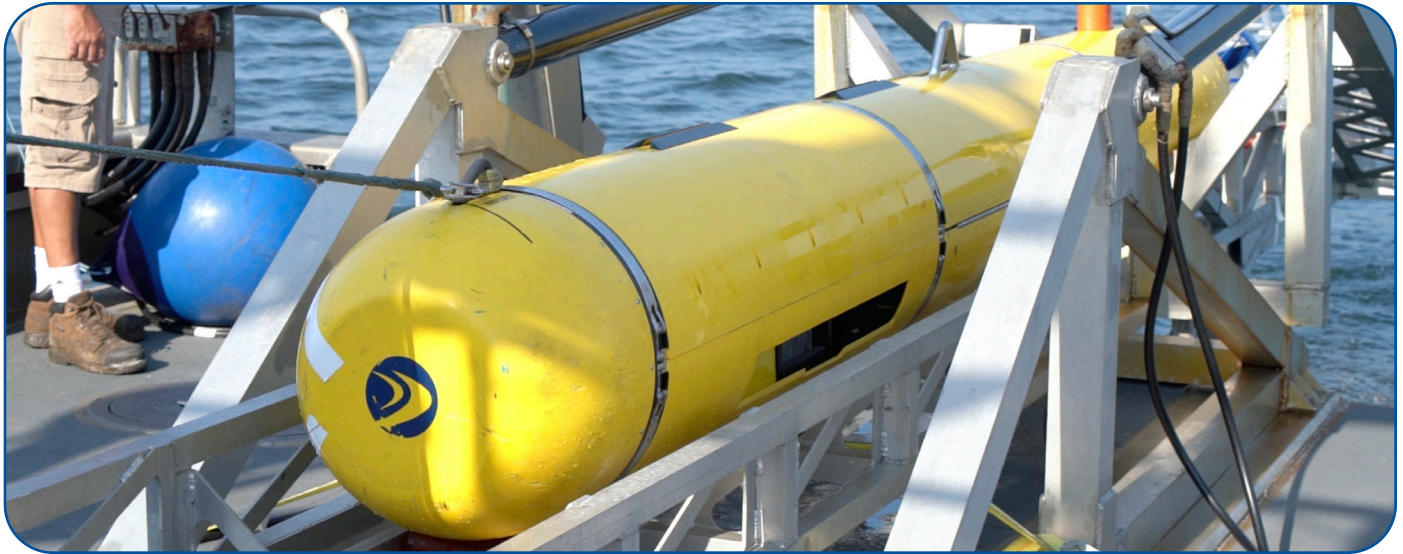


Bluefin[®]-21

Unmanned Underwater Vehicle (UUV)



BLUEFIN
ROBOTICS

Offshore Survey

Search & Salvage

Archaeology & Exploration

Oceanography

Mine Countermeasures (MCM)

Unexploded Ordnance (UXO)

The Bluefin[®]-21 is a highly modular unmanned underwater vehicle able to carry multiple sensors and payloads at once. It boasts a high energy capacity that enables extended operations even at the greatest depths. The Bluefin-21 has immense capability but is also flexible enough to operate from various crafts of opportunity worldwide.

FREE-FLOODED MODULARITY – The vehicle design includes swappable payload sections and battery modules for in-field mission reconfiguration. Subsystems can be quickly accessed for rapid turnaround between missions and also allow for in-field maintenance, accelerating operational tempo.

EFFICIENT WORKHORSE – The Bluefin-21 is an efficient, deep-rated UUV able to execute surveys with demanding requirements typically addressed by larger, more cumbersome platforms. Its small size and ability to be launched and recovered from a simple A-frame or docking head allow it to take advantage of crafts of opportunity.

ACCURATE NAVIGATION – The Bluefin-21 uses an INS to provide the best possible navigation accuracy. Dead reckoning drift is typically less than 0.1% of distance traveled, yielding higher quality data. USBL aiding further improves navigation accuracy.

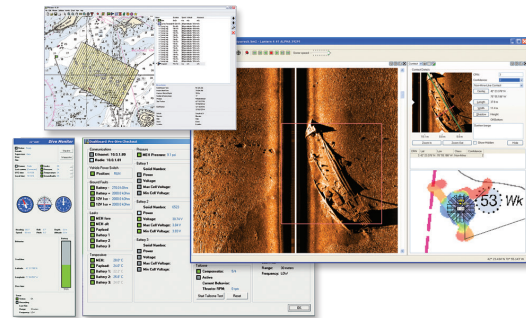
AIR-SHIPPIABLE – The vehicle, batteries and support equipment can be broken down and packaged into easily transportable sections, making the system ideal for time-critical and remote operations.

Technical Specifications

- **Diameter:** 21 in (53 cm)
- **Length:** 16.2 ft (493 cm)
- **Weight (Dry):** 1,650 lb (750 kg)
- **Buoyancy:** ~ 16 lb (7.3 kg) net positive
- **Lift Points:** 1 (located mid-vehicle)
- **Depth Rating:** 14,763 ft (4,500 m)
- **Endurance:** 25 hours @ 3 knots with standard payload
- **Speed:** Up to 4.5 knots
- **Energy:**
 - 13.5 kWh of total energy
 - Nine 1.5 kWh battery packs
 - Lithium-polymer, pressure-tolerant
- **Propulsion:**
 - Gimballed, ducted thruster for propulsion and control
- **Navigation:**
 - Real-time accuracy $\leq 0.1\%$ of D.T. CEP 50
 - INS, DVL, SVS and GPS
 - USBL tracking with vehicle position updates
- **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
 - Plus additional payload storage
- **Standard Payloads (others available):**
 - EdgeTech 2200-M 120/410 kHz side scan sonar (option: EdgeTech 230/850 kHz dynamically focused)
 - EdgeTech DW-216 sub-bottom profiler
 - Reson 7125 400 kHz multibeam echosounder



System Package — The Bluefin-21 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 UUV and operator for all phases of a mission, including planning, monitoring and execution, data management, and post-mission analysis.



GENERAL DYNAMICS
Mission Systems

FOR MORE INFORMATION, PLEASE CONTACT:

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