

## OEX AUTONOMOUS UNDERWATER VEHICLES

### MISSION IN BRIEF

An autonomous underwater vehicle capable of carrying a variety of payloads, including side scan sonar, towed sonar arrays, and physical oceanography sensors.

### OVERVIEW

The Ocean Explorer (OEX) is a sophisticated autonomous underwater vehicle (AUV) and one of CMRE's most valuable assets. Developed at Florida Atlantic University, the OEX has undergone significant modifications at the Centre for use in the antisubmarine warfare programme and other projects.

The OEX has a modular design so that it can accommodate a variety of payloads. Once the AUV is launched, it can operate independently. Using onboard equipment, the OEX gathers information in the underwater environment, such as the presence and location of objects of interest.

Researchers at the Centre are currently working to advance the concepts of autonomy and collaboration using the OEX and other autonomous surface and underwater vehicles.

**Adaptive Autonomy.** Using software developed at the Centre, the AUVs can adapt autonomously to dynamic environmental factors. For example, in surveillance operations, the AUV can find a moving target and stay broadside to it. Or if the target is stationary, the AUV can circle it.

**Collaboration.** Two AUVs can work together to share information and coordinate their efforts. For this to happen, the Centre is working on developing a more robust communication infrastructure to overcome the challenges of underwater communication. Ultimately a fleet of mobile (AUVs and unmanned surface vehicles) and fixed assets (buoys) could be programmed to collaborate, providing underwater surveillance in shallow near-shore waters.

### CONTACT

CMRE Public Affairs Office: [pao@cmre.nato.int](mailto:pao@cmre.nato.int)



Maximum length	3 - 4 m, depending on payload
Diameter	21 in.
Weight	500 - 600 kg, depending on payload
Speed	4 knots
Propulsion	3-blade, 18-in. propeller
Battery Chemistry	NiMH
Endurance	50 km
Maximum depth	300 m
Sensors	ADCP; CTD sensor
Communication	Acoustic modem, RF Ethernet