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

Executive Summary

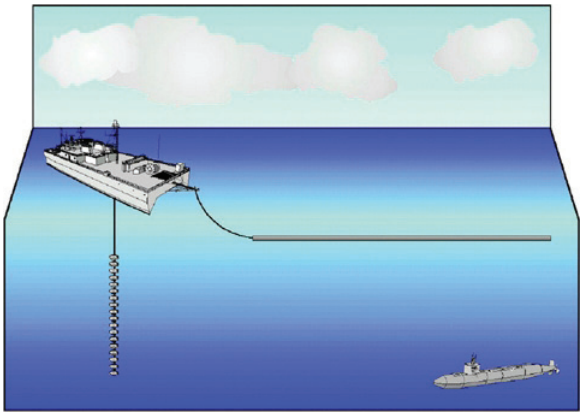
- The Navy completed an operational assessment of the Surveillance Towed Array Sensor System (SURTASS) Compact Low Frequency Active (CLFA) during FY11. The operational assessment identified some deficiencies with the CLFA detection algorithms and with some components' software and hardware reliability.
- DOT&E assessed that the system could meet its technical specifications based upon the laboratory analysis of the collected data.
- DOT&E produced a classified SURTASS/CLFA Operational Assessment report and provided it to the Navy on October 20, 2011.
- IOT&E is scheduled for FY12.

System

- SURTASS/CLFA is a low frequency, passive and active acoustic surveillance system installed on Tactical Auxiliary General Ocean Surveillance Ships (T-AGOS) as a component of the Integrated Undersea Surveillance System.
- 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 detection.
- 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 for processing active and passive acoustic data
  - A communications segment to provide connectivity to shore-based Integrated Undersea Surveillance System processing facilities and to fleet ASW commanders

Mission

- Crews of T-AGOS ships equipped with SURTASS/CLFA systems provide active and passive acoustic sensors for long-range ASW detection, classification, and tracking of submarines in support of theater naval operations.
- SURTASS/CLFA is a component of the theater's ASW strategy to protect naval ships from threat submarines while providing accurate targeting information to other ASW forces to prosecute the 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 ESC (Government Lab) – Port Hueneme, California
- High Frequency Marine Mammal Monitoring Sonar: SSI – Nashua, New Hampshire
- TL-29A Towed Arrays: Lockheed Martin – Syracuse, New York

Activity

- The Navy conducted a System Certification Test (SCT) of the SURTASS/CLFA system installed on USNS *Able* (T-AGOS-20) in August 2010. Following the SCT, USNS *Able* participated in the fleet exercise Valiant Shield 10. The Navy's Commander, Operational Test and Evaluation Force (COTF) and DOT&E utilized the SCT and the Valiant Shield exercise to conduct an operational assessment of the SURTASS/CLFA system. The operational assessment was conducted in accordance with a DOT&E-approved test plan.
- DOT&E delivered a report on the operational assessment to the Navy on October 20, 2011.
- The Navy acquired one engineering developmental model and two production CLFA systems and is installing them on three of the five Western Pacific-based T-AGOS ships during planned maintenance availabilities.

Assessment

- The SCT allowed the developer's technicians operational time, in the Western Pacific, to verify the system's technical specifications and to gather detection data on cooperative submarines targets. The SCT also allowed the Navy's operators time to train on the CLFA system. DOT&E assessed that the system could meet its technical specifications based upon the laboratory analysis of the collected data.
- Unfortunately, during Exercise Valiant Shield, an interfering U.S. Air Force missile test separated the SURTASS/CLFA test ship from other theater ASW assets, and the failure of SURTASS/CLFA test ship's towed array heading sensors minimized the value of the CLFA data to the theater's ASW commander. These test problems prevented the assessment of CLFA's operational performance and the value of the CLFA system to theater ASW commanders during the exercise; however, laboratory analysis of taped CLFA data allowed DOT&E to assess the CLFA system's performance potential.
- The operational assessment identified some reliability deficiencies with SURTASS/CLFA hardware and software, and some deficiencies with CLFA algorithms that could affect detection, classification, and tracking performance.
- More information on the performance of SURTASS/CLFA system can be found in DOT&E's classified Operational Assessment report dated October 20, 2011.
- The Navy's program office is aware of the deficiencies identified during the operational assessment and is executing plans to fix both the reliability and performance problems. The problems must be corrected prior to IOT&E in FY12.

Recommendations

- Status of Previous Recommendations. There were no previous recommendations for this program.
- FY11 Recommendations.
  1. The Navy should conduct the IOT&E in conjunction with a fleet exercise. The fleet exercise would allow the ASW commander to utilize SURTASS/CLFA with other ASW assets, to protect surface ships, and to prosecute the SURTASS/CLFA contact reports.
  2. The program office should correct the deficiencies identified during the operational assessment and implement the recommendations in COTF's and DOT&E's Operational Assessments before the IOT&E.