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## **Novel Underwater Laser Imaging Networks Developed at Harbor Branch Helps to Secure the Safety of U.S. Coastlines**

*Harbor Branch receives \$2 million from the U.S. Department of Defense, Office of Naval Research, for project to address critical areas in need of ocean research and development.*

**BOCA RATON, FL** (June 29, 2009) – Novel underwater laser networking and imaging technologies being developed by scientists at the Ocean Visibility and Optics Laboratory at Harbor Branch Oceanographic Institute at Florida Atlantic University may provide significant advantages over existing technologies in rapidly identifying and communicating potential threats in murky coastal waters. Harbor Branch has received \$2 million from the U.S. Department of Defense, Office of Naval Research, to continue its cutting-edge research and development in the area of underwater laser sensing and robotics in an effort to develop next generation underwater sensing networks to enhance the security of coastal waters and ports, and to expand ecosystem monitoring capabilities. This project will build on current technologies and capabilities in laser imaging developed at Harbor Branch. When the technology is fully developed, it will be used onboard a group of small, co-operating underwater robots and will have extensive utility for future U.S. military operations including U.S. war fighters (intelligence, surveillance and reconnaissance, and mine countermeasures operations). Domestically, it will be used for Maritime security and environmental assessment to address some of the most critical areas in need of ocean research and technology development over the next ten years.

The project is being developed in three phases, with the overall goal of investigating concepts in concurrent laser imaging and communications where dual-purpose imaging and communications system components are distributed within the co-operating group of underwater robots. Scientists at Harbor Branch will use advanced computer simulation software to predict the underwater laser light field in variable environmental conditions. Combined with measurements from their state-of-the-art underwater laser test facility which will be used as a proving ground for the techniques, the objective is to gain a thorough understanding of how such techniques can contribute to underwater imaging missions of the future.

According to Dr. Fraser Dalglish, principal investigator and assistant research professor at Harbor Branch, images of suspicious underwater objects need to be rapidly transmitted to a command center or to those who may be in danger. “Underwater mines pose a major threat to U.S. Navy, Coast Guard and merchant fleets,” said Dalglish. “Using intelligent, adaptive laser imaging and communication techniques with swarms of co-operating underwater robots could provide identification-quality underwater imagery in real-time across much greater regions of seabed than current technology allows, and will therefore be vital for effectively classifying both military and environmental threats to our coastal regions in the future.”

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*Harbor Branch Oceanographic Institute at Florida Atlantic University is a research institute dedicated to exploration, innovation, conservation, and education related to the oceans. Harbor Branch was founded in 1971 as a private non-profit organization. In December 2007, Harbor Branch joined Florida Atlantic University. **The institute specializes in ocean engineering, at-sea operations, drug discovery and biotechnology from the oceans, coastal ecology and conservation, marine mammal research and conservation, aquaculture, and marine education. For more information, visit [www.hboi.fau.edu](http://www.hboi.fau.edu).***

*Florida Atlantic University opened its doors in 1964 as the fifth public university in Florida. Today, the University serves more than 26,000 undergraduate and graduate students on seven campuses strategically located along 150 miles of Florida's southeastern coastline. Building on its rich tradition as a teaching university, with a world-class faculty, FAU hosts ten colleges: College of Architecture, Urban & Public Affairs, Dorothy F. Schmidt College of Arts & Letters, the Charles E. Schmidt College of Biomedical Science, the Barry Kaye College of Business, the College of Education, the College of Engineering & Computer Science, the Harriet L. Wilkes Honors College, the Graduate College, the Christine E. Lynn College of Nursing and the Charles E. Schmidt College of Science.*