

Demonstrations of New Munitions Response Technologies



To advance the management and remediation of military munitions in underwater environments, ESTCP has recently funded several projects that focus on the demonstration of munitions response technologies. These technologies address the following topics: unexploded ordnance (UXO)

test bed sites, detailed survey techniques and site management tools.

While many advanced systems are being developed to detect and classify underwater UXO, well-documented and controlled environments are needed to demonstrate and validate them for use in the field. Underwater UXO test beds provide ideal conditions for technologies to be accurately documented. Stefano Biagini is leading the [implementation of an underwater UXO test site](#) in La Spezia, Italy, with the North Atlantic Treaty Organization (NATO) Science and Technology Organization Centre for Maritime Research and Experimentation (CMRE). This cross-Atlantic US-European UXO test bed will provide end users with the opportunity to benchmark systems and algorithms at a site that is fully characterized with high levels of support.

Detailed Data Collection

Another challenge in navigating underwater environments is collecting detailed data for the detection and classification of military munitions. ESTCP is supporting the demonstration of survey technologies that are able to identify concentrations of munitions with high probability and location accuracy. At the U.S. Naval Research Laboratory, Dr Shawn Mulvaney and his team are integrating a high power, advanced geophysical classification-grade [electromagnetic induction \(EMI\) sensor array](#) in the marine towed array (MTA) platform that has been successfully demonstrated in past ESTCP projects to classify UXO at standoff distances. This EMI sensor system could reduce the number of items that need to be dredged and screened from sediment or recovered by divers with the ability to map sites in a single pass, creating a safer and more cost-effective remediation process.

ESTCP also funds tools and models that improve the management of underwater munitions sites. Dr Allison Penko and her team at the U.S. Naval Research Laboratory are providing the policy and infrastructure needed to accredit, maintain and distribute resources in the [Munitions Response Library](#) (MRL). The MRL is a repository of models and data for site managers, and Dr Penko's team will set regulatory guidelines and procedures needed to standardize the use of MRL tools.

These new ESTCP projects support objectives vital to successfully transitioning munitions response technologies. By providing advanced UXO test beds, classification technologies and a suite of standardized models and data, ESTCP project teams are reducing the costs, time and labour involved in managing underwater UXO sites.

□ Multi-Sensor Towbody (MuST) for underwater munitions detection. (Courtesy: Environmental Security Technology Certification Program – ESTCP)