



The Battlespace Preparation Autonomous Underwater Vehicle (BPAUV) was designed specifically for U.S. Navy mine countermeasure (MCM) missions in shallow water. BPAUV, a custom configuration of the Bluefin-21 vehicle, can operate in a variety of weather conditions without compromising navigation performance or data integrity.

QUALITY IMAGERY – As demonstrated in a series of Fleet Battle Experiments, BPAUV covertly gathers accurate bathymetry and bottom classification data for use in the critical, early stages of battlespace preparation. BPAUV's high-performance 455 kHz side scan sonar provides a 10-centimeter resolution along track and a 7.5-centimeter resolution across track out to 75 meters. Larger ranges to 150 meters are available with reduced resolution.

OPERATIONAL FLEXIBILITY – BPAUV's compact size and ability to be launched and recovered from a simple A-frame or docking head allow it to take advantage of ships of opportunity. The design includes field-swappable batteries and subsystems, which facilitate maintenance for greater deployment efficiency.

ACCURATE NAVIGATION – BPAUV's high-performance, self-contained navigation system eliminates the need to deploy acoustic beacons on the seafloor, reducing the logistical requirements of the mission. Bluefin's navigation software combines information from the IMU and multiple other sensors – including GPS, a DVL, and a compass – to provide accurate navigation with an error of less than 0.5% of distance traveled, yielding higher quality data.



BPAUV beginning a mine countermeasure mission

Applications

- Mine Countermeasures (MCM)
- Unexploded Ordnance (UXO)
- Anti-Submarine Warfare (ASW)
- Rapid Environmental Assessment (REA)
- Oceanography

Bluefin-21 BPAUV

Diameter	21 in (53 cm)
Length	10.8 ft (3.3 m)
Weight (Dry)	785 lb (357 kg)
Buoyancy	~ 10.9 lb (4.5 kg) net positive
Lift Points	1 (located mid-vehicle)
Depth Rating	656 ft (200 m)
Endurance	18 hours @ 3 knots with standard payload
Speed	Up to 4 knots
Energy	7 kWh of total energy Two 3.5 kWh battery packs Lithium-polymer, pressure-tolerant
Propulsion	Gimbaled, ducted thruster for propulsion and control
Navigation	Real-time accuracy $\leq 0.5\%$ of D.T. CEP 50 IMU, DVL, compass, CTD and GPS
Antenna	Integrated — GPS, RF, Iridium and strobe
Communications	RF, Iridium and acoustic; Ethernet via shore power cable
Safety Systems	Fault and leak detection, dropweight, acoustic tracking transponder, strobe, RDF and Iridium (all independently powered)
Software	GUI-based Operator Tool Suite
Data Management	4 GB flash drive for vehicle data
Standard Payload	Klein 5500 455 kHz multibeam side scan sonar (w/data storage) Sea-Bird FastCAT SBE49 CTD WET Labs BB2F turbidity meter



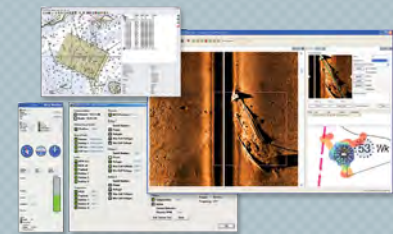
Multiple BPAUVs have been delivered to the U.S. Navy



Side scan sonar imagery collected by BPAUV during a mission



SYSTEM PACKAGE — The BPAUV comes as a part of a comprehensive system package primarily consisting of the vehicle, support equipment, spares, software, training and 1-year warranty.



OPERATOR TOOL SUITE — Each system includes an intuitive software package that provides the interface between the AUV and operator for all phases of a mission, including planning, monitoring and execution, data management, and post-mission analysis.