ATLANTIC FLEET TRAINING AND TESTING

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/
OVERSEAS ENVIRONMENTAL IMPACT STATEMENT
for Activities in 2025 and Beyond

IMPORTANCE OF TRAINING AND TESTING WITH ACTIVE SONAR AND EXPLOSIVES

In accordance with the National Environmental Policy Act (NEPA), the Navy, Marine Corps, and Coast Guard are using best available science and methods of analysis to assess the potential environmental impacts associated with conducting training and testing activities within the Atlantic Fleet Training and Testing (AFTT) Study Area, including activities that involve the use of active sonar and explosives. Most of these training and testing activities have been previously analyzed and authorized under the Marine Mammal Protection Act and the Endangered Species Act, and are similar to the types of activities that have been occurring in the Study Area for decades. The National Marine Fisheries Service (NMFS) is a cooperating agency and has been involved during the NEPA process in preparing the Supplemental Environmental Impact Statement (SEIS/OEIS).

WHAT IS SONAR?

Sonar, an acronym for **so**und **na**vigation and **r**anging, uses sound energy waves to detect and locate submerged objects, such as submarines and mines. There are two types of sonar – passive sonar and active sonar.

Passive sonar is a sound-receiving system that uses receivers to "listen" for sound waves generated by man-made or biological sources. Passive sonar does not put any sound energy in the water. Passive sonar can indicate the presence, character, and movement of a submarine if the submarine is loud. Despite ongoing research to improve passive sonar, it is not adequate for detecting modern quiet submarines, and submarines operating in areas where background noise levels are elevated, such as coastal waters.

Active sonar is the most effective means available for locating objects underwater. Active sonar sends out a pulse of energy, often called a "ping," that travels through water, reflects off an object, and returns to a receiver. Skilled technicians use the reflected sonar pulse to determine the distance to and movement of an object. Common active sonars include echo sounders (such as depth sounders and fish finders), side-scan sonar, and military sonar (such as hull-mounted mid-frequency active sonar and sonobuoys).

Active sonar has the ability to locate objects that are too quiet to be detected using passive sonar, and is effective in locating in-water mines. Navy vessels use active sonar sparingly because sonar pulses can reveal a sending vessel's location, compromising the mission and safety.

NEED FOR SONAR TRAINING AND TESTING

More than 500 extremely quiet, newer-generation submarines are operated by more than 40 nations worldwide, and the number of them in service is growing. These quiet submarines, as well as torpedoes and in-water mines, are threats to global commerce, national security, and the safety of military personnel. As a result, defense against enemy submarines is a top priority for the Navy.

SONAR TRAINING

Quiet submarines, torpedoes, and in-water mines are threats to global commerce and national security. Active sonar is the most effective method of detecting these threats.

To detect and counter hostile submarines, the Navy uses both passive and active sonar. Sonar proficiency is a complex and perishable skill that requires regular, hands-on training in realistic and diverse conditions, such as those provided in the AFTT Study Area. Lack of realistic training would deteriorate the readiness of our forces and jeopardize their safety in real-world situations. Simulators and other advanced technologies are used; however, simulation cannot completely replace training in a live environment.

SONAR SYSTEMS TESTING

The Navy needs to research, test, and maintain sonar systems both at sea and pierside to ensure their reliability and availability. Continuing to equip and maintain combat-ready forces requires scientific and technological research, as well as acquiring and testing new sonar systems. Maintaining and upgrading existing sonar systems also requires periodic testing and evaluation.

TRAINING AND TESTING IN A NOISY ENVIRONMENT

Sound levels in the ocean are not constant, varying with location and time. Many sources contribute to the ocean's overall noise level, such as shipping, mineral extraction, fishing, recreational boating, breaking waves, marine life, and storm events.

Coastal waters contain an abundance of ocean life and support many human activities, including commercial shipping ports, fishing fleets, and oil exploration and drilling. These activities bring significant noise to the coastal environment, and combined with complex oceanographic features, create an extremely challenging and varied environment for sonar technicians. This complex coastal environment is typically where most nations' submarines operate today.

TRAINING AND TESTING WITH EXPLOSIVES

Training and testing with explosives (live ordnance) significantly enhances the safety of U.S. forces in combat by improving readiness and equipment reliability. Training in a high-stress environment, including the use of and exposure to live ordnance, is necessary for military personnel to be ready to respond to emergencies and national security threats.

Testing with live ordnance is essential to ensure that systems function properly in the type of environment they will be used. To the extent possible, simulators and other available technologies are used. Simulation, however, cannot completely replace training and testing in a live environment. Limited training and testing with explosives is conducted within the AFTT Study Area. During these activities, notices to mariners and pilots are issued to ensure public safety.

SONAR: THEN AND NOW

In response to devastating Allied shipping and human losses from U-boat attacks during World War II, the Navy began using sonar. Today, sonar is used to identify, track, and target submarines; detect mines; and navigate safely.

With advances in technology, newer-generation submarines are extremely quiet and hard to detect in the noisy ocean environment. The advances in technology and increases in the number of quiet submarines have made it necessary for the Navy to use active sonar, as passive sonar is not adequate for detecting them.

Previous-generation submarines were noisy and could be detected with passive sonar before they were close enough to attack.

Extremely quiet, difficult-to-detect, diesel-electric submarines can approach close enough to deploy long-range weapons before entering the passive sonar detection range of U.S. vessels. Active sonar has a longer detection range that is needed for Sailors to detect a submarine before it is close enough to attack.

LEGEND
- Passive Sonar Detection Range
- Active Sonar Detection Range
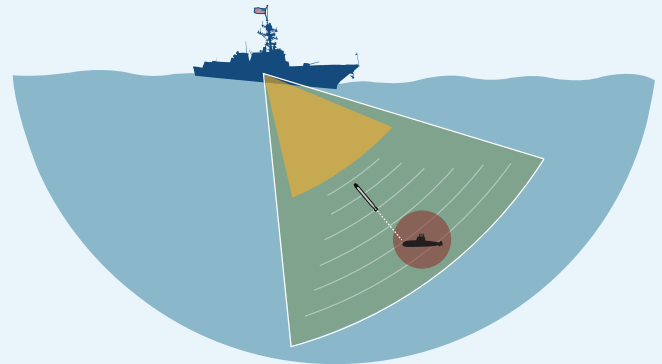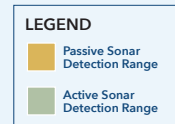
PASSIVE AND ACTIVE SONAR DETECTION RANGE
Active sonar's longer detection range enables Sailors to detect, identify, and track quieter, modern submarines before they are close enough to attack.