# Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
NAVSEA #2019-0544

Topic # N171-055
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:**

Photo Courtesy of U.S. Navy, JPEG ID:DNSC9206986

**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.

**Contact:** Rafael Mandujano, Director, Ocean Systems
rmandujano@tritonsys.com 978-856-4193