

Surveillance Towed Array Sensor System (SURTASS) and Compact Low Frequency Active (CLFA)

Executive Summary

- IOT&E for Surveillance Towed Array Sensor System (SURTASS)/Compact Low Frequency Active (CLFA) remains ongoing from September 2012. Due to fiscal constraints and platform availability, the Navy conducted no operational testing in FY13. Testing completed so far is insufficient to assess operational effectiveness and suitability.
- DOT&E intends to publish a classified SURTASS/CLFA Early Fielding Report (EFR) in FY14.
- Completion of IOT&E is intended in FY14; however, the Navy currently projects that sequestration cuts to SURTASS research, development, test, and evaluation will not support funding Commander, Operational Test and Evaluation Force IOT&E efforts in FY14.



System

- SURTASS/CLFA is a low-frequency, passive and active, acoustic surveillance system installed on tactical auxiliary general ocean surveillance (T-AGOS) ships as a component of the Integrated Undersea Surveillance System (IUSS).
- SURTASS provides passive detection of quiet nuclear and diesel submarines and enables real-time reporting of surveillance information to Anti-Submarine Warfare (ASW) commanders.
- CLFA is a low frequency, active sonar system developed to provide an active detection capability of quiet submarines operating in environments that support active sonar propagation.
- The system consists of:
 - A T-AGOS host ship with array-handling equipment
 - A towed vertical string of active acoustic projectors
 - A towed horizontal twin line (TL-29A) acoustic array
 - An integrated common processor (ICP) for processing active and passive acoustic data
 - A High-Frequency Marine-Mammal Monitoring (HFM3) active sonar used to ensure local water space is free of marine mammals prior to low frequency active transmission
 - A communications segment to provide connectivity to shore-based Integrated Undersea Surveillance System processing facilities and to fleet ASW commanders

Mission

- Maritime Component Commanders employ T-AGOS ships equipped with SURTASS/CLFA systems to provide long-range active and passive ASW detection, classification, and tracking of submarines in support of Carrier Strike Group and theater ASW operations.
- Maritime Component Commanders use SURTASS/CLFA to provide blue force ASW screening and threat submarine localization information to theater ASW commanders to support coordinated prosecution of detected threat submarines.

Major Contractors

- Overall Integrator: Maritime Surveillance Systems Program Office (PMS 485)
- ICP: Lockheed Martin – Manassas, Virginia
- CLFA Projectors: BAE – Nashua, New Hampshire
- CLFA Handling System: Naval Facilities Engineering Service Center (NAVFAC ESC) (Government Lab) – Port Hueneme, California
- HFM3 Active Sonar: Scientific Solutions Incorporated (SSI) – Nashua, New Hampshire
- TL-29A Towed Arrays: Lockheed Martin – Syracuse, New York

Activity

- One engineering development model and two production CLFA systems were available for operation on three of the five Western Pacific-based T-AGOS ships during 2013.
- In September 2012, the Navy commenced IOT&E, which included SURTASS/CLFA participation in the fleet exercise, Valiant Shield 12, and a dedicated four-day test phase.

NAVY PROGRAMS

- Although testing was conducted in accordance with a DOT&E-approved test plan, target submarine availability limited execution to 4 of 20 planned interaction events and resulted in insufficient data to characterize system performance.
- Due to fiscal constraints and platform availability, the Navy did not conduct any operational test events in FY13.
- The Navy currently projects that sequestration cuts to SURTASS research, development, test, and evaluation will not support funding Commander, Operational Test and Evaluation Force IOT&E efforts in FY14.
- Remaining IOT&E is required to:
 - Adequately characterize CLFA long-range active detection and localization capability against threat representative submarines.
 - Assess the ability of the fleet to acquire and prosecute CLFA localizations with ASW-capable assets.
 - Evaluate SURTASS/CLFA vulnerabilities and protection against cyberspace threats.
- DOT&E intends to publish a classified EFR in FY14 due to extended delay in the completion of operational test and system availability to forward-deployed T-AGOS ships.

Assessment

- Limited IOT&E data demonstrated that the SURTASS/CLFA is capable of detecting submarines at long ranges using both active and passive sonar. Data collected are insufficient to fully characterize the detection capability.
- Reliability of HFM3 active sonar during the IOT&E significantly affected the availability of CLFA and contributed

to insufficient data collection during this event. HFM3 active sonar is required by federal law to mitigate the taking of marine mammals by low-frequency active sonar, but its operation does not affect the capability of CLFA. Having an inoperable HFM3 active sonar would not limit availability or capability of CLFA in wartime.

- The fleet did not demonstrate the ability to correlate non-submarine CLFA detections to real-time surface ship positions during Valiant Shield 12. Failure to exclude surface ship detections coupled with limited ASW-capable assets will not support fleet prosecution of CLFA submarine localizations.
- Further assessment of the SURTASS/CLFA will be in DOT&E's classified EFR.

Recommendations

- Status of Previous Recommendations. IOT&E of SURTASS/CLFA was not completed in FY13. The Navy is strongly recommended to complete it as soon as feasible in FY14.
- FY13 Recommendations. The Navy should:
 1. Improve procedures and training for correlating CLFA non-submarine active detections with real-time surface vessel positions.
 2. Evaluate procedures used by SURTASS operators to classify active returns that have submarine characteristics and determine if higher confidence can be assigned to suspected submarine detections.
 3. Include an event in the remaining IOT&E that assesses the ability of the fleet to reacquire long-range CLFA localizations with ASW-capable assets.