your continued support in helping the U.S. Navy to meet its environmental responsibilities. Please note that due to the large AFTT study area, a similar letter is concurrently being sent to the National Marine Fisheries Service's Northeast Regional Office, Habitat Conservation Division. You may contact Mr. David MacDuffee ((757) 836-8473 or David.MacDuffee@navy.mil) at U.S. Fleet Forces Command should you have additional questions on this matter.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Shore and Environmental
Readiness

Enclosure: 1. EFH Assessment for AFTT CD

Copy to: Mr. Brian Hopper, NMFS Office of Protected Resources
Dr. Kelly Ebert, OPNAV N45

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
(727) 824-5317; FAX (727) 824-5300
http://sero.nmfs.noaa.gov/

F/SER4:DD

JAN - 8 2013

Mr. J.W. Murphy
Deputy Chief of Staff
Department of the Navy
U.S. Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, Virginia 23551-2487

Dear Mr. Murphy:

Enclosed are NOAA's National Marine Fisheries Service (NMFS) essential fish habitat (EFH) conservation recommendations in response to your April 2012 EFH Assessment for Atlantic Fleet Training and Testing activities in the Atlantic Ocean and Gulf of Mexico.

NMFS' comments originate from two regions. The contacts for these offices are:

Southeast Region: Ms. Virginia Fay
Assistant Regional Administrator
NMFS Southeast Region
Habitat Conservation Division
263 13th Avenue South
St. Petersburg, Florida 33701-5505

Northeast Region: Mr. Lou Chiarella
Assistant Regional Administrator
NMFS Northeast Region
Habitat Conservation Division
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

If we may be of further assistance, please advise.

Sincerely,

Miles M. Croom

for Roy E. Crabtree, Ph.D.
Regional Administrator

Enclosure

cc: (w/encl.) via electronic mail
F – McCune
F/SER3 – Bernhart, Baker
F/SER4 – Fay, Wilber, Swafford, Dale
F/NER4 – Chiarella, Boelke, O'Brien
NOS/ORR/MDD – Wallace
GMFMC
SAFMC
CFMC
MAFMC
NEFMC

NOAA'S NATIONAL MARINE FISHERIES SERVICE
AND
U.S. DEPARTMENT OF THE NAVY
ATLANTIC FLEET TRAINING AND TESTING
ESSENTIAL FISH HABITAT CONSULTATION
FOR THE
ATLANTIC OCEAN AND GULF OF MEXICO

January 2013

BACKGROUND

In 2012, the United States Department of the Navy (Navy) prepared a draft Environmental Impact Statement (DEIS)/Overseas Environmental Impact Statement (OEIS) for Atlantic Fleet Training and Testing (AFTT) activities. AFTT activities include the use of active sonar and explosives primarily within existing range complexes and testing ranges along the east coast of the United States, in the Atlantic Ocean and Gulf of Mexico, at Navy pierside locations, in port transit channels, and the lower Chesapeake Bay.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; 16 U.S.C. §1801 *et seq.*) requires Federal agencies consult with the Secretary of Commerce, through NOAA's National Marine Fisheries Service (NMFS), with respect to "any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat (EFH) identified under this Act" 16 U.S.C. § 1855(b)(2). The Navy has prepared an EFH Assessment to assess the impacts of AFTT activities on EFH.

PROPOSED AFTT ACTIVITIES:

The Navy has conducted military readiness activities throughout the northwest Atlantic Ocean and Gulf of Mexico for decades. Through this EFH Assessment, the Navy is consolidating assessments previously prepared for AFTT activities using active sonar and explosives primarily within the following ten range complexes/exercises:

- Atlantic Fleet Active Sonar Training.
- Virginia Capes Range Complex.
- Navy Cherry Point Range Complex.
- Jacksonville Range Complex.
- Naval Surface Warfare Center Panama City Division Mission Activities.
- Gulf of Mexico Range Complex.
- Key West Range Complex.
- Northeast Range Complexes.
- Naval Undersea Warfare Center Division, Newport Testing Range.
- Naval Surface Warfare Center Carderock Division, South Florida Ocean Measurement Facility Testing Range.

Activities occurring on the Undersea Warfare Training Range and other areas such as Navy ports, shipyards and transit channels are also incorporated in this EFH Assessment. These include sonar maintenance and gunnery exercises during ship transits that may occur outside Navy range complexes and testing ranges, and pierside sonar testing conducted during construction, maintenance, or repair activities.

ESSENTIAL FISH HABITAT

While the descriptions of EFH within the EFH Assessment in Section 3.0, "Essential Fish Habitat", are generally adequate, we note the following recent changes to EFH designations implemented by the NMFS:

> Section 3.4.2.7 and Appendix A. The NMFS and Gulf of Mexico Fishery Management Council (GMFMC) repealed the Stone Crab Fishery Management Plan effective October 24, 2011. Therefore, EFH is no longer designated for stone crab in the Gulf of Mexico.
>
> Appendix A. In the 2012 Generic Annual Catch Limit and Accountabilities Amendment, NMFS and the fishery management councils (council) in the NMFS Southeast Region identified species determined to no longer need continued management. Although these modifications to the respective fishery management units did not alter existing EFH designations, the following species were removed by each council:
>
> GMFMC: anchor tilefish, misty grouper, sand perch, dwarf sand perch, blackline tilefish, schoolmaster, red hind, rock hind, dog snapper, and mahogany snapper.
>
> South Atlantic Fishery Management Council (SAFMC): tiger grouper, jack crevalle, yellow jack, black margate, blue-striped grunt, French grunt, porkfish, smallmouth grunt, Spanish grunt, grass porgy, sheepshead, queen triggerfish, and puddingwife.
>
> Caribbean Fishery Management Council: all conch species *except* queen conch (*Strombus gigas*).

Additionally, Section 3.7.2.5 (Artificial Structures) incorrectly states any artificial structure within an area of EFH is also designated as EFH. Only the SAFMC has identified and described, in accordance with the regulatory criteria in 50 C.F.R. 600 Subpart J., an artificial substrate as EFH. The Navy correctly notes that designation is limited to artificial reefs specifically placed for fishery management purposes.

IMPACTS TO ESSENTIAL FISH HABITAT

Training and testing activities are identified in Tables 2-3 through 2-9 in the EFH Assessment. In assessing impacts on EFH, four categories of stressors were utilized (1) acoustic, (2) energy, (3) physical disturbance and strike, and (4) containment. The Navy correctly determines sonar and other active acoustic sources, as well as electromagnetic sources, may affect the habitat value of water columns utilized by managed fishery resources during their life cycles. The EFH Assessment recognizes intense shock waves from underwater explosions could cause breakage, injury, and mortality of reef-building organisms. For example, a single small blast event directly on a reef could take five to ten years to recover (Fox and Caldwell 2006).

NMFS is concerned about marine debris generated within the Navy Range Complexes. NOAA defines marine debris as any persistent, manufactured, or processed solid material directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment (NOAA 2008). Marine debris includes a wide variety of objects (i.e., derelict fishing gear, lost vessel cargo, plastics) that pose a threat to the marine environment, human health, and/or navigation. Marine debris can damage habitats in a variety of ways, including a reduction in the structural complexity of habitats. In addition, marine debris can cause tissue abrasion and mortality of sessile invertebrates (Chiappone et al. 2002). Expended materials are not only a threat to EFH as they strike benthic communities, including deepwater centuries-old coral, but the materials would also persistently degrade fishery habitat as they decompose or are transported and relocated by currents. Military expended materials include:

- Sonobuoys: Parachutes and the sonobuoys themselves.
- Torpedo Launch Accessories: Torpedoes are usually recovered; however, materials such as parachutes used with air-dropped torpedoes, guidance wire used with submarine-launched torpedoes, and ballast weights are expended. Explosive-filled torpedoes expend torpedo fragments.
- Projectiles and Bombs: Non-explosive projectiles, non-explosive bombs, or fragments from explosive projectiles and bombs are expended during training and testing exercises. These items are primarily constructed of lead (most small-caliber projectiles) or steel (medium- and large-caliber projectiles and all bombs).
- Missiles: Non-explosive missiles and missile fragments from explosive missiles are expended during training and testing events. Propellant, and any explosive material involved, is consumed during firing/detonation. Some missiles include a wire which is also expended.
- Countermeasures: Acoustic (except towed acoustic), chaff, and flare countermeasures are expended as a result of training exercises. Chaff activities also include an expended canister, end caps, and pistons. Flares expend only end caps and pistons. Some acoustic measures also include a parachute.
- Targets: Some targets are designed to be expended; other targets, such as aerial drones and remote-controlled boats, are recovered for re-use. Targets struck with an ordinance will result in target fragments.

The Navy determined live/hardbottom habitats, such as deepwater corals, could be damaged if struck by large objects. Projected rates of recovery are a component of assessing the significance of these impacts. The DEIS/OEIS acknowledges repopulation and recovery times of damaged hardbottom habitats would be relatively slow (e.g., years to a decade or more) as compared to soft bottom areas (e.g., less than one year). NMFS believes recovery of coral and live/hardbottom would require several decades based on the age of the deepwater corals and their susceptibility to physical disturbance (Neuman et al. 1977; Fossa et al. 2002). The spatial extent of the impacts to live/hardbottom habitats cannot be determined at this time. It is not feasible to forecast exact locations where non-explosive practice bombs/missiles and large-caliber naval gun

shells will settle upon the seafloor. Further, only a fraction of the seabottom within Navy Range Complexes is adequately mapped for the purpose of determining impacts at fine spatial scales.

MITIGATION MEASURES

The Navy discusses Standard Operating Procedures and Mitigation Measures in Section 5.0, "Mitigation Measures" of the EFH Assessment. Mitigation measures protecting EFH include lookouts and mitigation zones. The Navy proposes to not conduct certain activities within 320 meters (350 yards) of known mapped shallow coral reefs, live hardbottom, artificial reefs, and shipwrecks. The proposed 320 meter (350 yard) mitigation zone is based from the estimated maximum crater impact for explosions discussed in Section 4.1.1.2.1, "Explosives". The use of non-explosive military expended materials would result in a smaller footprint of potential impact; however, the Navy proposes applying the explosive mitigation zone to all explosive and non-explosive activities as listed above for ease of implementation.

NMFS and the Navy have a mutual interest in understanding the potentially effected environment and impacts of current and proposed Navy activities. The NMFS recognizes successful operation of Navy Range Complexes and AFTT activities has significant public interest elements. During previous EFH consultations for Navy Range Complex activities, NMFS Southeast Region Habitat Conservation Division (HCD) recommended a 1-kilometer buffer around known pinnacles of live/hardbottom to avoid adverse impacts to EFH. The Navy provided NMFS with its decision to not adopt the 1-kilometer buffer recommendation satisfying the requirements of the Magnuson-Stevens Act. Following those consultations, NMFS HCD and Navy staffs have engaged in constructive dialogue regarding comments raised during development of National Environmental Policy Act analytical documents for many of the range complexes included in the EFH Assessment.

RECOMMENDATIONS

NMFS recommends continuation of this collaboration for improving coordination on data collection and sharing efforts to the extent national security and other Navy restrictions allow. As data collection and other research yields new habitat data, the Navy will continue to reassess and incorporate such information into future environmental planning for Navy activities. This approach may include (1) NMFS identifying specific, finite areas of known or potential deepwater habitats of concern, (2) the Navy identifying areas where current/proposed activity would result in high use of expended materials that could potentially disturb bottom habitats, and (3) NMFS HCD and the Navy assessing those areas in future environmental planning when overlap of these areas are identified.

ESSENTIAL FISH HABITAT CONSERVATION RECOMMENDATIONS

The NMFS adopts the following Navy Mitigation Measures as EFH Conservation Recommendations:

1. The Navy shall not conduct precision anchoring within the anchor watch circle diameter, or explosive mine countermeasure and neutralization activities within 320 meters (350 yards) of known mapped shallow coral reefs, live hardbottom, artificial reefs, and

shipwrecks.

2. The Navy shall not conduct explosive or non-explosive gunnery and missile exercises using a surface target, explosive and non-explosive bombing exercises, and at-sea explosives testing within 320 meters (350 yards) of known mapped shallow coral reefs.

3. The explosive mitigation zone shall apply to all explosive and non-explosive activities as listed above for ease of implementation.

REVIEW AND COORDINATION

If any modifications are made to Navy activities or the adopted mitigation measures as described in the EFH Assessment which result in changes to potential adverse effects on EFH, the Navy shall notify the appropriate regional NMFS HCD to initiate discussions regarding the necessity to conduct additional EFH consultation. The information and activities in this EFH consultation should be periodically reviewed at an interval of not less than five years. Should new or additional information regarding impacts to NOAA's trust resources become available, we may provide EFH conservation recommendations, as appropriate, to address those changes.

The following are points of contact in each region for technical assistance regarding the recommendations above:

Southeast Region:
Pace Wilber
Supervisor, South Atlantic Branch
NMFS Southeast Regional Office
Habitat Conservation Division
P.O. Box 12559
Charleston, South Carolina 29422

pace.wilber@noaa.gov
843-762-8601

Northeast Region:
Christopher Boelke
Field Offices Supervisor
NMFS Northeast Regional Office
Habitat Conservation Division
55 Great Republic Drive
Gloucester, Massachusetts 01950

christopher.boelke@noaa.gov
978-281-9131

LITERATURE CITED:

Chiappone M., A. White, D.W. Swanson, and S.L. Miller. 2002. Occurrence and Biological Impacts of Fishing Gear and Other Marine Debris in the Florida Keys. *Marine Pollution Bulletin.* 44:597-604.

Fossa J.H., P.B. Mortensen, D.M. Furevik. 2002. The Deep-Water Coral *Lophelia pertusa* in Norwegian Waters: Distribution and Fishery Impacts. *Hydrobiologia.* 471:1-12.

Fox H.E. and R.L. Caldwell. 2006. Recovery from Blast Fishing on Coral Reefs: A Tale of Two Scales. *Ecological Applications*. 16:1631-1635.

Neumann A.C., J.W. Kofoed, G. Keller. 1977. Lithotherms in the Straits of Florida. *Geology* 5:4-10.

NOAA. 2008. Marine Debris Emergency Response Planning in the North-Central Gulf of Mexico Interim Draft Report. 44 pages.

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/028
February 7, 2013

Dr. Roy Crabtree
Regional Administrator
National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505

Dear Dr. Crabtree:

Thank you for your January 8, 2013 letter regarding the Essential Fish Habitat (EFH) consultation on Navy's Atlantic Fleet Training and Testing (AFTT) activities. This letter is provided to satisfy the Magnuson-Stevens Fishery Conservation and Management Act's requirement to respond in writing to your EFH conservation recommendations.

The National Marine Fisheries Service (NMFS) adopted the Navy's proposed mitigation as EFH conservation recommendations. We appreciate NMFS' thoughtful consideration of our proposed mitigations and agree the measures will help to avoid and minimize impacts on EFH. The Navy will continue incorporating these measures into our mitigation scheme for AFTT activities.

We appreciate your continued support in helping the U.S. Navy to meet its environmental responsibilities.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Copy to: Ms. Virginia Fay, NMFS Southeast Regional Office
Mr. Lou Chiarella, NMFS Northeast Regional Office

C.5 MARINE MAMMAL PROTECTION ACT

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/014
April 5, 2012

Ms. Helen M. Golde
Acting Director, Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway, SSMC3, Room 13821
Silver Spring, MD 20910-3282

SUBJECT: REQUEST FOR MARINE MAMMAL PROTECTION ACT INCIDENTAL TAKE AUTHORIZATION AND REGULATIONS FOR U.S. NAVY ATLANTIC FLEET TRAINING AND TESTING ACTIVITIES

Dear Ms. Golde:

In accordance with the Marine Mammal Protection Act, as amended, and 50 C.F.R. Part 216, the U.S. Navy requests a five-year incidental take authorization and regulations for the incidental taking of marine mammals associated with Atlantic Fleet Training and Testing (AFTT) activities occurring within the Gulf of Mexico and Atlantic Ocean.

The proposed action may incidentally expose marine mammals that reside within the AFTT study area to sound and other environmental stressors associated with training and testing activities. The enclosed request further describes the AFTT activities and study area, and provides the specific information required by the National Marine Fisheries Service (NMFS) for consideration of an incidental take request.

The U.S. Navy also requests the above regulations authorize, and NMFS issue, two five-year Letters of Authorization; one issued to Commander, United States Fleet Forces Command for training activities, and one issued to Commander, Naval Sea Systems Command for testing activities. Addresses for these commands are provided below:

Commander, U.S. Fleet Forces Command
Attn: Code N46
1562 Mitscher Avenue, Suite 250
Norfolk, Virginia 23551-2487

Commander, Naval Sea Systems Command
Attn: Code SEA 04R
1333 Isaac Hull Avenue, SE
Washington Navy Yard, DC 20376

5090
Ser N46/014
April 5, 2012

We appreciate your continued support in helping the U.S. Navy to meet its environmental responsibilities.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Shore and Environmental
Readiness

Enclosure: Request for Regulations and Letters of Authorization for the Incidental Taking of Marine Mammals Resulting From U.S. NAVY Training and Testing Activities in the AFTT Study Area

Copy to: Ms. Jolie Harrison, NMFS Office of Protected Resources
Ms. Gina Shultz, NMFS Office of Protected Resources

2

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/1027
September 21, 2012

Ms. Helen M. Golde
Acting Director, Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway, SSMC3, Room 13821
Silver Spring, MD 20910-3282

SUBJECT: REVISED REQUEST FOR MARINE MAMMAL PROTECTION ACT INCIDENTAL TAKE AUTHORIZATION AND REGULATIONS FOR U.S. NAVY ATLANTIC FLEET TRAINING AND TESTING ACTIVITIES

On April 5, 2012 the U.S. Navy submitted an application for a five-year incidental take authorization and regulations under the Marine Mammal Protection Act (MMPA) for the incidental taking of marine mammals associated with Atlantic Fleet Training and Testing (AFTT) activities occurring within the Gulf of Mexico and Atlantic Ocean. Since our submittal of the application we have continued to refine our proposed activities and the associated analysis of potential impacts on marine mammals. We have also discussed the initial application with your staff and incorporated additional information based on those discussions. In light of the above refinements and discussions, the U.S. Navy is submitting the enclosed revised application in accordance with the MMPA, as amended, and 50 C.F.R. Part 216, for a five-year incidental take authorization and regulations for AFTT activities.

The primary revisions to the initial application include: 1) corrections to errors, typos, and transcription mistakes; 2) addition of training and testing requirements that were not identified in time to incorporate into the initial application; 3) clarification of how events were modeled; and 4) the addition of post-model quantification to supplement the analysis of acoustic effects to include animal avoidance of sound sources, animal avoidance of areas of activity before use of a sound source or explosive, and implementation of mitigation.

As stated in our April 5, 2012 letter, the U.S. Navy requests the above regulations authorize, and National Marine Fisheries Service (NMFS) issue two five-year Letters of Authorization; one issued to Commander, United States Fleet Forces Command for training activities, and one issued to Commander, Naval Sea Systems Command for testing activities. Addresses for these commands are provided below:

5090
Ser N46/1027
September 21, 2012

- Commander, U.S. Fleet Forces Command
  Attn: Code N46
  1562 Mitscher Avenue, Suite 250
  Norfolk, Virginia 23551-2487

- Commander, Naval Sea Systems Command
  Attn: Code SEA 04R
  1333 Isaac Hull Avenue, SE
  Washington Navy Yard, DC 20376

We appreciate your continued support in helping the U.S. Navy to meet its environmental responsibilities.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Shore and Environmental
Readiness

Enclosure: Request for Regulations and Letters of Authorization for the Incidental Taking of Marine Mammals Resulting From U.S. NAVY Training and Testing Activities in the AFTT Study Area (September 2012)

Copy to: Ms. Jolie Harrison, NMFS Office of Protected Resources
Ms. Gina Shultz, NMFS Office of Protected Resources

DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/1098
December 20, 2012

Ms. Helen M. Golde
Acting Director, Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway, SSMC3, Room 13821
Silver Spring, MD 20910-3282

Dear Ms. Golde:

On September 24, 2012 the U.S. Navy submitted a revised application for a five-year incidental take authorization and regulations under the Marine Mammal Protection Act (MMPA) for the incidental taking of marine mammals associated with Atlantic Fleet Training and Testing (AFTT) activities occurring within the Gulf of Mexico and Atlantic Ocean. Since our submittal of the revised application we identified additional errors in need of correction.

The enclosed application supplements our previous September 24 submittal with the corrected information. Corrections and supplemental information have been made in colored text for your convenience. These latest revisions will help ensure a clear and accurate representation of the Navy's proposed action.

Again, we appreciate your support in helping the U.S. Navy to meet its environmental responsibilities while retaining our ability to train at sea.

Sincerely,

J. W. MURPHY
Deputy chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosure: Request for Regulations and Letters of Authorization for the Incidental Taking of Marine Mammals Resulting From U.S. NAVY Training and Testing Activities in the AFTT Study Area (Revised December 2012)

Copy to: Ms. Jolie Harrison, NMFS Office of Protected Resources
Ms. Gina Shultz, NMFS Office of Protected Resources

C.6 NATIONAL HISTORIC PRESERVATION ACT

Under Section 106 of the National Historic Preservation Act, states/territories have 30 days to respond to the federal agency determination or their concurrence is assumed. On 12 April 2013, the Navy submitted determinations to 18 states and 2 territories adjacent to the Study Area. Letters indicating concurrence were received from 12 states/territories as of 15 August 2013. Concurrence was assumed for the remaining states/territories.

C.6.1 ALABAMA

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/065
April 12, 2013

Frank White
Executive Director, Alabama Historical Commission
State Historic Preservation Officer
468 South Perry Street
P.O. Box 300900
Montgomery, AL 36130-0900

Dear Mr. White:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Alabama territorial waters include the Gulf of Mexico (GOMEX) Range Complex and the Naval Surface Warfare Center, Panama City Division Testing Range.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Alabama.

5090
Ser N46/065
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Alabama. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

C.6.2 CONNECTICUT

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/066
April 12, 2013

Christopher Bergstrom
Deputy Commissioner, Department of Economic and Community Development
Office of Culture and Tourism
State Historic Preservation Officer
One Constitution Plaza, 2nd Floor
Hartford, CT 06103

Dear Mr. Bergstrom:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Connecticut territorial waters include the Northeast Range Complexes and the Naval Undersea Warfare Center Division, Newport Testing Range. In addition, Naval Submarine Base New London and the Navy contractor shipyard in Groton are included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Connecticut.

5090
Ser N46/066
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Connecticut. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

C.6.3 DELAWARE

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/067
April 12, 2013

Timothy A. Slavin
Division of Historical and Cultural Affairs
State Historic Preservation Officer
21 The Green
Dover, DE 19901

Dear Mr. Slavin:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Delaware territorial waters include the Virginia Capes (VACAPES) and Northeast Range Complexes.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Delaware.

5090
Ser N46/067
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measure employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Delaware. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400 Fax: (302) 739.5660

June 19, 2013

J.W. Murphy
Department of the Navy
1562 Mitscher Ave, Suite 250
U.S. Fleet Forces Command
Norfolk, VA 23551-2487

RE: Review of Atlantic Fleet Training and Testing (AFTT) Environmental Impact Statement (EIS) / Overseas Environmental Impact Statement (OEIS)

Dear Deputy Chief Murphy:

The staff of the Delaware State Historic Preservation Office (DE SHPO) of the Division of Historical & Cultural Affairs has reviewed the above-noted project under Section 106 of the National Historic Preservation Act. Based on the provided information, our office does not concur with the NAVY's proposed finding of "No Historic Properties Affected," which has been modified from the Draft EIS/OEIS' initial finding that "adverse effects could occur to submerged prehistoric sites and unrecorded historic resources" under the No Action Alternative and Alternatives 1 and 2. We recommend continued consultation with our office to determine appropriate identification and evaluation efforts and treatment of historic properties.

Our office's concerns reflect the initial Draft EIS/OEIS's findings regarding the potential adverse effects caused by the AFTT's physical and acoustic stressors. In the absence of any proposed underwater identification efforts, we do not feel the noted measures – to include prohibition of precision anchoring and use of explosive mine countermeasures and neutralization activities within 350 yards of known shipwrecks and obstructions – will sufficiently avoid any potential effects to historic properties. Since this project includes such a large study area, we also feel more site specific information is necessary in order to reach a finding under Section 106.

Future consultation regarding this project can be directed to Craig Lukezic, DE SHPO Archaeologist, at Craig.Lukezic@state.de.us or (302) 736-7407.

Sincerely,

Jesse Zanavich,
Architectural Historian

CC: Jene Nissen, NAVY

State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400 Fax: (302) 739.5660

August 8, 2013 Project 2010.07.21.03

J.W. Murphy
Department of the Navy
1562 Mitscher Ave, Suite 250
U.S. Fleet Forces Command
Norfolk, VA 23551-2487

RE: Review of Atlantic Fleet Training and Testing (AFTT) Environmental Impact Statement (EIS) / Overseas Environmental Impact Statement (OEIS)

Dear Deputy Chief Murphy:

The staff of the Delaware State Historic Preservation Office (DE SHPO) of the Division of Historical & Cultural Affairs has reviewed the above-noted project under Section 106 of the National Historic Preservation Act. After a clarification through a conversation with Mr. Bruce Larson, it appears the explosive charges will be quite small, between 3 to 5 pounds. It is doubtful these small charges could impact the potential historic properties on the ocean floor when your protocol is followed. Given the limited nature of impacts associated with this undertaking, our office does concur with the NAVY's proposed finding of "No Historic Properties Affected".

We would be grateful for any survey data on archaeological resources you may gather in this project. If you have any questions, please contact me at Craig.Lukezic@state.de.us or call (302) 736-7407.

Sincerely,

Craig Lukezic
Archaeologist

CC: Jene Nissen, NAVY
Gwen Davis, DESHPO

C.6.4 FLORIDA

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/068
April 12, 2013

Robert F. Bendus
Director, Florida Division of Historical Resources
State Historic Preservation Officer
500 South Bronough Street, Room 305
Tallahassee, FL 32399-0250

Dear Mr. Bendus:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Florida territorial waters include the Jacksonville Range Complex, the South Florida Ocean Measurement Facility Testing Range, the Key West Range Complex, and the Naval Surface Warfare Center, Panama City Division Testing Range.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Florida.

5090
Ser N46/068
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Florida. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

FLORIDA DEPARTMENT of STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Deputy Chief J.W. Murphy
Department of the Navy
1562 Mitscher Avenue, Suite 250
U.S. Fleet Forces Command
Norfolk, Virginia 23551-2487

May 15, 2013

RE: DHR Project File Number: 2013-1891
Draft *Environmental Impact Statement/Overseas Environmental Impact Statement for the Navy Atlantic Fleet Training and Testing*

Dear Chief Murphy:

This office reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, *36 CFR Part 800: Protection of Historic Properties* and the *National Environmental Policy Act of 1969*, as amended.

We have reviewed sections dealing with Cultural Resources of the referenced Environmental Impact Statement (EIS) / Overseas Environmental Impact Statement (OEIS). We find that the EIS/OEIS has adequately addressed cultural resources. Therefore, based on the information provided, it is the opinion of this office that the proposed undertaking is not likely to have an adverse effect on historic properties conditioned that the protection and avoidance procedures stated in the document are followed.

We look forward to working with you on a successful project. If you have any questions concerning our comments, please contact Scott Edwards, Historic Preservationist, by electronic mail *scott.edwards@dos.myflorida.com*, or at 850.245.6333 or 800.847.7278.

Sincerely,

Timothy A. Parsons, DSHPO for

Robert F. Bendus, Director
Division of Historical Resources
and State Historic Preservation Officer

VIVA FLORIDA 500.

DIVISION OF HISTORICAL RESOURCES
R. A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399-0250
Telephone: 850.245.6300 • www.flheritage.com
Commemorating 500 years of Florida history www.vivaflorida.com

VIVA FLORIDA 500.

C.6.5 GEORGIA

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/069
April 12, 2013

Mark Williams
Historic Preservation Division, Department of Natural Resources
State Historic Preservation Officer
254 Washington Street SW, Ground Level
Atlanta, GA 30334

Dear Mr. Williams:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Georgia territorial waters include the Jacksonville Range Complex. In addition, Naval Submarine Base Kings Bay is included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Georgia.

5090
Ser N46/069
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Georgia. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION

MARK WILLIAMS
COMMISSIONER

DR. DAVID CRASS
DIVISION DIRECTOR

May 16, 2013

J.W. Murphy
Department of the Navy
1562 Mitscher Avenue, Suite 250
U.S. Fleet Forces Command
Norfolk, Virginia 23551
ATTN: Jene Nissen

RE: Draft EIS/OEIS: Atlantic Fleet Training and Testing
Statewide
HP-130416-001

Dear Mr. Murphy:

The Historic Preservation Division (HPD) has received the above referenced document. Our comments are provided to assist the U.S. Navy in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended.

HPD understands that training and testing ranges within or adjacent to Georgia territorial waters include the Jacksonville Range Complex as well as the Naval Submarine Base Kings Bay. Based on the information provided, HPD understands the U.S. Navy has determined that no historic properties within the jurisdictional waters of Georgia will be affected by the proposed undertaking. While HPD is unable to concur with this finding, it is our opinion that the project as proposed will have **no adverse effect** to historic properties, as defined in 36 CFR Part 800.5(d)(1), provided the measures to ensure protection of submerged cultural resources located in the study area are followed.

If you have any questions, please feel free to contact Elizabeth Shirk, Environmental Review Coordinator, at (404) 651-6624 or elizabeth.shirk@dnr.state.ga.us.

Sincerely,

Karen Anderson-Cordova, Program Manager
Environmental Review & Preservation Planning

KAC/ECS

254 WASHINGTON STREET, SW | GROUND LEVEL | ATLANTA, GEORGIA 30334
404.656.2840 | FAX 404.657.1368 | WWW.GEORGIASHPO.ORG

C.6.6 LOUISIANA

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/070
April 12, 2013

Pam Breaux
Louisiana Department of Culture, Recreation, and Tourism
State Historic Preservation Officer
P.O. Box 44247
Baton Rouge, LA 70804

Dear Ms. Breaux:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Louisiana territorial waters include the Gulf of Mexico Range Complex.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Louisiana.

5090
Ser N46/070
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Louisiana. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

C.6.7 MAINE

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/071
April 12, 2013

Earle G. Shettleworth, Jr.
Director, Maine Historic Preservation Commission
State Historic Preservation Officer
55 Capitol Street
65 State House Station
Augusta, ME 04333-0065

Dear Mr. Shettleworth:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Maine territorial waters include the Northeast Range Complexes. In addition, the Portsmouth Naval Shipyard in Kittery and the Navy-contractor shipyard in Bath are included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Maine.

5090
Ser N46/071
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Maine. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

CONCUR

Kirk F. Mohney,
Deputy State Historic Preservation Officer

4/17/13
Date

5090
Ser N46/071
April 12, 2013

Earle G. Shettleworth, Jr.
Director, Maine Historic Preservation Commission
State Historic Preservation Officer
55 Capitol Street
65 State House Station
Augusta, ME 04333-0065

RECEIVED
APR 16 2013
By H84-10

Dear Mr. Shettleworth:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Maine territorial waters include the Northeast Range Complexes. In addition, the Portsmouth Naval Shipyard in Kittery and the Navy-contractor shipyard in Bath are included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Maine.

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Ser N46/071
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Maine. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

C.6.8 MARYLAND

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/072
April 12, 2013

J. Rodney Little
Director, Maryland Historical Trust
State Historic Preservation Officer
100 Community Place
Crownsville, MD 21032-2023

Dear Mr. Little:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Maryland territorial waters include the Virginia Capes (VACAPES) Range Complex.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Maryland.

5090
Ser N46/072
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Maryland. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

MDP
Maryland Department of Planning
Maryland Historical Trust

Sustainable Attainable

May 15, 2013

Department of the Navy
Commander
1562 Mitscher Ave, Suite 250
U.S. Fleet Forces Command
Norfolk, VA 23551-2487

Attention:
J. W. Murphy
Deputy Chief of Staff
Fleet Installations and Environmental Readiness

Re: Request for review of Modification to Regulatory Finding, Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) for Atlantic Fleet Training and Testing (AFTT)

Dear Deputy Chief Murphy:

Thank you for the opportunity to comment on the above-referenced modification.

The Maryland State Historic Preservation Office, the Maryland Historical Trust, does not concur with the modification of the finding under Section 106 of the National Historic Preservation Act from "Adverse effects could occur to submerged prehistoric sites and unrecorded submerged historic resources. Consultation with the appropriate State Historic Preservation Office is required to resolve adverse effects to cultural resources located within state territorial waters (within 3 nm) with the exception of Texas, Puerto Rico, and Florida (Gulf coast only), which have a 9-nm limit" to "no historic properties affected" (DEIS AFTT 3.10.4.2 Regulatory Determinations; Letter dated April 12, 2013 from J.W. Murphy to J. Rodney Little).

No comprehensive identification efforts have been undertaken and it is likely that undocumented sites possessing those qualities of significance and integrity that are necessary for listing on the National Register of Historic Places exist within the study area.

The acoustic and physical stressors outlined in the DEIS submitted for review, including shock waves and craters generated by underwater explosions and bottom impacts from seafloor devices and heavy expended military materials, could result in adverse effects to undocumented historic properties by displacing artifacts and sediments and damaging structural elements (DEIS AFTT 3.10.3.2.2).

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor

Richard Eberhart Hall, AICP, Secretary
Matthew J. Power, Deputy Secretary

100 Community Place - Crownsville - Maryland - 21032
Tel: 410.514.7600 - Toll Free: 1.800.756.0119 - TTY users: Maryland Relay - MHT.Maryland.gov

The Maryland Historical Trust believes that the Navy's proposed mitigation measures to ensure protection of historic properties, including prohibition of precision anchoring within the anchor swing diameter, prohibition of explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks, and commencement of consultation with the appropriate state historic preservation office in the event that the Navy impacts a submerged historic property will not adequately protect historic properties.

The Maryland Historical Trust recommends continued consultation to determine adequate measures for the identification, evaluation, and treatment of historic properties in Maryland waters.

If you have questions or require further assistance, please contact me at tnowak@mdp.state.md.us.

Sincerely,

Troy J. Nowak
Assistant State Underwater Archaeologist
Maryland Historical Trust

100 Community Place ● Crownsville, Maryland 21032-2023
Telephone: 410.514.7600 ● Fax: 410.987.4071 ● Toll Free: 1.800.756.0119 ● TTY Users: Maryland Relay
Internet: www.marylandhistoricaltrust.net

MDP
Maryland Department of Planning
Maryland Historical Trust
Troy J. Nowak, M.A., R.P.A.
Asst. State Underwater Archaeologist
Maryland Maritime Archaeology Program
410.514.7668
Fax: 410.987.4071
TNowak@mdp.state.md.us
100 Community Place
Crownsville, Maryland 21032
www.mht.maryland.gov
www.mdp.state.md.us

Sustainable Attainable

August 8, 2013

Department of the Navy
Commander
1562 Mitscher Ave, Suite 250
U.S. Fleet Forces Command
Norfolk, VA 23551-2487

Attention:
J.W. Murphy
Deputy Chief of Staff
Fleet Installations and Environmental Readiness

Re: Regulatory Finding and Section 106 Review, Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) for Atlantic Fleet Training and Testing (AFTT)

Dear Deputy Chief Murphy:

Thank you for the opportunity to comment on the AFTT EIS and for the responsiveness of the team from USFF and NAVFAC that coordinated with MHT during our review.

Careful examination of the EIS, supporting documentation, and the additional information provided by the USFF and NAVFAC team has revealed that the majority of proposed activities with potential to affect undocumented historic properties will occur outside of Maryland waters. We believe that this fact coupled with an expansion of Navy's proposed mitigation measures in lieu of traditional identification and evaluation efforts would significantly reduce or eliminate the possibility of causing adverse effects to undocumented historic properties resulting in a finding *of No historic properties affected* for Maryland waters.

We understand that certain AFTT activities will involve data collection that can assist in the identification of historic properties. These include deployment of aircraft, surface vessels and autonomous and remotely operated vehicles equipped with high frequency and side

scanning sonar, optical systems, and other electronic remote sensing tools. Furthermore, we understand that site inspections will be conducted by divers prior to, during, and/or following certain training and testing activities. As a result, we recommend that Navy institutes a program to report and avoid seafloor anomalies and anthropogenic materials with potential to represent historic properties identified during AFTT activities in Maryland. This will involve developing a mechanism to share information with our office and maintaining a database containing the locations of areas where no seafloor disturbances should occur during subsequent AFTT activities.

We look forward to discussing the feasibility of this recommended expansion of Navy's mitigation measures and developing appropriate protocols for the reporting and avoidance of potential historic properties.

Please contact me via email (tnowak@mdp.state.md.us) if you have any questions.

Sincerely,

Troy J. Nowak
Assistant State Underwater Archeologist
Maryland Historical Trust

cc: Jene Nissen (USFF Environmental Planning Division)
Beth Cole (Maryland Historical Trust)
Susan Langley (Maryland Historical Trust)

Martin O'Malley, Governor
Anthony El Brown, Lt. Governor
Richard Eberhart Hall, AICP, Secretary
Amanda Stakem Conn, Esq., Deputy Secretary
Maryland Historical Trust - 100 Community Place - Crownsville - Maryland - 21032
Tel: 410.514.7601 - Toll Free: 1.800.756.0119 - TTY users: Maryland Relay - Planning.Maryland.gov

C.6.9 MASSACHUSETTS

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/073
April 12, 2013

Brona Simon
Executive Director, Massachusetts Historical Commission
State Historic Preservation Officer
220 Morrissey Boulevard
Boston, MA 02125

Dear Ms. Simon:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Massachusetts territorial waters include the Northeast Range Complexes and the Naval Undersea Warfare Division, Newport Testing Range.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Massachusetts.

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Ser N46/073
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Massachusetts. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

April 25, 2013

The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

J.W. Murphy
Deputy Chief of Staff for Fleet Installations
and Environmental Readiness
Department of the Navy
Commander
1562 Mitscher Avenue, Suite 250
U.S. Fleet Forces Command
Norfolk, VA 23551-2487

Attn: Jene Nissen

RE: Atlantic Fleet Training and Testing Study Area, Offshore Massachusetts. MHC # RC.54094.

Dear Mr. Murphy:

The Massachusetts Historical Commission (MHC), the office of the Massachusetts State Historic Preservation Officer, has reviewed your determination of effect, the Environmental Impact Statement/ Overseas Environmental Impact Statement (EIS/OEIS) and the Draft Technical Memorandum on CD-ROM for the project referenced above, received April 16, 2013, and has the following comments. The proposed project consists of naval training and testing activities within Atlantic Fleet training areas, including anchoring and explosive mine countermeasures practice exercises.

The Navy has determined that there will be no historic properties affected through training and testing projects associated with naval activities within the Atlantic Fleet Training and Testing Study Area, offshore Massachusetts through the implementation of avoidance and minimization measures, such as limitation of anchoring and underwater explosions. The MHC concurs with the Navy's finding of "no historic properties affected" (36 CFR 800.4(d)(1)), and looks forward to consultation if potentially significant historic and archaeological resources are identified during the project.

The MHC notes that the draft technical memorandum presents general maritime historical contexts and information regarding known cultural resources, including a general predictive model for location of historic shipwrecks. Known data on shipwreck locations offshore Massachusetts includes primarily general coordinates of shipwrecks based on current data bases, including the NOAA Office of Coast Survey's Automated Wreck and Obstruction Information System (AWOIS) data base. This data may not have been verified in the field, and locational information may not be accurate or precise. Verification of known cultural resources locational information through consultation with knowledgeable regional agencies, groups and individuals is recommended to incorporate accurate information to assist in the development of avoidance and protection measures, including appropriate surface and seafloor cultural resource buffer zones for potential project impacts.

The MHC recommends that the Navy conduct consultation with other federal regulatory agencies with responsibilities for cultural resources within the offshore continental shelf (OCS) in the New England region, including the Bureau of Ocean Energy Management (BOEM), the United States Coast Guard, the US Army Corps of Engineers, and NOAA. The Massachusetts Board of Underwater Archaeological Resources maintains files on shipwreck locations within Massachusetts state waters, and local dive community representatives may have additional information on known shipwrecks.

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.sec.state.ma.us/mhc

The draft technical memorandum does not identify potential areas of the OCS that may contain buried ancient Native American archaeological sites nor incorporate previous relevant research for these potential archaeological resources, although ancient Native American archaeological sites are referenced in Section 3.10 of the EIS. The MHC notes that a general technical reconnaissance report that incorporates these archaeological resources and includes a regional sensitivity assessment of the New England OCS has been published by BOEM in 2012.

Development of a paleolandscape reconstruction for portions of the New England OCS has been initiated through such state and regional databases as the Rhode Island Ocean Special Area Management Plan (SAMP) coastal planning tool. Geographic Information System (GIS) data layers developed for SAMP include both known areas of cultural resources (e.g. shipwrecks) and geophysical reconstructions of underwater paleolandscapes of the continental shelf in Rhode Island and some of Massachusetts. Paleolandscape reconstruction is especially important to assist in proactive project planning for cultural resource identification by identifying archaeologically sensitive locations within the OCS which may be within project areas of potential impact.

These comments are offered to assist in compliance with Sections 106 and 110 of the National Historic Preservation Act of 1966 as amended. If you need further information or have any questions concerning these comments, please contact Jonathan K. Patton of my staff.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: Brian Jordan, BOEM
Karen Kirk Adams, USACOE-NED, Regulatory
Kate Atwood, USACOE-NED
Marc Paiva, USACOE
Bettina Washington, THPO, Wampanoag Tribe of Gay Head (Aquinnah)
Ramona Peters, THPO, Mashpee Wampanoag Tribe
Doug Harris, NITHPO
Louis Brodnitz, Advisory Council on Historic Preservation
Secretary Ian A. Bowles, Massachusetts Executive Office of Energy & Environmental Affairs
Bruce Carlisle, Massachusetts Coastal Zone Management
Victor Mastone, Massachusetts Board of Underwater Archaeological Resources
John A. Peters, Massachusetts Commission on Indian Affairs
Tim Ives, Rhode Island Historic Preservation & Heritage Commission

C.6.10 MISSISSIPPI

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/074
April 12, 2013

H. T. Holmes
Director, Mississippi Department of Archives and History
State Historic Preservation Officer
P. O. Box 571
Jackson, MS 39205-0571

Dear Mr. Holmes:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Mississippi territorial waters include the Gulf of Mexico Range Complex. In addition, the Navy-contractor shipyard in Pascagoula is located within the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Mississippi.

5090
Ser N46/074
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Mississippi. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

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C.6.11 NEW HAMPSHIRE

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/075
April 12, 2013

Elizabeth Muzzey
Director, New Hampshire Division of Historical Resources
State Historic Preservation Officer
19 Pillsbury Street
Concord, NH 03301-3570

Dear Ms. Muzzey:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to New Hampshire territorial waters include the Northeast Range Complexes.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of New Hampshire.

5090
Ser N46/075
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of New Hampshire. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES
State of New Hampshire, Department of Cultural Resources
19 Pillsbury Street, Concord, NH 03301-3570
TDD Access: Relay NH 1-800-735-2964
www.nh.gov/nhdhr
603-271-3483
603-271-3558
FAX 603-271-3433
preservation@dcr.nh.gov

April 30, 2013

J.W. Murphy
Deputy Chief of Staff for Fleet Installations and Environmental Readiness
Department of the Navy
1562 Mitscher Ave, Suite 250
US Fleet Forces Command
Norfolk, VA 23551-2487

RE: Section 106 Project Review for Atlantic Fleet Training and Testing DRAFT Environmental Impact Statement/Overseas Environmental Impact Statement (AFTT EIS/OEIS)

Dear Deputy Chief Murphy:

In accordance with Section 106 of the National Historic Preservation Act (16 U.S. C. 470), and with federal Advisory Council on Historic Preservation regulations, *Protection of Historic Properties* (36 CFR Part 800), the New Hampshire Division of Historical Resources / State Historic Preservation Office has reviewed the undertaking referenced above, with respect to potential effects on properties listed, or potentially eligible for listing, in the National Register of Historic Places.

Based on the information which you have provided for review it has been determined that the undertaking, as proposed for training and testing activities within or adjacent to New Hampshire territorial waters will have no affect on historic properties. The Division of Historical Resources concurs with your finding of "no historic properties affected."

If any other historical or archaeological resources should be discovered or affected as a result of project planning or implementation, the Division of Historical Resources is to be consulted on the need for appropriate evaluative studies, determinations of National Register eligibility, and mitigative measures (redesign, resource protection, or data recovery, as required by federal law and regulations). For the purpose of compliance with the ACHP procedures, the NH Division of Historical Resources concurs with the proposed finding of ***"No Historic Properties Affected"***.

This fulfills the Navy's responsibilities for "Section 106" historic preservation review for the State of New Hampshire.

Sincerely,

Richard Boisvert, State Archaeologist
Deputy State Historic Preservation Officer

RAB:emf

C.6.12 NEW JERSEY

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/076
April 12, 2013

Bob Martin
Director, New Jersey Department of Environmental Protection
Historic Preservation Office
State Historic Preservation Officer
P.O. Box 420
Trenton, NJ 08625-0420

Dear Mr. Martin:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to New Jersey territorial waters include the Northeast Range Complexes. In addition, the waters around Earle are included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of New Jersey.

5090
Ser N46/076
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of New Jersey. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site File Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

HPO Project #12-1584-3
HPO-E2013-184
Page 1 of 3

State of New Jersey

MAIL CODE 501-04B
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NATURAL & HISTORIC RESOURCES
HISTORIC PRESERVATION OFFICE
P.O. Box 420
Trenton, NJ 08625-0420
TEL. (609) 984-0176 FAX (609) 984-0578

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

May 17, 2013

J. W. Murphy
Deputy Chief of Staff for Fleet Installations and Environmental Readiness
Department of the Navy
Commander
1562 Mitscher Ave, Suite 250
U.S Fleet Forces Command
Norfolk, Virginia 23551-2487

Dear Deputy Chief Murphy:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the *Federal Register* on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40544-40555), I am providing continuing Consultation Comments for the following proposed undertaking:

Statewide
Atlantic Fleet Training and Testing Study Area
Draft Environmental Impact Statement
Department of the Navy

Thank you for providing the Historic Preservation Office (HPO) the opportunity to review and comment on the potential for the above-referenced project to affect historic and archaeological resources. According to the submitted Draft Environmental Impact Statement (DEIS), the Navy intends to conduct Section 106 consultation concurrently with the preparation of the Environmental Impact Statement (EIS) for the above-referenced undertaking. The following comments are based in part on the following technical memorandum describing the results of a literature search and predictive model for submerged cultural resources:

Burns, Jason M.
2011 *Draft Technical Memorandum (Ranges and Operating Areas) Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for the US Atlantic Fleet Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS).* Prepared for Parsons Infrastructure &

Technology, Inc. Pasadena, California. Prepared by Southeastern Archaeological Research, Inc. Pensacola, Florida.

800.3 Initiation of the Section 106 Process

At this point in time, it is unclear whether all interested parties (including local governments, Historic Preservation Commissions, Historical Societies, etc.) have been identified and if initiation of consultation, pursuant to 36 CFR § 800.3, has begun. The HPO requests documentation that these parties have been identified and that consultation has been initiated.

Please note, in the past the following federally recognized Native American Tribes have expressed interest in undertakings within the State of New Jersey:

- Delaware Nation
- Shawnee Tribe of Oklahoma
- Absentee-Shawnee Tribe of Indians of Oklahoma
- Stockbridge-Munsee Band of the Mohicans
- Delaware Tribe of Indians
- Oneida Nation of New York

800.4 Identification of Historic Properties

The HPO has concerns regarding the information submitted. According to the documentation provided, the Navy has determined that there will be no historic properties affected by the above-referenced undertaking, provided the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards of shipwrecks. However, efforts to identify historic properties are limited to a literature review, site file search, and sensitivity assessment of the project area of potential effects (APE) in which the highly variable and usually poor positional accuracy of the potential resources is acknowledged. In addition, the documentation provided identifies that adverse effects may occur to submerged Native American and other unrecorded submerged historic properties through the employment of the No Action Alternative, Alternative 1, or Alternative 2.

From the documentation submitted, it does not appear the United States Navy intends to complete additional identification efforts. At this point in time, it is also not clear how the undertaking would have no effect on historic properties with the described level of identification and the documentation or potential adverse effects. The HPO requests clarification of the finding of no historic properties affected in light of this assessment. Once the HPO receive clarification regarding these issues, we will be able to provide additional consultation comments under Section 106 of the National Historic Preservation Act.

Additional Comments

Thank you for providing this opportunity to comment on this proposed project. If additional consultation with the HPO is needed for this undertaking, please reference the HPO project number 12-1584 in any future calls, emails, or written correspondence to help expedite your

review and response. If you have any questions, please feel free to contact Jesse West-Rosenthal (609-984-6019) of my staff with questions regarding archaeology.

Sincerely,

Daniel D. Saunders
Deputy State Historic
Preservation Officer

Cc: Jene Nissen – Navy

HPO Project #12-1584-4
HPO-G2013-229
Page 1 of 2

State of New Jersey

MAIL CODE 501-04B
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NATURAL & HISTORIC RESOURCES
HISTORIC PRESERVATION OFFICE
P.O. Box 420
Trenton, NJ 08625-0420
TEL. (609) 984-0176 FAX (609) 984-0578

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

July 29, 2013

J. W. Murphy
Deputy Chief of Staff for Fleet Installations and Environmental Readiness
Department of the Navy
Commander
1562 Mitscher Ave, Suite 250
U.S Fleet Forces Command
Norfolk, Virginia 23551-2487

Dear Deputy Chief Murphy:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the *Federal Register* on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40544-40555), I am providing continuing Consultation Comments for the following proposed undertaking:

Statewide
Atlantic Fleet Training and Testing Study Area
Department of the Navy

800.4 Identification of Historic Properties

Thank you for your submission regarding the proposed Atlantic Fleet Training and Testing undertaking. Based on the documentation submitted, the Navy is proposing to conduct training and testing activities, which may include the use of sound navigation and ranging, and explosives. Communication between Laura Busch of your office and Jesse West-Rosenthal of the HPO has indicated that only a select amount of activities analyzed in the Navy's Draft Environmental Impact Statement have the potential to occur within the territorial waters of New Jersey. Civilian Port Defense was the only activity identified as likely to occur and was also identified as the only activity which includes the use of underwater explosives within the coastal zone. Ms. Busch outlined that placement of underwater explosives as a result of this activity would be done by Navy divers would avoid placing explosives on any obstruction or shipwrecks.

800.5 Assessment of Adverse Effects

Therefore, pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and it's implementing regulations, 36 CFR §800.5(b), I concur with your finding that the project will **not adversely affect** historic properties provided that the placement of underwater explosives as a result of this activity would be done by Navy divers who will avoid placing explosives on any obstruction or shipwrecks. Pursuant to 800.5(c), if no consulting parties object to this finding within the 30 day review period, the project may proceed, as proposed, unless resources are discovered during project implementation, pursuant to 800.13.

Additional Comments

Thank you for providing this opportunity to review and comment on this proposed project. If additional consultation with the HPO is needed for this undertaking, please reference the HPO project number 12-1584 in any future calls, emails, submissions or written correspondence to help expedite your review and response. If you have any questions, please feel free to contact Jesse West-Rosenthal (609-984-6019) of my staff with questions regarding archaeology.

Sincerely,

Daniel D. Saunders
Deputy State Historic
Preservation Officer

Cc: Laura Busch – US Navy

C.6.13 NEW YORK

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/077
April 12, 2013

Rose Harvey
Commissioner, New York State Division for Historic Preservation
New York State Office of Parks, Recreation, and Historic Preservation
State Historic Preservation Officer
Peebles Island State Park
P.O. Box 189
Waterford, NY 12188-0189

Dear Ms. Harvey:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to New York territorial waters include the Northeast Range Complexes and the Naval Undersea Warfare Center Division, Newport Testing Range.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of New York.

5090
Ser N46/077
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of New York. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

OFFICE OF PARKS, RECREATION & HISTORIC PRESERVATION
NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

April 25, 2013

J.W. Murphy
Deputy Chief of Staff for Fleet Installations and Environmental Readiness
Department of the Navy
1562 Mitscher Avenue, Suite 250
Norfolk, Virginia 23551-2487

Re: DOD/ Navy **Ser N46/077**
Atlantic Fleet Training and Testing (AFTT) Final Environmental Impact Statement (EIS)/ Overseas Environmental Impact Statement (OEIS)
North Atlantic - NY State Waters/State-Wide, STATE-WIDE County
13PR01835

Dear Mr. Murphy:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the submitted *Atlantic Fleet Training and Testing (AFTT) Final Environmental Impact Statement (EIS)/ Overseas Environmental Impact Statement (OEIS)* received by our office on April 18, 2013. The project information for the proposed undertaking has been reviewed in accordance with Section 106 of the National Historic Preservation Act of 1966, *as amended*, and it's implementing regulations 36 CFR Part 800 – Protection of Historic Properties.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

The Navy has made the determination of *No Historic Properties* Affected [as per 36 CFR Section 800.4(d)(1)] by the proposed action within the jurisdictional waters of New York. Based upon the provided information in the ATFF EIS/OEIS, our agency concurs with this finding.

Should you have any questions, please feel free to contact me directly at (518) 237-8643, Extension 3288 or via electronic mail at Brian.Yates@oprhp.state.ny.us. If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Wm. Brian Yates
Historic Preservation Specialist

C.6.14 NORTH CAROLINA

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/078
April 12, 2013

Kevin Cherry, Ph.D.
Deputy Secretary, North Carolina Office of Archives and History
State Historic Preservation Officer
4619 Mail Service Center
Raleigh, NC 27699-4619

Dear Dr. Cherry:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to North Carolina territorial waters include the Cherry Point Range Complex. In addition, the waters around Morehead City and Wilmington are included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of North Carolina.

5090
Ser N46/078
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of North Carolina. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

North Carolina Department of Cultural Resources
State Historic Preservation Office
Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

May 2, 2013

J. W. Murphy
Department of the Navy
1562 Mitscher Avenue, Suite 250
US Fleet Forces Command
Norfolk, VA 23551-2487

Re: Training and Testing Within the Atlantic Fleet Training and Testing Study Area of the Western Atlantic Ocean, Multi County, CH 10-1376

Dear Mr. Murphy:

Thank you for your letter of April 12, 2013, concerning the above project.

We have conducted a review of the project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above-referenced tracking number.

Sincerely,

Renee Gledhill-Earley

for Ramona M. Bartos

Location: 109 East Jones Street, Raleigh NC 27601 **Mailing Address**: 4617 Mail Service Center, Raleigh NC 27699-4617 **Telephone/Fax**: (919) 807-6570/807-6599

C.6.15 PUERTO RICO

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/084
April 12, 2013

Carlos A. Rubio Cancela
Executive Director, State Historic Preservation Office
State Historic Preservation Officer
Office of the Governor
P.O. Box 9066581
San Juan, PR 00906-6581

Dear Mr. Rubio Cancela:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the territorial waters of Puerto Rico.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

5090
Ser N46/084
April 12, 2013

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Puerto Rico. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosure: AFTT Draft EIS/OEIS

2

OFICINA ESTATAL DE
CONSERVACIÓN HISTÓRICA
OFICINA DEL GOBERNADOR

STATE HISTORIC
PRESERVATION OFFICE
OFFICE OF THE GOVERNOR

SHPO
OECH

May 24, 2013

J. W. Murphy
Deputy Chief of Staff
for Fleet Installations and Environmental Readiness
Department of the Navy
1562 Mitscher Ave., Suite 220
U.S. Fleet Forces Command
Norfolk, VA 23551-2487

SHPO: 04-29-13-01 PREPARATION OF A FINAL ENVIRONMENTAL IMPACT STATEMENT (EIS) / OVERSEAS ENVIRONMENTAL IMPACT STATEMENT (OEIS) FOR ATLANTIC FLEET TRAINING AND TESTING STUDY AREA, ISLANDWIDE, PUERTO RICO

Dear Mr. Murphy:

We acknowledge receipt of the draft EIS/OEIS prepared for the above referenced activities. In reviewing the document, we were unable to discern if any training activities are actually contemplated within the territorial waters of the Commonwealth of Puerto Rico. In terms of training activities within the Caribbean, the only references we could find described training and testing around the Florida Keys. In order of us to effectively advise and assist the U. S. Navy in meeting its historic preservation responsibilities, we will need a clearer description of the actions and locations under consideration within our territorial waters.

If you have any questions, please contact Miguel Bonini of our Office at 787-721-3737 or by e-mail at mbonini@prshpo.gobierno.pr.

Sincerely,

Diana López Sotomayor

Diana López Sotomayor, Archaeologist
State Historic Preservation Officer

DLS/BRS/MB

WWW.OECH.GOBIERNO.PR

P.O. Box 9023935
San Juan, PR 00902-3935

Teléfono/Phone | 787.721-3737
Fax | 787.721-3773

PUERTO RICO VERDE

OFICINA ESTATAL DE
CONSERVACIÓN HISTÓRICA
OFICINA DEL GOBERNADOR

STATE HISTORIC
PRESERVATION OFFICE
OFFICE OF THE GOVERNOR

SHPO
OECH

July 18, 2013

J. W. Murphy
Deputy Chief of Staff
for Fleet Installations and Environmental Readiness
Department of the Navy
1562 Mitscher Ave., Suite 220
U.S. Fleet Forces Command
Norfolk, VA 23551-2487

SHPO: 04-29-13-01 PREPARATION OF A FINAL ENVIRONMENTAL IMPACT STATEMENT (EIS) / OVERSEAS ENVIRONMENTAL IMPACT STATEMENT (OEIS) FOR ATLANTIC FLEET TRAINING AND TESTING STUDY AREA, ISLANDWIDE, PUERTO RICO

Dear Mr. Murphy:

We acknowledge receipt of additional documentation regarding possible U. S. Navy activities within the coastal zone of Puerto Rico. According to the information submitted, no activities in the proposed action would be conducted on land in Puerto Rico. As for activities that may occur within the territorial waters of Puerto Rico, we have reviewed the list provided and concur that it is unlikely that these may affect historic properties. However, if historic properties are discovered or unanticipated effects on historic properties found at any point during these activities, you should notify the SHPO immediately.

If you have any questions, please contact Miguel Bonini of our Office at 787-721-3737 or by e-mail at mbonini@prshpo.gobierno.pr.

Sincerely,

Diana López Sotomayor

Diana López Sotomayor, Archaeologist
State Historic Preservation Officer

DLS/BRS/MB

WWW.OECH.GOBIERNO.PR

P.O. Box 9023935
San Juan, PR 00902-3935

Teléfono/Phone | 787.721-3737
Fax | 787.721-3773

C.6.16 RHODE ISLAND

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/079
April 12, 2013

Edward F. Sanderson
Executive Director
Rhode Island Historic Preservation and Heritage Commission
State Historic Preservation Officer
Old State House
150 Benefit Street
Providence, RI 02903

Dear Mr. Sanderson:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Rhode Island territorial waters include the Northeast Range Complexes and the Naval Undersea Warfare Division, Newport Testing Range.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Rhode I

5090
Ser N46/079
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Rhode Island. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

C.6.17 SOUTH CAROLINA

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/080
April 12, 2013

W. Eric Emerson, Ph.D.
Director, South Carolina Department of Archives and History
State Historic Preservation Officer
8301 Parklane Road
Columbia, SC 29223

Dear Dr. Emerson:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to South Carolina territorial waters include the Jacksonville Range Complex.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of South Carolina.

5090
Ser N46/080
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of South Carolina. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

C.6.18 TEXAS

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/081
April 12, 2013

Mark S. Wolfe
Executive Director, Texas Historical Commission
State Historic Preservation Officer
P.O. Box 12776
Austin, TX 78711

Dear Mr. Wolfe:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges within or adjacent to Texas territorial waters include the Gulf of Mexico Range Complex. In addition, the waters around Beaumont and Corpus Christi are included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Texas.

5090
Ser N46/081
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Texas. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

TEXAS HISTORICAL COMMISSION
real places telling real stories

May 20, 2013

J. W. Murphy
Department of the Navy
1562 Mitscher Ave., Suite 250
U.S. Fleet Forces Command
Norfolk, VA 23551-2487

Re: Project review under Section 106 of the National Historic Preservation Act of 1966 and the Antiquities Code of Texas
Atlantic Fleet Training and Testing Study
THC Tracking No. 201307377

Dear Mr. Murphy:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed federal undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission. As the state agency responsible for administering the Antiquities Code of Texas, these comments also provide recommendations on compliance with state antiquities laws and regulations.

The review staff, led by State Marine Archeologist Amy A. Borgens, has completed its review. These comments address both the proposed actions and the draft technical memorandum on predictive modeling for submerged cultural resources for the study area. The military readiness activities that are proposed in western Atlantic Coast, Gulf of Mexico, and Caribbean include training that will or may occur in Texas territorial waters (see Appendix A). The locations of some activities that will occur in Texas waters are specifically listed and others are only categorized as general Gulf of Mexico or Gulf of Mexico Range Complex (GOMEX) locations. These latter activities have the potential to occur in Texas. Many, if not most, of the training exercises listed in Appendix A occur on or above the water's surface and would not pose a threat to historic or prehistoric sites (both recorded and undiscovered) on the seafloor or in the water column. Section 3.10 of the draft EIS/OEIS (Vol. 1) lists both acoustic and physical stressors that have the potential to impact cultural resources as part of the proposed training.

The Navy has proposed a mitigation (avoidance) zone of 320 m for shipwrecks and other submerged cultural resources in the study area to ensure they will be protected from ground-disturbing activities. The proposed avoidance area exceeds the state avoidance buffer required by the Texas Administrative Code which is 50 m within the 3 mile line in the Gulf of Mexico and 150 meters beyond this demarcation to the state's maritime boundary (Texas Administrative Code, Title 13, Part 2 Chapter 28, RULE §28.6). In addition to archeological sites discovered in state waters, significant magnetic anomalies encountered during the course of cultural resources remote-sensing surveys are considered sensitive targets (the equivalent of unevaluated archeological sites) and are also to be avoided by all ground-disturbing activities (Texas Administrative Code, Title 13, Part 2 Chapter 28,

RULE §28.6). The locations of both archeological sites and significant magnetic anomalies are on file with the Texas Historical Commission (THC).

There is concern that the technical memorandum entitled *Draft Technical Memorandum (Ranges and Operating Areas) Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for the US Atlantic Fleet Training and Testing Environmental Impact/Overseas Environmental Impact Statement (EIS/OEIS)* may lack sufficient detail to ensure (to the reader) that the predictive model proposed for this project adequately includes all state resources pertinent to the project. Federal databases are described but state databases are not individually listed. The THC maintains an online listing of both discovered and reported shipwrecks in state waters that is restricted to registered users. More than 1800 shipwrecks are recorded or reported in Texas territorial waters (approximately 300 are in rivers). These shipwreck entries are, for the most part, not duplicates of wrecks listed in the NOAA AWOIS, BOEMRE, or GDWD datasets. The THC database, among others, is not referred to in the text or the examples provided on page 37 of the memorandum. The results section additionally mentions that wrecks are located "across the entire AFTT study area" yet the study focuses only on the specific operating areas in building the predictive model. Wherein the restricted Sites Atlas lists more than 1800 reported shipwrecks and sites throughout Texas, the Corpus Christi Operating Area appears to have more than 200 from this dataset alone.

For the No Action Alternative, the THC concurs with the Navy's determination that no historic properties will be affected by the proposed activities. If Alternatives 1 or 2 are selected, the THC would, however, like additional information regarding the explosives used for training exercises if they were to occur in Texas state waters. This information would include more specific locations of detonation and associated impact footprints (as listed in Tables 3.3-5, 3.3-6, and 3.3-7). Archeological remote-sensing surveys may be recommended if impacts are substantial and these are to occur in areas that have a high probability to contain shipwrecks sites. Additional consultation with this agency is requested so that both known archeological sites and significant magnetic anomalies identified in previous remote-sensing surveys are avoided by any ground-disturbing activities.

Thank you for your cooperation in this federal and state review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Amy Borgens at 512-463-9505.**

Sincerely,

for
Mark Wolfe
State Historic Preservation Officer
MW/ab

RICK PERRY, GOVERNOR • MATTHEW F. KREISLE, III, CHAIRMAN • MARK WOLFE, EXECUTIVE DIRECTOR
P.O. BOX 12276 • AUSTIN, TEXAS • 78711-2276 • P 512.463.6100 • F 512.475.4872 • TDD 1.800.735.2989 • www.thc.state.tx.us

APPENDIX A: Training Activities listed in Table 2.8-1 that may occur in Texas Territorial Waters

No Action Alternative activities include Anti-Air Warfare (AAW) surface to Air missile exercises; Anti-Surface Warfare (ASUW) Maritime Security Operations – Anti Swimmer Grenades; ASUW Ship Gunnery Exercise – surface to surface (small caliber and medium caliber rounds); ASUW Boat Gunnery Exercise – surface to surface (small caliber and medium caliber rounds); ASUW Missile Exercise – Air to surface; ASUW Torpedo (Non-Explosive) Testing; Anti-Submarine Warfare (ASW) – Tracking/Torepdo Exercise – Submarine; ASW - Tracking/Torpedo Exercise – Helicopter; ASW Tracking Exercise/Torpedo Exercise - Maritime Patrol Aircraft; ASW Tracking Exercise - Maritime Patrol Aircraft Extended Echo Ranging Sonobuoys (highly explosive); ASW Integrated Anti-Submarine Warfare Course (no ordnance); ASW For Composite Training Unit Exercise; Mine Warfare (MIW) Mine Countermeasures Exercise – Ship Sonar; Anti-Air Warfare (AAW) Air Combat Maneuver; AAW Air Platform/Vehicle Test, and major exercises such as Composite Training Unit Exercise, Precision Anchoring, and Surface Ship Sonar Maintenance

Alternatives 1 and 2 propose to add new activities to GOMEX and the Gulf of Mexico including an Anti-Air Warfare (AAW) Air Defense Exercise, Amphibious Warfare (AMW) Naval Surface Fire Support Exercise – At Sea; Anti-Surface Warfare (ASUW) Maritime Security Operations; ASUW Ship Gunnery Exercise – surface to surface (small medium, and large caliber rounds); ASUW air to surface (medium caliber rounds); ASUW Bombing exercise - air to surface; ASUW Air-to-Surface Missile Test; Electronic Warfare (EW) Counter Targeting Flare Exercise; EW Counter Targeting Chaff Exercise; EW Counter Targeting Chaff Exercise; MIW Mine Neutralization –Explosive Ordnance Disposal (EOD) (highly explosive); MIW Airborne Mine Countermeasure (AMCM) – Towed Mine Neutralization; MIW Airborne Mine Countermeasure (AMCM) –Mine Detection; MIW Mine Countermeasure (MCM) - Mine Neutralization – Remotely Operated Vehicle; MIW Coordinated Unit Level Helicopter Airborne Mine Countermeasure Exercises; MIW Civilian Port Defense; New Ship Construction Sea Trials (propulsion testing, gun testing, missile testing, decoy testing, surface warfare testing, anti-submarine warfare testing; Life Cycle activities (ship signature testing); MIW Mine Countermeasure / Neutralization Testing; Unmanned Vehicle testing; At-Sea Explosives Testing

C.6.19 U.S. VIRGIN ISLANDS

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/082
April 12, 2013

Robert Mathes
Commissioner
U.S. Virgin Islands Department of Planning and Natural Resources
State Historic Preservation Officer
Virgin Islands State Historic Preservation Office
Dronningens Gade 71 and 72A, Kongens Quarter
Charlotte Amalie, VI 00802

Dear Mr. Mathes:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year period. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area generally follows the Commander Task Force 80 area of operations, covering approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the territorial waters of the U.S. Virgin Islands.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

5090
Ser N46/082
April 12, 2013

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of the U.S. Virgin Islands. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosure: AFTT Draft EIS/OEIS

2

C.6.20 VIRGINIA

DEPARTMENT OF THE NAVY
COMMANDER
1562 MITSCHER AVE, SUITE 250
U.S. FLEET FORCES COMMAND
NORFOLK, VA 23551-2487

5090
Ser N46/083
April 12, 2013

Kathleen Kilpatrick
Director, Virginia Department of Historic Resources
State Historic Preservation Officer
2801 Kensington Avenue
Richmond, VA 23221

Dear Ms. Kilpatrick:

The Navy is preparing a Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) to assess the potential environmental impacts associated with two categories of military readiness activities - training and testing - that are proposed to occur within the Atlantic Fleet Training and Testing (AFTT) Study Area over a five-year planning horizon. The AFTT EIS/OEIS Study Area is situated off the east coast of North America and is primarily comprised of the western Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The Study Area starts seaward from the mean high water line east to the 45-degree west longitude line, north to the 65-degree north latitude line, and south to approximately the 20-degree north latitude line. The Study Area covers approximately 2.6 million square nautical miles (nm^2) of ocean area, and includes designated Navy operating areas (OPAREAs) and special use airspace. Navy pierside locations and port transit channels where sonar maintenance and testing occur, and bays and civilian ports where training occurs are also included in the Study Area. No land ranges are included in the Study Area.

Training and testing ranges that occur within or adjacent to Virginia territorial waters include the Virginia Capes (VACAPES) Range Complex. In addition, the lower Chesapeake Bay, Naval Station Norfolk, Joint Expeditionary Base Little Creek-Fort Story, Norfolk Naval Shipyard, and the Navy contractor shipyard in Newport News are included in the Study Area.

For your review, the draft AFTT EIS/OEIS is provided as an enclosure. Since the release of the draft EIS/OEIS, however, the Navy modified the regulatory finding under Section 106 of the National Historic Preservation Act in the final AFTT EIS/OEIS to one of "no historic properties affected." Section 3.10 of the EIS/OEIS provides an assessment of the potential impacts on cultural resources as a result of the proposed training and testing activities in the Study Area. The EIS/OEIS identifies two stressors - acoustic stressors and physical stressors - that have the potential to result in adverse effects on submerged cultural resources. These stressors may occur in the state territorial waters of Virginia.

5090
Ser N46/083
April 12, 2013

In addition, a technical memorandum describing the results of a literature search and predictive model for submerged cultural resources to further identify any cultural resources that might be within Navy training and testing ranges is enclosed for your review.

To ensure protection of submerged cultural resources in the AFTT Study Area, the Navy will not conduct precision anchoring within the anchor swing diameter, or explosive mine countermeasure and neutralization activities within 350 yards (320 meters) of shipwrecks. This avoidance will be accomplished by providing locational information for these resources to all Navy operators.

While there is a possibility that unintentional impacts to National Register-eligible properties could occur as a result of the Proposed Action, it is believed that chances of such impacts are remote due to the mitigation measures employed. Furthermore, while impacts on previously unidentified historic properties are possible, such impacts are also expected to be very unlikely. In the event that the Navy impacts a submerged historic property, it will immediately commence consultation with the appropriate state historic preservation officer in accordance with the provisions found at 36 Code of Federal Regulations Section 800.13(a)(3).

The Navy has made the determination of no historic properties affected by the Proposed Action within the jurisdictional waters of Virginia. We request that you provide your concurrence on our finding of no historic properties affected within 30 days of receipt of this letter. If a response has not been received by that time, concurrence with this finding will be assumed. Please contact Jene Nissen of my staff at (757) 836-5221 with any questions.

Sincerely,

J. W. MURPHY
Deputy Chief of Staff
for Fleet Installations
and Environmental Readiness

Enclosures: 1. AFTT Draft EIS/OEIS
2. Draft Technical Memorandum Literature Review, Site Files Search, and Predictive Modeling for Submerged Cultural Resources for AFTT EIS/OEIS

2

COMMONWEALTH of VIRGINIA

Douglas W. Domenech
Secretary of Natural Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.virginia.gov

MEMORANDUM

DATE: 2 May 2013 **DHR File #** 2013-0515

TO: J. W. Murphy
NAVY

FROM: Marc E. Holma, Architectural Historian (804) 482-6090
Office of Review and Compliance

PROJECT: Final Environmental Impact Statement for Two Categories of Military Readiness Activities (Testing and Training) off of the Coast of Virginia

___ This project will have an effect on historic resources. Based on the information provided, the effect will not be adverse.

___ This project will have an adverse effect on historic properties. Further consultation with DHR is needed under Section 106 of the NHPA.

___ Additional information is needed before we will be able to determine the effect of the project on historic resources. **Please see attached sheet.**

_X_ No further identification efforts are warranted. No historic properties will be affected by the project. Should unidentified historic properties be discovered during implementation of the project, please notify DHR.

___ We have previously reviewed this project. Attached is a copy of our correspondence.

___ Other (Please see comments below)

COMMENTS:

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6416
Fax: (804) 862-6196

Capital Region Office
2801 Kensington Ave.
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Tidewater Region Office
14415 Old Courthouse Way
2nd Floor
Newport News, VA 23608
Tel: (757) 886-2807
Fax: (757) 886-2808

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
P.O. Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

C.7 NATIONAL MARINE SANCTUARIES ACT

As part of the EIS/OEIS process, the Navy has had information discussions with the Office of National Marine Sanctuaries in accordance with the requirements under the National Marine Sanctuaries Act. Since the Draft EIS/OEIS was released, adjustments were made to add additional details to the analysis contained within Section 6.1.2.5 (National Marine Sanctuaries) based on feedback received from the Office of National Marine Sanctuaries. These changes can be found in this Final EIS/OEIS. In addition to this feedback, the Navy received two specific recommendations from the Office of National Marine Sanctuaries. The responses to these recommendations can be found in Table C-1.

Table C-1: Responses to Recommendations from the Office of National Marine Sanctuaries

Recommendation	Response
ONMS recommends that the Navy continue the spatial mitigation measure to restrict all active sonar use inside and within a 2.7 nm buffer around the Stellwagen Bank, Monitor, Gray's Reef, Florida Keys and Flower Garden Banks national marine sanctuaries (AFTT EIS section 5.3.4.8). In accordance, ONMS recommends that the Navy not employ sonar and other active acoustic sources within 2.7 nm of Gray's Reef National Marine Sanctuary (AFTT EIS section 6.1.2.5.2 (2)).	As discussed in Section 6.1.2.5 (National Marine Sanctuaries), the Navy does not plan to use sonar or other active acoustic sources within the Gerry E. Studds Stellwagen Bank National Marine Sanctuary (including a 2.7 nm buffer) as part of the Proposed Action. For Florida Keys National Marine Sanctuary, the Navy only plans to use sonar and other active acoustic sources that were specifically exempted, which include those involved in mine countermeasure research, acoustic research, submarine activities, sonobuoy testing, and special warfare activities. The Navy does not plan to use any other sonar or other active acoustic sources within the Florida Keys National Marine Sanctuary (including a 2.7 nm buffer) as part of the Proposed Action. For Gray's Reef, *Monitor,* and Flower Garden Banks National Marine Sanctuaries, sonar and other active acoustic sources are not likely to injure sanctuary resources or qualities, therefore mitigation is not warranted. Section 6.1.2.5 (National Marine Sanctuaries) provides a detailed analysis of the potential impacts from sonar and other active acoustic sources on sanctuary resources within each specific sanctuary. Due to the water depth in the vicinity of Gray's Reef National Marine Sanctuary specifically, the types of active sonar and other acoustic sources that could be used would typically be limited to lower source levels and higher frequency systems such as mine-hunting, bottom mapping and underwater communication type systems. Regarding the more powerful hull-mounted mid-frequency sonars, the types of activities that could occur would typically be limited to maintenance, testing or mine countermeasure training, and these events would typically be less than an hour in the vicinity of the sanctuary. Therefore, sonar and other active acoustic sources are not likely to destroy, cause the loss of, or injure sanctuary resources.
ONMS recommends that observations and monitoring information on the effects of electromagnetic devices on sanctuary resources be shared with ONMS as appropriate.	Navy will share observations and monitoring information on the effects of electromagnetic devices on sanctuary resources if any such data becomes available.