

MCSC Begins Fielding Amphibious Robot System for Littoral Missions



Sgt. Tyler Joles, an explosive ordnance disposal technician from Littoral Explosive Ordnance Neutralization Platoon, 7th Engineer Support Battalion, 1st Marine Logistics Group, controls a remotely operated vehicle with a human machine interface during a demonstration in San Diego, California, Oct. 6. The ROV asset aids the Marine Corps in naval force integration by giving Marines the capabilities to work alongside Navy EOD. *U.S. MARINE CORPS / Lance Cpl. Kristy Ordonez Maldonado*

MARINE CORPS BASE QUANTICO, Va. – In September, Marine Corps Systems Command (MCSC) began fielding an amphibious, unmanned robot system to support littoral operations globally. The Explosive Ordnance Disposal Remotely Operated Vehicle is a next-generation, box-shaped robot that enables Marines to navigate safely and efficiently in shallow waters to identify and neutralize explosive hazards and other threats.

“This robot gives Marines eyes in the water,” said Master Sgt. Patrick Hilty, an Explosive Ordnance Disposal project officer at MCSC. “It is a capability the Marine Corps has never before had.”

The ROV employs sound navigation and ranging sensors, a high-definition video capability and cameras that provide real-time feedback for EOD divers. It includes an articulator arm that helps Marines maneuver through underwater foliage or neutralize explosive threats.

“It is a system that saves Marine divers from having to swim hundreds of meters, an activity that can tire them out,” Hilty said.

Marines can use the robot for various amphibious missions. For example, they can leverage the ROV to search harbors before docking a Marine Expeditionary Unit ship. Operators can use it for activities in very shallow waters, conducting littoral lost object searches, damage assessments and mine countermeasure missions.

Hilty applauded the ROV's tether feature, which keeps EOD technicians at a safe distance from explosive hazards. Before the capability, Marine divers could only disrupt or dispose underwater explosive threats by swimming in close proximity, exposing them to hostile elements.

"The ROV gives us a remote means to search underwater while also helping us stay at our best when having to prosecute explosive devices," Hilty said.

Master Sgt. Matthew Jackson, a staff non-commissioned officer in charge of 1st EOD Company's Littoral Explosive Ordnance Neutralization section, said the ROV is highly stable in an underwater environment. He noted how the machine requires minimal equipment and reduces the Marine Corps' overall footprint during operations.

"This intuitive system has the ability to complete critical underwater tasks much deeper than manned missions can," Jackson said. "The ROV will serve as an important capability to support our tasks."

Jackson also praised the system for its ease of use. He said it requires minimal training compared with other unmanned underwater systems. This ultimately saves the Marine Corps time and money required for training.

"Instead of sending a Marine to a course for seven or eight weeks, it takes about four days to learn basic operations for successful employment," Jackson said.

The ROV also supports naval integration. In 2019, the Navy

acquired this commercial off-the-shelf capability. The service conducted a series of tests to determine its viability for EOD missions. These tests included reliability and maintenance evaluations to test its effectiveness and ease of employment during simulated activities.

“Testing conducted by the Navy allowed us to field this capability to Marines more quickly,” Hilty said. “Additionally, the Marine Corps and Navy both having this system increases interoperability among the services.”

The robot is the first increment in the Littoral Explosive Ordnance Neutralization (LEON) Family of Systems. This series of robotic capabilities will allow Marines to search a wider area in the littorals, including the very shallow water, surf and beach zones. LEON systems, to be fielded gradually by MCSC over the next several years, will also help the Marine Corps complement Navy EOD teams in joint operations as it strives to evolve naval force integration in the future.

“Having this capability aids in naval force integration by giving us the same equipment that the Navy is using,” said Staff Sgt. Seth Barnes, EOD Technician with 1st EOD Company. “It allows us to bolt on with Navy EOD as we move forward.”

Achieving Force Design 2030 remains an ongoing, concerted effort for the Marine Corps, as repeatedly stated by Commandant of the Marine Corps Gen. David Berger. This goal requires the acquisition of next generation, unmanned systems, like the ROV, to support Expeditionary Advanced Base Operations.

“We’re bringing the EABO concept to the modern day,” said Ronald Diefenbach, a program analyst on the Explosive Hazard Team at MCSC. “Adhering to this concept, we can use the ROV to support Marines when operating from the littorals and while conducting island-hopping tasks.”

Hilty said the Marine Corps has never before leveraged waters

for missions. In the past, Marines would begin operations from land, typically a beach. This new concept requires a shift in the paradigm in how the Marine Corps operates. Fielding capabilities that conform to the vision to support an evolving naval fight will ultimately support the present and future Marine.

“We’ve always done this piece via the Navy,” said Hilty. “Now that the Marine Corps is doing it, we are learning valuable skillsets, becoming much better-rounded and proving to be a bigger asset to the MAGTF [Marine Air-Ground Task Force].”