

Bluefin Robotics July Newsletter

The July edition of the Bluefin newsletter includes an article on augmenting Naval operations with unmanned underwater vehicles and an interview with Matt Graziano on how UUVs will lead the way throughout the next decade. This issue also highlights several important pieces on technological progress that will improve maritime operations.

UUVs On The Frontier



By Michael Guay and Gordon Clark

Michael Guay, Product Manager for [Bluefin Robotics UUVs](#) at General Dynamics Mission Systems and Gordon Clark, Chief Engineer, write about the benefits of UUVs in mine countermeasures, intelligence preparation of the operational environment, and search and recovery. The article discusses leading technologies aboard Bluefin UUVs, particularly automated target recognition software and the Sonardyne Solstice multi-aperture side scan sonar, as well as additional capabilities. Guay and Clark speak to the expanding roles and development of UUV technology in improving maritime operations in the next decade.

Read the full article [here in Sea Technology, pages 23-26](#).

Matt Graziano Discusses The Future Of Underwater Naval Operations

We spoke with Matt Graziano, Business Development Director for Unmanned Systems

about UUVs leading the way in the coming decade.

Q: Tell us a little about yourself – how did you get involved with General Dynamics Mission Systems' Bluefin team?

I jumped at the opportunity in 2016 to join the Bluefin Robotics Team shortly after the acquisition by General Dynamics Mission Systems. In my time in the military and over 15 years at General Dynamics, I have been extremely fortunate to be a teammate on many high performing teams. The Bluefin Team is no exception and consists of a group of passionate professionals completely dedicated to advancing Naval Operations in a fast paced market. What an exciting place to be!

Q: What brought you into this field, and how has UUV technology developed since that point?

I had the opportunity to join our Undersea Defense Business as the Segment Director, responsible for overall growth, profitability, and strategy of our Bluefin Robotics UUV focused business. As a team we aim to deliver a family of advanced, reliable, and modular UUVs. Over the last couple of years we have seen a maturation process of both UUV capability and the proliferation of UUVs in tactical maritime domain operations. UUVs are increasingly used in commercial, research and academic areas. Due to significant improvements in reliability, navigational accuracy, and data security throughout the undersea domain, UUVs are now widely accepted – not as a novel capability but as a proven solution to inform and reach depths and locations where manned operations are not optimal. Our stakeholders today trust they can get the information they need when they need it.

Q: How do you expect the capabilities and data that UUVs provide leaders and operators to change in the next few years and decade?

Similar to the recent progression and increased reliance on unmanned air and ground systems, I think you will see a far greater acceptance of unmanned underwater systems as a whole. Despite underwater being the most difficult domain to operate in, reliable UUV operations will become table stakes and taken for granted. Future UUVs will leverage advancing autonomous behaviors using artificial intelligence and machine learning. Greater modularity and use of open standards will allow enhanced payloads and power technologies to quickly be swapped out to perform increasingly difficult missions. UUVs will process and analyze significantly more data in stride and report back high-consequence recommendations to inform operators, all while adapting behaviors based on the analysis. In short, I believe that in the future UUVs will allow Naval leaders and operators to execute more complex and more varied missions than they do today.

Q: What do you think is the most interesting capability of the Bluefin Robotics line of UUVs?

The modularity, flexibility and ease-of-use of our Bluefin Robotics UUVs have always been a strength. But as a team, I think our most interesting capability is our passion to tackle our

customers' hardest problems and provide innovative solutions that assist them in mission success. That is what drives this team every day.

For The Royal Australian Navy, Technological Leap Starts Small



By Edward Lundquist

Edward Lundquist, senior science writer at Marine Technology Reporter and a retired naval officer, analyzes the implementation of the Royal Australian Navy's (RAN) SEA 1778 Phase 1 deployable mine warfare system, which uses General Dynamics [Bluefin-9](#) and [Bluefin-12](#) UUVs, and the modernization of its minesweeping capacity. The RAN seeks to minimize danger posed to sailors and surface vessels during mine clearing.

Andy Rogers, vice president of Undersea Systems at General Dynamics Mission Systems spoke to the UUVs' capabilities in the article: "The Bluefin-9 and Bluefin-12 are able to collect high-resolution data, process that data on-board the vehicle, and deliver actionable information to vehicle operators and decision-makers both during and immediately after a mission."



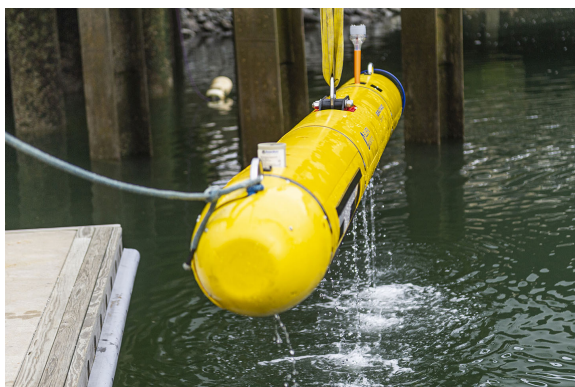
The Bluefin-9's Removable Data Storage Module (RDSM) is a field-swappable module that processes and stores data collected by integrated sonar, camera and environmental sensors. An operator is able to recover and redeploy their vehicle in 30 minutes or less and have reviewable or actionable data in-hand immediately.

Bluefin-9's RDSM acts as an independent data processor, generating and storing post-processed data with a simple interface to an operator's workstation. The RDSM contains a high-definition, machine-vision-grade monochrome camera that captures still images and video. Imagery is geotagged for easy review during post-mission analysis.

Read the article [here on marinelink.com](https://www.marinelink.com).

Industry News

- [Going It Alone: Enhancing Independent AUV Navigation](#), by John Houlder, Matt Kingsland and Geraint West, Sea Technology
 - [Ifremer new 6,000m AUV will feature iXBlue SAS sonar and sub-bottom profiling solution](#), Sea Technology
 - [Detecting Dark Vessels: Radar Satellite-Based Monitoring of Illegal Activities at Sea](#), by Dr. Mark Matossian, Pekka Laurila and Charles Blanchet, Sea Technology
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