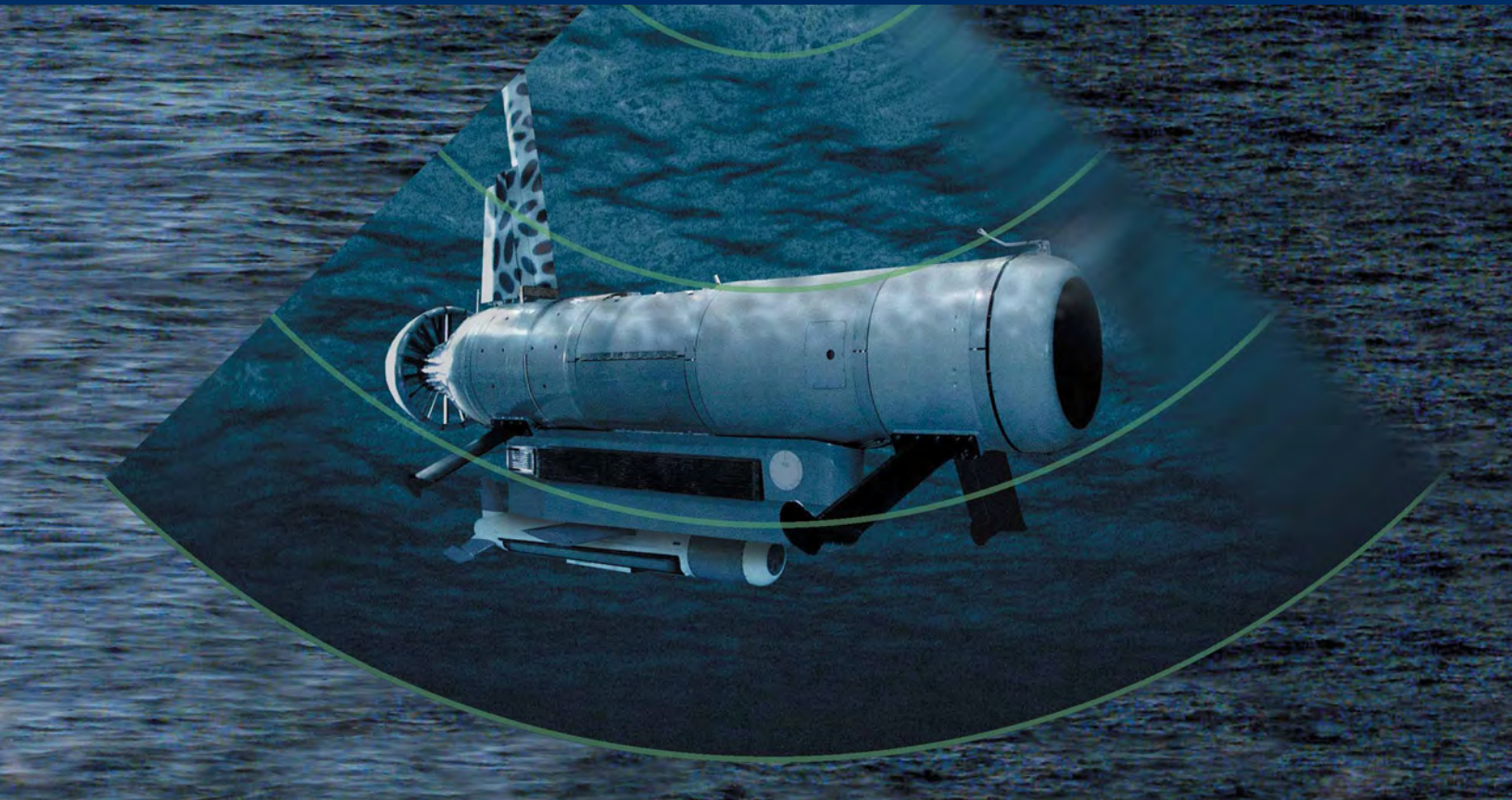


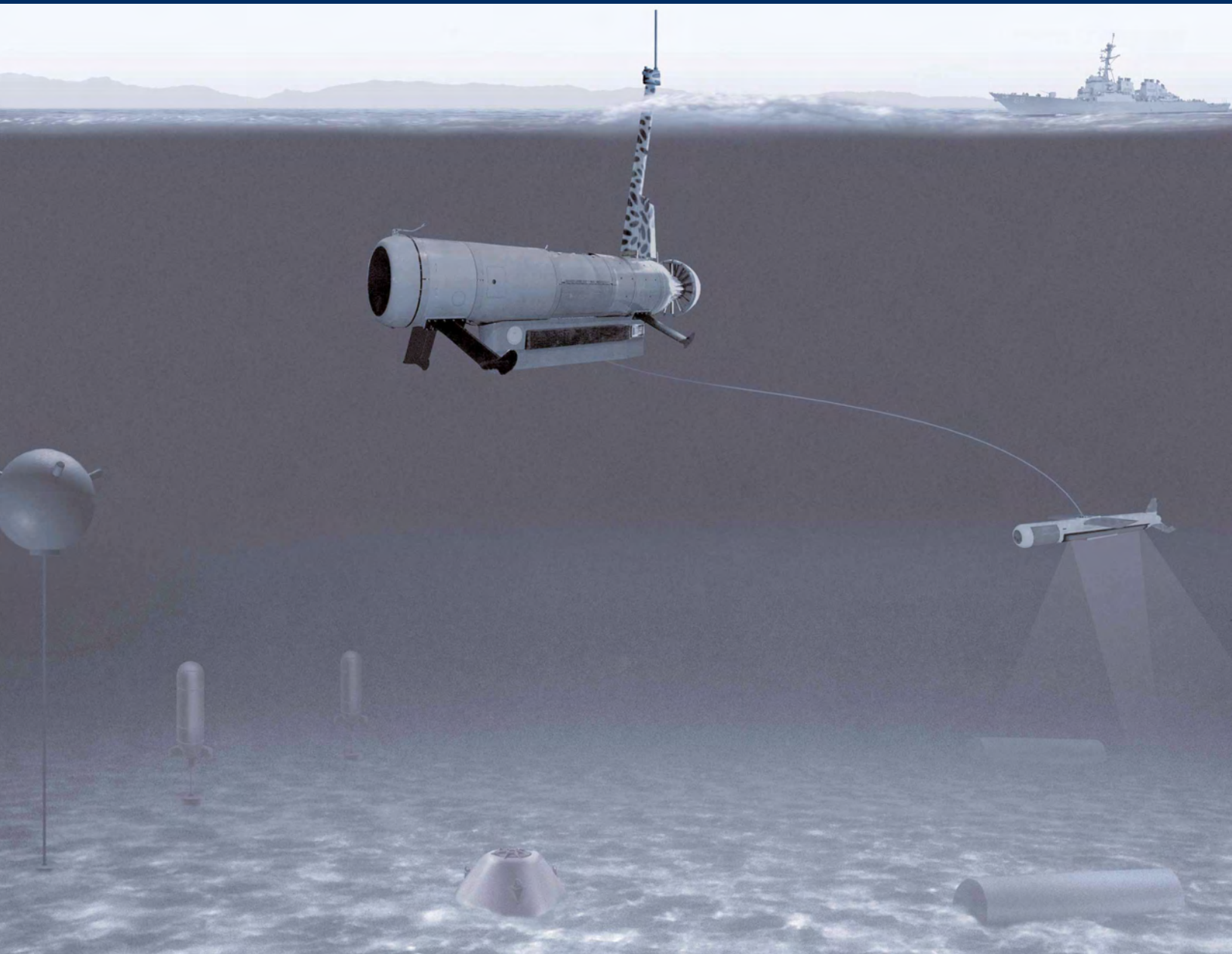


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We never forget who we're working for™

AN/WLD-1 Remote Minehunting System
Organic Mine Reconnaissance for the Littorals



The worldwide proliferation of undersea mines, and the increased threat of conflict in the littoral regions, have compelled U.S. maritime forces to adopt organic mine warfare tactics by which surface combatants swiftly deploy their own robust mine reconnaissance and neutralization assets to achieve rapid mine assessment across the compressed and crowded coastal battlespace.



The Battle Group's Insurance Policy Against Mine Threat

Semi-submersible performs over-the-horizon mine detection, classification, localization and identification—at your command

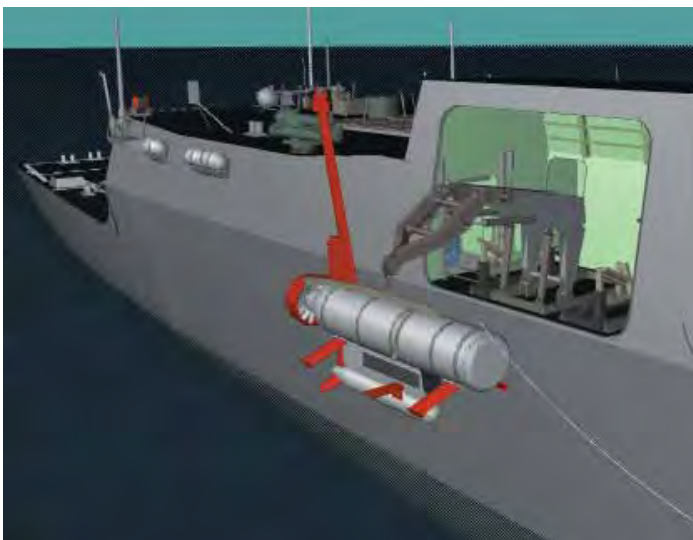
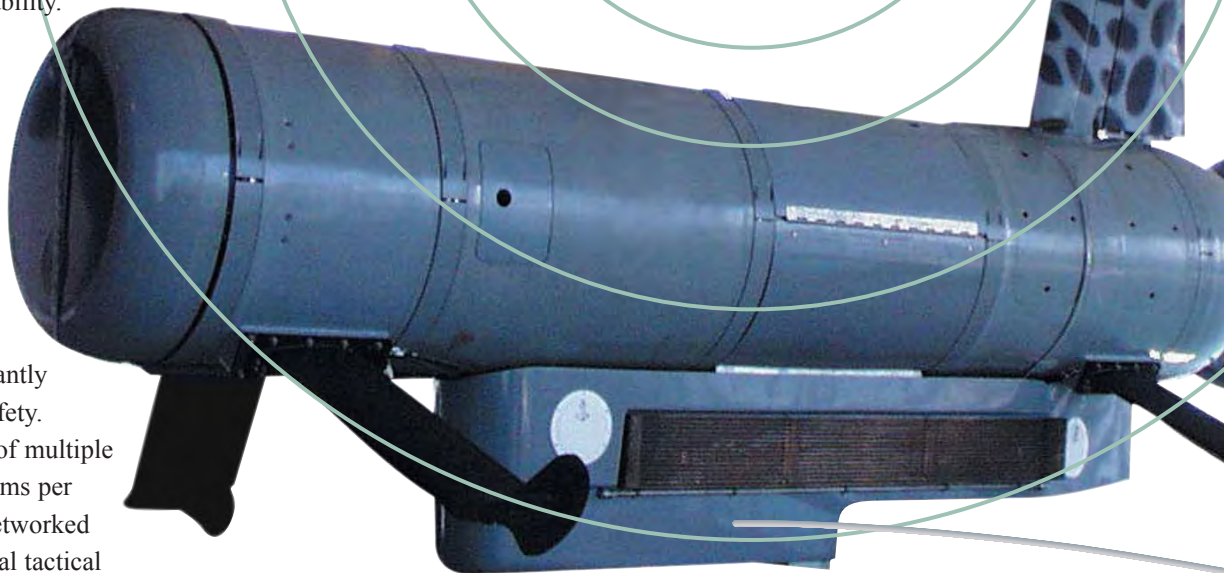
Detecting undersea mines in hostile littoral water will become an important new mission for U.S. surface combatants when the AN/WLD-1 Remote Minehunting System (RMS) is deployed in 2005.

The system's critical component is an unmanned, semi-submersible remote minehunting vehicle (RMV) that tows an advanced variable depth sensor (VDS) designed to detect, classify, localize and identify moored and bottom mines.

Launched and controlled remotely from forward-deployed surface combatants, the high endurance, low visibility RMV will give carrier battlegroups and expeditionary strike groups for the first time an organic—and over-the-horizon—mine reconnaissance capability.

Designed to have minimum impact on ship operations, the RMS will allow host combatants to simultaneously conduct other warfare missions, react swiftly and independently to detected mine threats, and significantly enhance ship and crew safety.

The assignment of multiple remote minehunting systems per battlegroup will enable networked deployment for exceptional tactical flexibility.



The Remote Minehunting System consists of five major subsystems

Remote Minehunting Vehicle (RMV)

Fueled for long endurance, the RMV's 370 hp Cummins diesel marine engine and high-efficiency propulsor can drive the 7 meter-long vehicle at speeds exceeding 16 knots. A streamlined snorkel/mast—the vehicle's only visible feature above the waterline—draws air into the engine, and provides a platform for RF antennas and an obstacle avoidance video camera. The nose module features a forward-looking sonar for detection and avoidance of underwater objects.

Launch and Recovery

The RMV is launched and recovered as safely and simply as a ship's boat. A single capture/release device provides a 15-ft. reach from the host ship. Image shows conceptual launch from an *Arleigh Burke* Class Flight IIA destroyer.

Real-time Communications

Real-time command and control of the RMV—including operational status—are relayed to the host ship via one of two encrypted data communications modes. For close-in (line of sight) minehunting, a high data rate RF link will send back continuous VDS sonar data and camera video. When over the horizon, a lower RF bandwidth will send snippets of sonar data and video imagery. Future systems could incorporate satcom links.

Detecting undersea mines in hostile littoral water will become an important new mission for U.S. surface combatants.

Variable Depth Sensor (VDS)

During its mine reconnaissance mission, the RMV deploys and tows a version of the AN/AQS-20 minehunting variable depth sensor—designed to detect, classify, localize and identify bottom and moored mines. The AN/AQS-20 carries port and starboard Side-Look Sonars, a Forward-Look Sonar, a Gap-Filler Sonar, a Volume-Search Sonar or an Electro-Optical Laser Imager for mine identification.

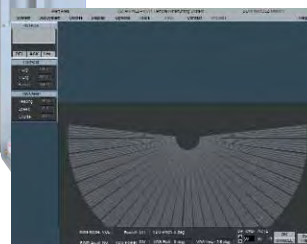


Command, Control and Display

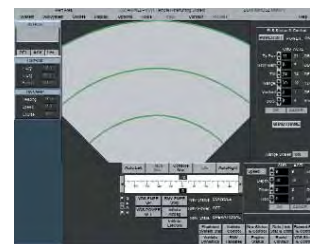
From aboard an *Arleigh Burke* Class Flight IIA destroyer, a single operator will be able to command and control the RMV from the AN/UYQ-70 console. All control and display operations will be fully integrated with the ship's AN/SQQ-89 undersea warfare system through the Remote Minehunting Functional Segment. Mine contact data will be linked to the ship's AEGIS combat system and to the Global Command and Control System-Maritime for distribution to the battlegroup and shore commands.



System Performance Display

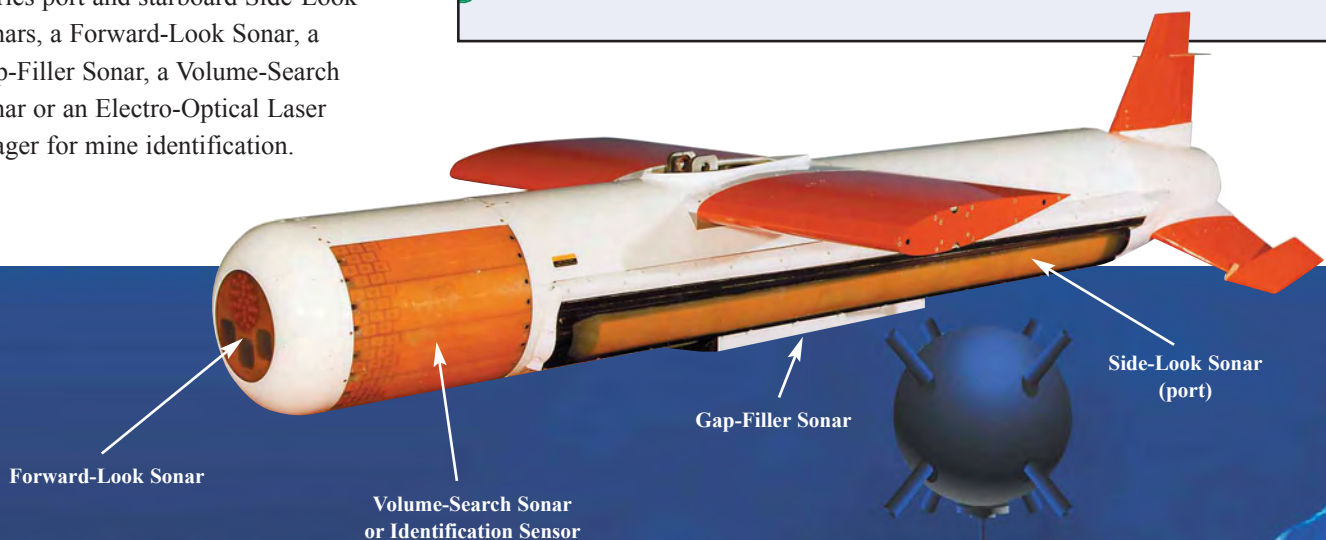
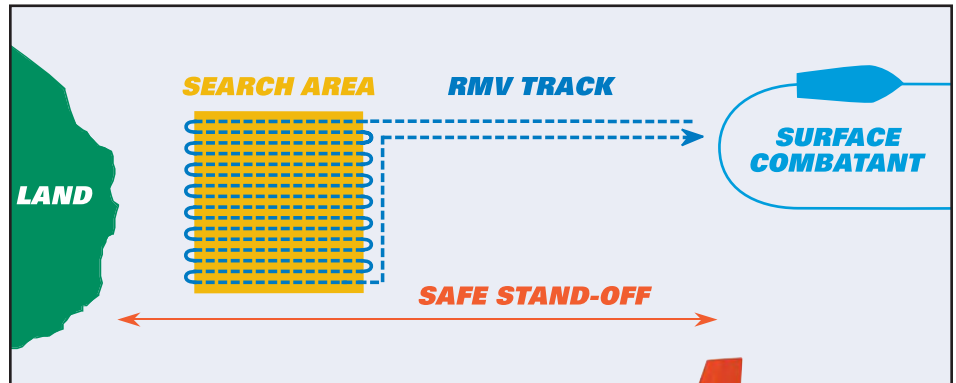


RMV Display



Sonar Display

Typical Preprogrammed RMV Search Track





Your Arleigh Burke Class Flight IIA destroyer

is ordered to survey for hostile diesel submarines in a shallow coastal zone where you also suspect mines.

To assess the mine threat while sub hunting, you launch your assigned mine reconnaissance asset—the remote minehunting vehicle (RMV). You know the data it sends back will drastically improve your tactical knowledge within the battlespace.

You're confident for other reasons.

Awareness

The RMV's high coverage search rate can find mines in deep and shallow water with high probability.

Control

The RMV is pre-programmed to perform autonomously, and can be manually controlled at any time via datalink, even when over the horizon.

Endurance

The RMV is fully effective in a wide range of sea conditions. To preserve fuel when rapid recovery is not possible, the RMV can "sleep" until it receives a new rendezvous signal.

Mission Availability

Modular RMV construction allows access to key sections for easy at-sea maintainability and reconfigurability, whether for greater endurance, VDS sensor tailoring or alternate warfare missions. The proven propulsion system and fault-redundant design ensure high system reliability.

Experience On Your Side

The unmanned, semi-submersible Remote Minehunting System (RMS)—designated AN/WLD-1—is the latest in a long line of proven systems developed by Lockheed Martin for the U.S. and other navies.

Other state-of-the-art systems developed by Lockheed Martin include:

Pathmaker wideband sensor system

(Developed for the British Royal Navy) allows minehunting ships to detect, classify and locate low-target strength mines.

AMNS

Airborne Mine Neutralization System—expendable, one-shot underwater minekiller vehicle launched from helicopters.

AN/SQQ-89(V)15

USW (undersea warfare) combat system for surface ships.

AN/BSY-2

Submarine combat system.

AEGIS

Combat system for surface ships.

MEDAL

Mine Warfare Environmental Decisions Aid Library—jointly developed mission planning and evaluation tools for MCM/MHC ships.

ICWS

Integrated Combat Weapons System—IPT developed, network-based combat system for MCM/MHC ships.

IUSW-21

Integrated Undersea Warfare for the 21st Century—advanced sensors and receivers for submarine detection in the littorals.

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