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# Knifefish Surface Mine Countermeasure UUV (SMCM-UUV)

## DESCRIPTION

The **Knifefish Surface Mine Countermeasure Unmanned Underwater Vehicle (SMCM-UUV)** is designated as an ACAT II program, and the first heavyweight-class mainstream mine countermeasure (MCM) UUV that addresses the Navy's need to reliably detect and classify mines resting on the seafloor and buried mines in high-clutter environments and areas with potential for mine burial. Knifefish also gathers environmental data to provide intelligence support for other mine warfare systems.

The MCM-UUV is equipped with a high performance sonar and navigation system. The system is used to conduct scientific experiments in support of its Scientific Program of Work in the field of Mine Countermeasures (MCM). The MCM-UUV is used to investigate new technologies in the areas of sonar and navigation, and will assist, through participation in NATO trials and exercises, in the development of concepts of operations for UUVs.

Knifefish will help greatly reduce risk to Navy personnel and ships by operating in minefields as an off-board sensor, while the host ship stays outside the minefield boundaries. The modular, open Knifefish has been designed to integrate with both variants of LCS via the common LCS interface control document.

## CUSTOMERS

The program office for the Surface Mine Countermeasure Unmanned Underwater Vehicle (SMCM-UUV) program is the Unmanned Maritime Systems Program Office (PMS 406), one of six program offices within the Navy's U.S. Navy PEO Unmanned and Small Combatants (PEO USC).

- U.S. Naval Research Laboratory** | NRL | WASHINGTON, DC
- U.S. Naval Sea Systems Command** | NAVSEA | WASHINGTON, DC
- U.S. Naval Surface Warfare Center, Panama City Division** | NSWC PCD | PANAMA CITY, FL
- U.S. Naval Surface Warfare Centers Indian Head Division** | NSWC IHD | INDIAN HEAD, MD
- U.S. Navy PEO USC, Unmanned Maritime Systems Program Office** | PMS 406 | WASHINGTON NAVY YARD, DC
- NATO Undersea Research Center (NURC)** | NURC | LA SPEZIA, ITALY

## COMPANIES

In Oct., 2011 General Dynamics won the EMD phase of the Surface Mine Countermeasure Unmanned Underwater Vehicle (SMCM-UUV) program. Bluefin Robotics Corp., initially a competitor for the program (working under prime contract N61331-06-C-0053), joined the General Dynamics team as a subcontractor.

General Dynamics Mission Systems, Inc.   Quincy, MA						
Contracting (\$ Millions)	FY20	FY21	FY22	FY23	FY24	Total
N00024-21-C-6308	\$66.5	\$2.9	\$0.05			\$69.5
[Block I Retrofit]						
TOTAL...	\$66.5	\$2.9	\$0.05			\$69.5

### Teamed With

- General Dynamics Mission Systems, Inc.** (Taunton, MA)
- [WRAP RATES](#)

General Dynamics Mission Systems, Inc.   MC Leansville, NC						
Performing work in McLeansville, N.C.						
Contracting (\$ Millions)	FY20	FY21	FY22	FY23	FY24	Total
N61331-11-C-0017	\$21.1	\$-1.53	\$0.02			\$145.0
[EMD Phase]						

### Teamed With

- Ultra Electronics Ocean Systems Inc.** (Baintree, MA)
- [WRAP RATES](#)
- General Dynamics Mission Systems, Inc.** (Quincy, MA)
 

General Dynamics Mission Systems (originally known as Bluefin Robotics Corp.) is providing its **Knifefish surface mine countermeasure unmanned underwater vehicle (SMCM-UUV)** for the program. Knifefish is a specialized Bluefin-21 UUV. The SMCM UUV System will include two Knifefish UUVs in addition to launch and recovery equipment, a support container, spare parts and support equipment. The UUV will feature Bluefin's field-swappable batteries, a top-of-the-line integrated navigation system, and low-noise propulsion technology. Bluefin's intuitive user software interface, the Operator Tool Suite, will also be provided for mission planning and monitoring. In addition, the vehicle will carry an advanced sonar payload provided by the GDAS Team. The subcontract includes an option for the production of up to five low rate initial production systems (ten UUVs) and various other options.
- Ultra Electronics Maritime - Chantilly** (Chantilly, VA)
- ASRC Research and Technology Solutions, LLC** (Beltsville, MD)
- General Dynamics Government Systems Overseas Corporation** (Falls Church, VA)
- L3Harris Undersea Systems, Mine Defense Systems (MDS)** (Panama City, FL)
- Metron Incorporated** (Reston, VA)
- [WRAP RATES](#)
- Oceanering International Inc** (Chesapeake, VA)
- The Pennsylvania State University Applied Research Laboratory (ARL)** (State College, PA)

## SYSTEMS

The Knifefish system includes two UUVs, an operator console, a planning and post mission analysis (PMA) station, and an Iridium modem with an antenna for communication with the UUV when it is surfaced.

## APPLICATIONS

The Knifefish system is designed for deployment from the littoral combat ship (LCS), vessels of opportunity or from shore to detect and classify buried, bottom and volume mines in high-clutter environments.

## ACTIVITY

**August 2019.** The Navy announces that the Knifefish program has achieved Milestone C approval. The decision clears the way for Low-Rate Initial Production (LRIP) of the system.

**2017.** Knifefish expected to attain Initial Operational Capability (IOC).

**February 2016.** General Dynamics acquires Bluefin Robotics, provider of the Knifefish vehicle, from Battelle Memorial Institute.

**August 2013.** General Dynamics successfully completes the comprehensive risk reduction program for the U.S. Navy's Knifefish Surface Mine Countermeasure Unmanned Undersea Vehicle (UUV) program.

**April 2013.** General Dynamics AIS successfully completes the critical design review (CDR) for Knifefish one month ahead of schedule. The General Dynamics team will now begin the development of the system hardware and software to integrate the approved design via the fabrication of three engineering development modules.

**September 2011.** The U.S. Navy's Naval Sea Systems Command (NAVSEA) awards General Dynamics Advanced Information Systems an \$86.7 million Engineering and Manufacturing Development (EMD) contract (N61331-11-C-0017) to design and build Knifefish.

**August 2006.** The U.S. Naval Surface Warfare Center, Panama City (NSWC-PC) (Panama City, FL) awards Bluefin Robotics Corp. (Cambridge, MA) an \$18 million, cost-plus-award-fee contract (N61331-06-C-0053) for the design, development, fabrication, and test of the Surface Mine Countermeasure Unmanned Underwater Vehicle (SMCM-UUV), and increment 2 user operational evaluation system.

## SUMMARY

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- Synopsis for GPS Iridium Repeater Systems
  - 12-20-23
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- Synopsis for Global Positioning System (GPS) Iridium Repeater (IR) Systems
  - 11-9-23
- Sources Sought: GPS Iridium Repeater Systems
  - 10-18-23
- Notice of Intent to Sole Source - Mobility Training
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- Mobility Training RFI
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