

Topic: N171-055

TRITON SYSTEMS, INC.

Autonomous Towed Array Straightening System

Triton is developing a capability for the Surveillance Towed Array Sensor System (SURTASS) that will straighten the array and improve its acoustic performance. Towed arrays are idealized as straight lines in the water, but the ocean environment disturbs the system and makes it difficult to maximize the arrays' capability. Triton is developing breakthrough technologies and products for US Navy Ocean Systems. Triton's competitive advantage is provided by software and control algorithms underlying this technology. In Phase II, modeling and simulation has been conducted and prototype testing is ongoing. Our goal is to integrate and transition this technology into Navy towed array systems.

Technology Category Alignment:

Ground and Sea Platforms

Acoustic, Seismic and Magnetic

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SYSCOM: NAVSEA

Contract: N68335-19-C-0199

Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2019-0544

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Autonomous Towed Array Straightening System
TRITON SYSTEMS, INC.

WHO

SYSCOM: NAVSEA

Sponsoring Program: NAVSEA

Transition Target: PMS 485, Maritime Surveillance Systems Program Office

TPOC:
(401)832-5184

Other transition opportunities:



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Notes:
SURTASS - Surveillance Towed Array Sensor System

WHAT

Operational Need and Improvement:
The SURTASS array is subject to drooping on the far end as ship velocities decrease and to bending and turning due to currents. Consequently, the array's acoustic performance is degraded, since array sensors are not in a perfectly straight line. Additionally, it is possible for the array to be inadvertently dragged on the ocean bottom when being towed at slow speeds (or halted completely), which can cause physical damage. A persistent performance shortfall is caused by the fact that a purely passively operated towed array that is thousands of feet long and deployed in the open ocean is not going to be as linear as is required to achieve the expected performance from beamforming and acoustic data processing.

Specifications Required:
Autonomously straighten the array to within +/- two feet of center on each axis and protect itself from bottom damage (due to an unplanned stoppage in tow operations or ship navigation into shallow water) without intervention from an operator.

Technology Developed:
Towed arrays are idealized as straight lines in the water, but the ocean environment disturbs the system and makes it difficult to measure. We are developing a capability for the SURTASS towed array that will straighten the array to improve acoustic performance.

Warfighter Value:
Improved acoustic performance leads to improved ability to detect threats in a wider variety of operating environments.

WHEN

Contract Number: N68335-19-C-0199 **Ending on:** December 19, 2019

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Model Validation Data Collection	Med	Correlated hydrodynamic model	3/4	December 2019
Initial Prototype Testing	Med	Pass functional testing	5	December 2020
Engineering Prototype Validation	Med	Meet straightening requirements	6	December 2021
Acoustic Performance Validation	Med	Meet acoustic performance requirements	6	December 2022

HOW

Projected Business Model:
Triton plans to work with towed array prime contractors to license and include our technology with the array system.

Company Objectives:
Triton is seeking contacts with potential towed array primes and customers that have an interest in array straightness and bottom avoidance.

Potential Commercial Applications:
Including other Navy platforms (ships and submarines), the oil exploration industry, and ocean scientists using similar acoustic arrays. All of these commercial applications would benefit for the reasons listed above.

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