



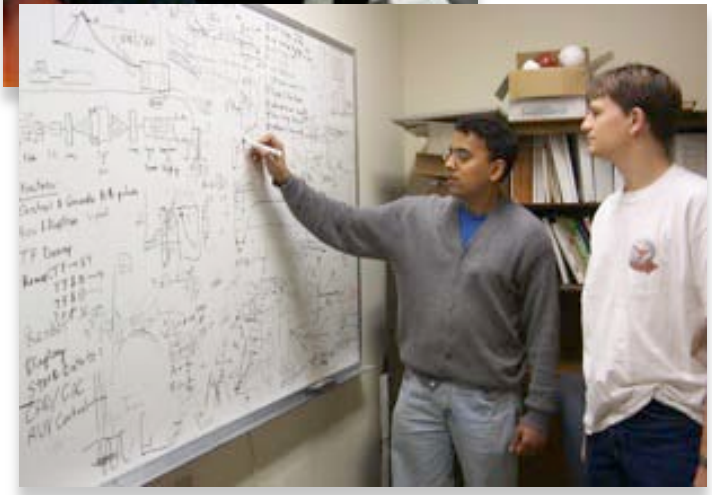
Applied Research Laboratories
The University of Texas at Austin:
A Navy University Affiliated Research Center

ARL:UT in Brief

- One of five Navy University Affiliated Research Centers (UARCs)
 - Operate under Director, Defense Research and Engineering (DDR&E) charter and management plan with sole-source contract
 - Maintain university-based engineering and technology capabilities deemed essential to DoD
- Technical Program Areas: Acoustics, Electromagnetics, Information Technology
 - Emphasis on basic and applied research leading to prototype development for defense and national security applications
- Organization
 - ~650 staff
 - 325 research staff (20% PhD, 50% MS/MA, 30% BS/BA)
 - 75-150 students (all U.S. citizens)
 - ~\$75M/yr funding (all soft money)
 - Secure facility (all professional staff have security clearances)

UARCs, Academia, and Innovation

- UARCs are a bridge between operational needs and academic research
 - Focus on applied problems to solve operational needs, but with reach back to basic research on campus
- UARCs facilitate faculty involvement in applied problems
 - Awareness of operational needs
 - Assist with competing faculty requirements (publish, graduate students)
 - Access to classified facilities
- UARCs engage students in research relevant to national security.
 - Workforce renewal.
- UARCs can bridge Navy development with DHS needs

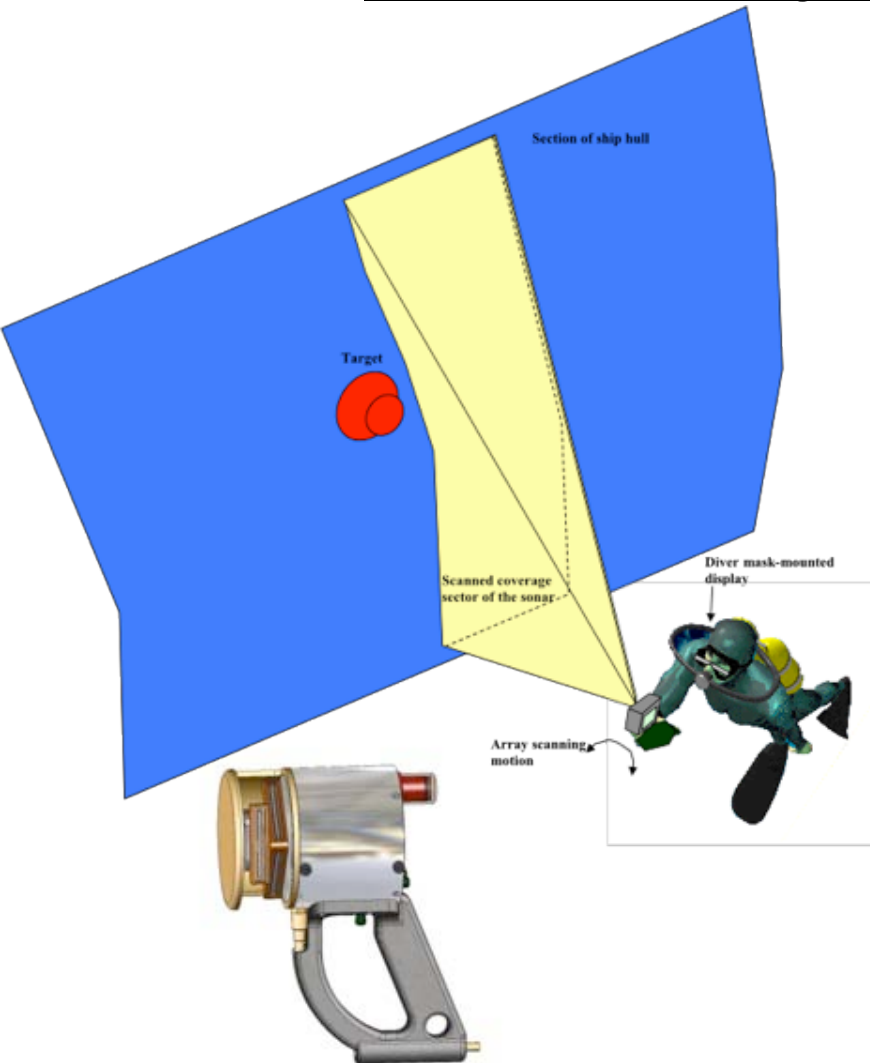


Swimmer Detection Sonar



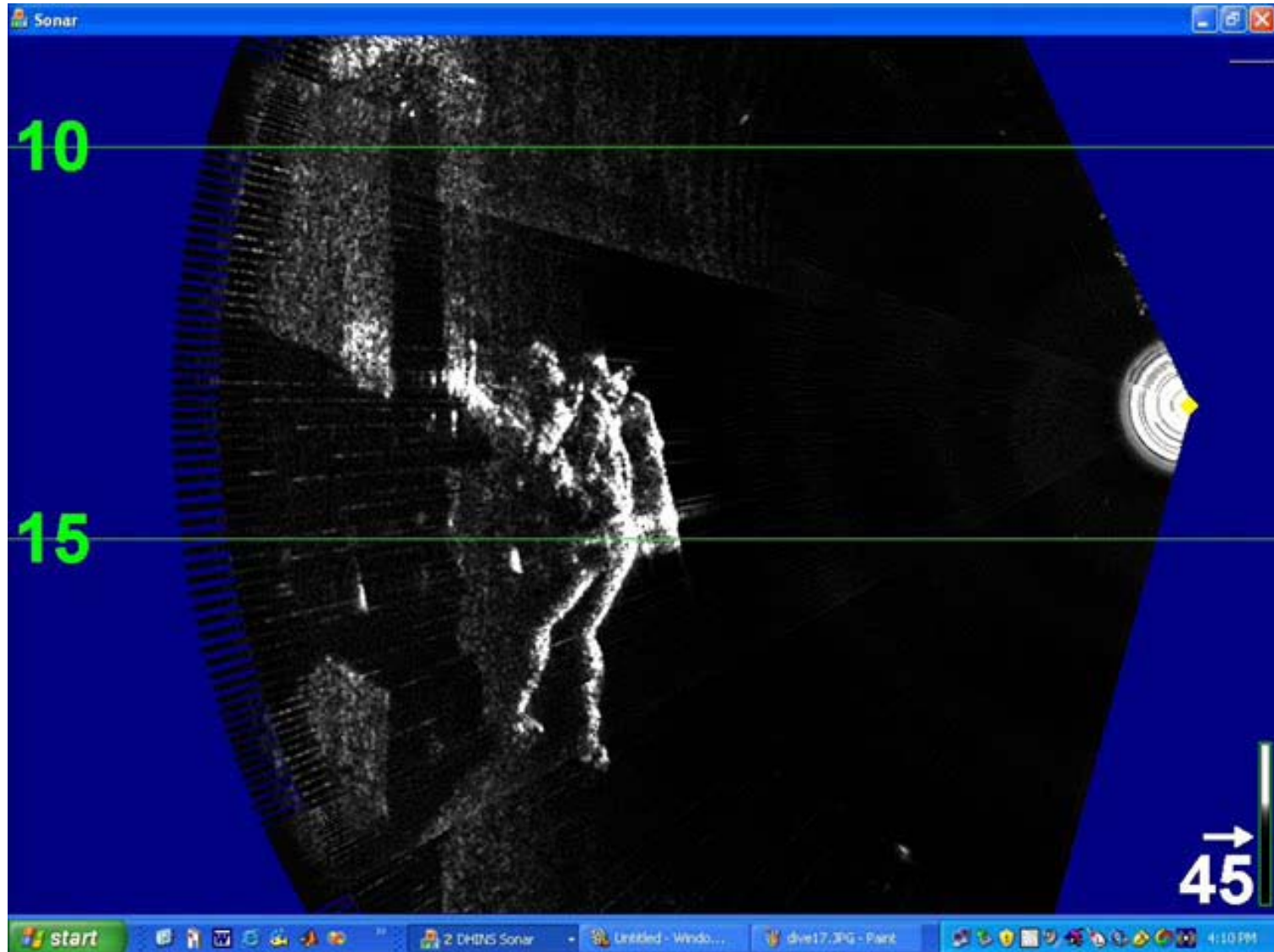
- ARL-developed AN/WQX-2 is currently in use by USN and Coast Guard in integrated waterfront security systems.
- Automated detection, tracking, classification and alerting for surface and subsurface intruders.
- Installed at various Navy bases worldwide.
- Selected for use by US Allies for protection of key naval bases.

Diver Hull Imaging and Navigation Sonar



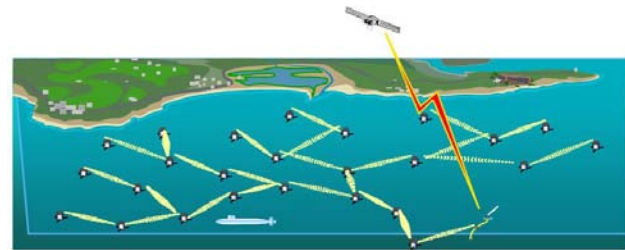
- Provides capability to inspect the hull of a ship to find attached mines or other devices.
- Current Implementation:
 - Diver held auto scanning sonar
 - Image data remoted to surface and displayed in diver face mask
 - Incorporates beacon-based acoustic navigation system with orientation & depth sensors
 - Full voice communications with diver
- Potential for AUV implementation

DHINS Image of Diver



Seaweb

Rapidly deployable, persistent underwater acoustic surveillance network for illicit trafficking

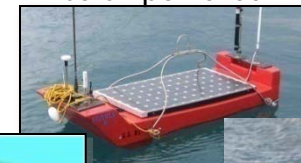


Distributed undersea surveillance sensor network

COTS
Telesonar
repeater



Radio/acoustic communications
(Racom) gateway buoy options
solar powered



Low Profile USV



Submerged



Navigation buoy

Sensor nodes



- Collaborative development with Naval Postgraduate School
- Mature system: TRL 6-8
- Networked acoustic communications for near-real-time contact reporting
- Deployable, autonomous, distributed sensors with in-sensor detection and classification