

# Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2020-0388

Topic # N161-027

Shallow Water Communications for Mine Warfare

BTech Acoustics LLC

## WHO

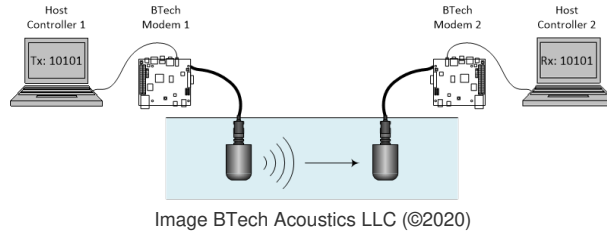
**SYSCOM:** NAVSEA

**Sponsoring Program:** PEO USC  
PMS 495, Mine Warfare Program  
Office

**Transition Target:** MIW - Command  
and Control

**TPOC:**

**Other transition opportunities:** Other  
underwater communication programs



## WHAT

**Operational Need and Improvement:** Underwater communication technologies for Naval warfare applications need improved Command and Control performance in order to be operationally useful; in particular, reduced power consumption, increased range, and more reliable data reception and transmission in a littoral environment. The objective of this topic is to develop an innovative, secure wireless communications technology for use on Naval warfare systems to enable command and control in the hostile littoral environments.

**Specifications Required:** Reduction of power consumption of at least 15% and/or increased range of at least 25%, when compared to existing COTS acoustic modems. Effective command and control of mine warfare systems requires two-way communication with reliable data transmission and reception over a range of 1000+ meters. Data is expected to consist of simple commands and confirmation signals, using Low Probability of Detection (LPD) and Low Probability of Intercept (LPI) techniques with standard encryption protocols to prevent interception or spoofing. The desired solution is a receiver/transmitter, including any required signal processing, that is able to receive a signal from a remotely located, underwater command source and transmit a confirmation signal and system status back to the original source. The system should include involved innovative signal processing and multi-modal transmission and reception methods, including both hardware and software.

**Technology Developed:** BTech has developed an LPD/I (Low Probability Detection/Interception) Acoustic Modem that provides covert long-range broadband underwater communication. The modem is customizable, modularly designed, reconfigurable and cost-effective.

**Warfighter Value:** This technology will enable warfighters to remotely "turn on," "turn off," underwater systems. The desired solution is a receiver/transmitter, including any required signal processing, that is able to receive a signal from a remotely located, underwater command source and transmit a confirmation signal and system status back to the original source.

## WHEN

**Contract Number:** N00178-18-C-9001 **Ending on:** February 6, 2021

| Milestone                  | Risk Level | Measure of Success                           | Ending TRL | Date         |
|----------------------------|------------|--|------------|--------------|
| Test in large pond         | Med        | Performs communication at distance to 300ft  | 4          | June 2020    |
| Repeat Test in Pond or Bay | Med        | Performs communication at distance to 1500ft | 5          | July 2020    |
| Additional testing         | Med        | Support testing with Navy                    | 5          | October 2020 |

## HOW

**Projected Business Model:** BTech will provide the modems directly to the Navy program office or their designated technical agent or prime contractor.

**Company Objectives:** BTech's objective is to design, manufacture, sell and support the acoustic modem. We wish to discuss this technology with Undersea Warfare programs that have a need for LPI/D underwater communications with increased range over present systems.

**Potential Commercial Applications:** Potential commercial applications include oil and geophysical applications, including exploration.

**Contact:** David A. Brown, PhD, President  
[dbrown@btechacoustics.com](mailto:dbrown@btechacoustics.com)