

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

### Executive Summary

- DOT&E issued a classified Early Fielding Report on Surveillance Towed Array Sensor System (SURTASS) and Compact Low Frequency Active (CLFA) Sonar on February 24, 2014. This report was submitted due to significant and uncertain delays in the completion of IOT&E. It concluded that SURTASS/CLFA was not operationally effective during the limited testing conducted in FY12.
- The Commander, Operational Test and Evaluation Force (COTF) continued IOT&E in September 2014 in conjunction with the fleet exercise Valiant Shield 14 and a follow-on dedicated test phase. Completion of IOT&E is expected in FY15.

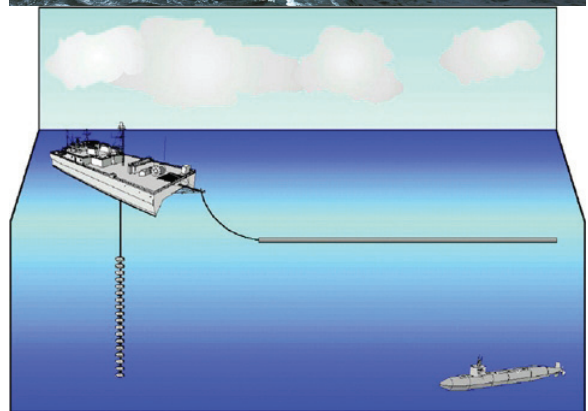
### System

- 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.
- SURTASS provides passive detection of 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 (CLFA)
  - A towed horizontal twin line (TL-29A) passive sonar 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



- 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)
- Integrated Common Processor: Lockheed Martin – Manassas, Virginia
- CLFA Projectors: BAE – Nashua, New Hampshire
- CLFA Handling System: Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC) (Government Lab) – Port Hueneme, California
- HFM3: Scientific Solutions Incorporated (SSI) – Nashua, New Hampshire
- TL-29A Towed Arrays: Lockheed Martin – Syracuse, New York

## Activity

- On February 24, 2014, DOT&E issued a classified Early Fielding Report for SURTASS/CLFA. This report was issued due to significant and uncertain delays in the completion of IOT&E that commenced in FY12.
- In September 2014, COTF resumed IOT&E and collected operational data during two events. Testing was conducted in accordance with a DOT&E-approved test plan.
  - The Navy conducted four days of ASW area search operations for SURTASS/CLFA in support of coordinated theater ASW that included surface and air assets during Valiant Shield 14.
  - COTF planned two, dedicated five-day test phases to achieve sufficient data to characterize SURTASS/CLFA detection capability against long-range submarine approaches. One of the test phases was cancelled due to the unavailability of the intended target submarine. During the remaining test phase, COTF completed four events during two and a half days with the SURTASS/CLFA conducting ASW large area search.
- 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 FY14.

## Assessment

- The final assessment of SURTASS/CLFA is not complete, as testing is expected to continue into FY15. However, the DOT&E classified Early Fielding Report concluded the following regarding performance:
  - SURTASS/CLFA was not operationally effective in supporting submarine prosecution during Valiant Shield 12. 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 the numerous surface ship detections, coupled with limited ASW-capable assets, will not support fleet prosecution of CLFA submarine localizations. Further details of the observed deficiencies are available in the classified report.

- Limited operational test data demonstrated that the SURTASS/CLFA is capable of detecting submarines at long ranges using both active and passive sonar. However, data collected were insufficient to fully characterize the detection capability.
- SURTASS/CLFA demonstrated that it can be operationally suitable. Poor reliability of HFM3 active sonar during the operational test significantly reduced the availability of CLFA and contributed to insufficient data collection. Federal law requires HFM3 active sonar to mitigate the taking of marine mammals by low-frequency active sonar, but the operation of this peacetime system does not affect the wartime capability of CLFA.
- The analysis of operational test data collected in FY14 is ongoing. DOT&E will report the results in FY15 at the completion of testing.

## Recommendations

- Status of Previous Recommendations. The Navy should continue to address the remaining FY13 recommendation to improve procedures and training for correlating CLFA non-submarine, active detections with real-time surface vessel positions.
- FY14 Recommendation.
  1. The Navy should address the 10 classified recommendations listed in the February 2014 Early Fielding Report.