



IDS Business Support,  
Communications and  
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## Network & Space Systems Space & Intelligence Systems

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### Long-term Mine Reconnaissance System Backgrounder

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#### Description & Purpose:

Organic Mine Reconnaissance for the Battle Force has arrived. Part of the total battlespace Command, Control, Communications, and Intelligence (C3I) concept. The LMRS can provide an early, rapid, accurate means of surveying potential underwater mine fields in support of amphibious operations, other battle group operations, and for safe ship transit around mined waters.



#### Customer:

In 1999, the US Navy's Unmanned Undersea Vehicle program office announced the selection of a team headed by Boeing Inc. to proceed with detailed design of the Long-term Mine Reconnaissance System (LMRS).

Sonatech, Inc., of Santa Barbara, California, provides all of the acoustic subsystems for this portion of the LMRS program, which includes the advanced forward-looking and side-looking mine detection and classification sonars as well as the homing/docking and acoustic telemetry sonars.

#### General Characteristics:

- Torpedo Tube Launch and Recovery (L&R) unmanned undersea vehicles (UUVs) capable of launch and recovery from SSN 688 and NSSN class submarines.
- RF and Acoustic Communications
- 2 Autonomous UUVs
- Forward Looking Search Sonar
- Single Sortie Reach 75-120 nm
- Total Area Coverage
  - Rate 400-650 nm<sup>2</sup>
- Area Coverage
  - Rate 35-50 nm<sup>2</sup>/day

- Multiple Sorties
- Side-Look Classification Sonar

The LMRS is a sophisticated autonomous UUV system designed to operate clandestinely from a U.S. Navy nuclear submarine and be launched and recovered through the submarine's torpedo tubes. It consists of a self-propelled 21-inch diameter autonomous UUV equipped with mine search and classification sonars for locating mine-like objects in a naval operational area of interest.

The system includes hands-off launch and recovery, and is designed to operate from both Los Angeles and Virginia Class SSNs. Surface ship applications have been reviewed and can easily be implemented. Boeing has also begun evaluation to upgrade the system for Synthetic Aperture Sonar and Precision Underwater Mapping.

LMRS can provide operational flexibility, allowing the warfighter to accomplish the mission, including multiple sorties from a single platform with two vehicles. The system is fully self-diagnostic and capable of operating in degraded modes.

The Boeing LMRS design provides the unique capabilities of an engineering team that has developed over 36 Unmanned Underwater Vehicles over the last 40 years.

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