



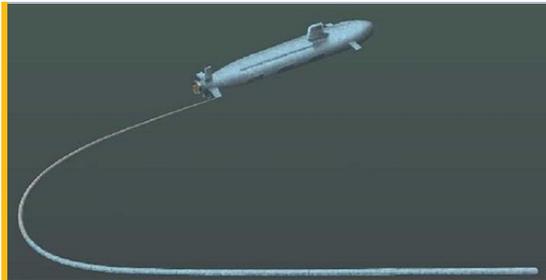
TOPIC NUMBER: N05-125

SBIR INVESTMENT: \$1,224,179

PHASE III FUNDING: \$199,388,898

DEPARTMENT OF THE NAVY

NAVY SBIR/STTR SUCCESS STORY



COMPACT TOWED ARRAY

The Compact Towed Array (CTA) provides the U.S. Naval Fleet with next-generation Thinline array technology to address Thinline reliability and restore mission operational capability

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THE CHALLENGE

A major challenge facing the U.S. Navy's Anti-Submarine Warfare (ASW) mission area is the ability to effectively detect, classify, localize and neutralize quiet modern submarines in shallow water. Current towed array sensors, provide desired acoustic performance but are not optimal for deployment from an unmanned vehicle. Compatibility with these platforms requires significant reductions in sensor power, diameter, bend radius and production cost.

THE TECHNOLOGY

The CTA SBIR initiative develops high-performance towed array components that provide multi-mission directional sensing capabilities for submarine, surveillance, surface ship, and unmanned vehicle towed arrays.

THE TRANSITION

In 2005, the Compact Towed Sonar Array SBIR (N05-125) was awarded. In 2009, PEO IWS 5A initially funded Chesapeake Sciences via a Phase III contract to provide 2 Thin Line Compact Towed Array (TL-CTA) Production Representative Units and instruction and training. TL-CTAs are integrated with AN/SQQ 89 A (V) 15 underwater combat systems targeted for installation on Arleigh Burke and Ticonderoga class destroyers, the Littoral Combat Ship, and DDG 1000 guided missile destroyers. In 2009, Chesapeake Sciences was acquired by L-3 Technologies and is now part of L3 Harris Technologies, Inc. L3 Harris, a technology leader in the acoustic sensor community for surface, submerged, and surveillance applications, provides sonar arrays for U.S. submarines. Currently, L3 Harris is under contract to provide the TB-34 Production Fatline Towed Array and Compact Towed Array Sonar on a contract established through this SBIR topic.

THE NAVAL BENEFIT

The CTA provides the Navy with major technical advancements in towed array capabilities. This common towed array technology/architecture can be used across a broad range of submarines (SSN/SSGN/SSBN), surface combatants, and surveillance and unmanned surface vessels (USV) platforms. Towed array reliability is crucial to sustaining the Navy's submarine force in today's environment for extended periods of time while maintaining mission effectiveness and safety of the ship. Improved robustness and reliability of the array allow the host platform to operate unrestrained.

THE FUTURE

L-3 Chesapeake Sciences' sonar engineers currently are designing the U.S. Navy's next-generation towed-array sonar capabilities for submarines and USVs to detect, track, and classify quiet, modern submarine threats in open ocean and littoral waters. Contrasted against existing towed array designs, L-3 Chesapeake's TB-29A CTA offers a significant reduction in sensor power, internal component diameter, and bend radius. These compact design elements significantly reduce production costs. In 2017, L-3 Chesapeake was awarded a contract to produce 6 additional CTAs (to an original 6) targeted for integration into Virginia Class submarines with additional options exercised in 2019 with an expected completion in 2022. L-3 Chesapeake has been instrumental in the transition of TB-29, TB-29A, MFTA, A180 and TB-16 D, E, F and G arrays into production including successfully establishing lean manufacturing processes, preparation of test procedures and work instructions.