

WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO IWS, PMS-401

Transition Target: Thin-line Towed Array Programs of Record

TPOC: (401) 832-8229

Other Transition Opportunities: Fat-line towed arrays, Unmanned Underwater Vehicles (UUVs), and Remotely Operated Vehicles (ROVs).

Notes: Built to the mechanical constraints of thin-line arrays, VISTA can transition to other thin-line and fat-line arrays with minimal mechanical changes.



US Navy Photo:
<https://www.dvidshub.net/image/6418017/uss-roosevelt-ddg-80>

WHAT

Operational Need and Improvement: Much of the information on the ocean depths in which towed arrays are used has been drawn from limited sampling and studies. Long-term collection of data about the operational environment for towed arrays is necessary to improve future requirements and understanding the impacts to towed array systems.

To address this need, the VISTA system is designed to be an integrated data logger, conforming to thin-line towed array mechanical constraints, able to collect data as a self-contained unit for over one year. This will greatly increase the body of knowledge around the towed array deployment environment and support root cause analysis if an array fails while in use.

- Specifications Required:** The VISTA System meets the following requirements:
- * Self-contained power source for > 12 months of operation.
 - * Collects internal sensor data for the operational environment including shock/vibration, temperature, and pressure
 - * Built to thin-line array mechanical constraints
 - * Stores data from over 12 months of operation through data compression and decimation techniques

Technology Developed: The Versatile Integrated Sensors for Towed Arrays (VISTA) system is a self-contained data logger for towed array, consisting of multiple small modules that can provide power, sensing, processing, and offload capabilities. Off-platform software supports data export, translation, and review.

Warfighter Value: The VISTA system increases the operational knowledge of the towed array environment, supports root cause analysis of failures, informs future towed array requirements and employment techniques, and provides a path to condition-based maintenance of arrays and array components.

WHEN

Contract Number: N68335-21-C-0259 **Ending on:** Apr 07, 2023

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Hardware-in-the-Loop Testing	N/A	Verification of Key performance indicators and circuit design	4	3rd QTR FY22
Prototype Delivery	Low	Functional prototype delivered for testing	5	1st QTR FY23
In-Water Testing	Low	Functional prototype testing in a relevant environment.	6	2nd QTR FY23
Mechanical Testing	Low	Test and Demonstration with handling equipment	7	3rd QTR FY23

HOW

Projected Business Model: Trident's established business model for successful commercialization of SBIR technology would both sell directly to the government and to Prime contractors. The direct to government route would be employed for retrofits of fielded towed arrays. In these cases Trident would handle any test and evaluation (T&E), low rate initial production (LRIP), and full production as the Prime utilizing existing vendor relationships, delivering directly to the program office for retrofit during maintenance activities.

To integrate within the production of towed arrays, Trident is prepared to perform as a subcontractor under the Program of Record Prime contractor(s). The same capabilities are brought to bear on the contract and Trident is able to work with existing technical data packages (TDPs) and technologies to integrate the VISTA effort across towed array portfolios.

Company Objectives: As a world-class team that delivers technology solutions that make a difference, Trident's goal for VISTA is to integrate it directly into Program of Record arrays to collect new data points about the towed array environment, increase analytics capabilities for new array development, and support root cause analysis for any failures experienced during deployment. This would be achieved both as new platforms are produced and to augment existing towed arrays.

Potential Commercial Applications: The novel application of small form-factor electronics, power handling, and sensor integration supports many undersea environmental applications including remotely operated or unmanned platforms used by the oil and gas industry, long term academic monitoring of marine life and ecosystems, and the growing "Ocean of Things" movement.