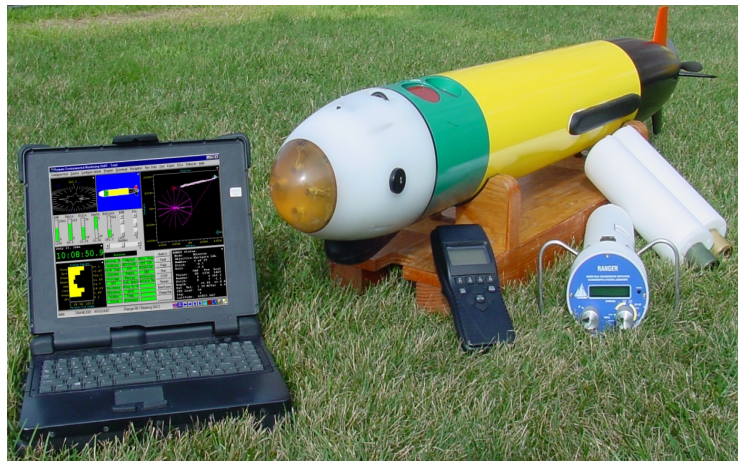




*...keeping the seas safe*

The Office of Naval Research has long been interested in the development of unmanned underwater vehicles. Remote Environmental Monitoring UnitS or REMUS is a low-cost autonomous underwater vehicle, developed at the Woods Hole Oceanographic Institute. Originally designed to conduct coastal surveys in support of science, it was adapted for military use with support from the Office of Naval Research and the U.S. Special Operations Command. Capable of performing rapid environmental surveys, REMUS also functions as an underwater mine reconnaissance device for the Navy's Mine Countermeasure program.



REMUS with laptop computer, REMUS Ranger, and navigation transponders

REMUS's compact size allows for one-man deployment and operation. Weighing only 82 pounds and just over 5 feet in length, it can operate at speeds of 3-5 knots for up to 22 hours, at a depth of up to 300 feet. REMUS is equipped with an array of sophisticated sensors, navigational aides, and power resources. It navigates underwater using one of three methods: Long Base Line, Dead Reckoning, or Ultra-Short Base Line. An onboard computer automatically determines the preferred method of navigation and is capable of changing methods throughout the mission for optimal performance. Once launched in its standard configuration, REMUS will carry out its pre-programmed mission collecting the following data:

- Acoustic Doppler Current Profiling (ADCP)
- Heading, Roll, and Pitch
- Conductivity and Temperature
- Side scan sonar
- Sound speed
- Navigation data
- Optical backscatter
- Mission progress
- System status
- Bathymetry

In March 2003, off the Iraqi port of Umm Qasr, REMUS was deployed with a group of Marine Corps reconnaissance swimmers, Navy SEALs, Explosive Ordnance divers, and dolphins. Equipped with side scan sonar, REMUS's mission was to systematically survey the port channel waters for mines. This was the first time that an unmanned underwater vehicle was used in conjunction with other mine countermeasure units in a wartime situation. Once the REMUS sonar images were processed, dolphins were sent out to inspect and report on the potential targets. The mine countermeasure missions were a success as several mines were tagged and destroyed, allowing military supply and hospital ships to deliver nearly 250 tons of essential food and materials.

## REMUS Specifications

### DIMENSIONS:

Length (overall): 5 ft. 2 in.  
Diameter: 7.5 in.  
Weight in air: 82 lbs.  
Trim weight: 2.2 lbs.

### PERFORMANCE:

Maximum speed: 5 knots  
Maximum operating depth: 328 ft.  
Battery Life: up to 22 hours at speeds of 3-5 knots

### PROPULSION:

Direct dive DC brushless motor to open 3-bladed propeller

REMUS is commercially available exclusively from Hydroid, Inc., of East Falmouth, MA



[www.onr.navy.mil](http://www.onr.navy.mil)