

Real-Time Observation System for Narragansett Bay



CLIENT:

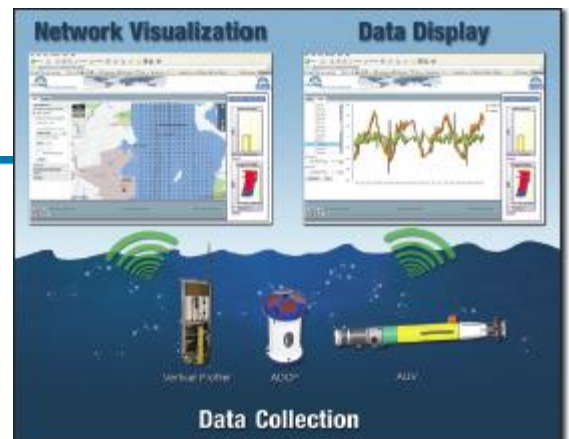
Rhode Island State Research & Development Grant joint academic-industry partnership

PROJECT #:

2007-016

PROJECT ELEMENTS:

- Integrated ocean observing and modeling
- Data management and communications (DMAC)
- Real-time Environmental Data Server (EDS)
- Web services integration



PROBLEM. PURPOSE.

The Narragansett Bay is prone to water quality issues, particularly low dissolved oxygen levels during the summer months that can lead to aquatic biota kills and other adverse fisheries health problems. In order to detect and identify hypoxic (low dissolved oxygen) and anoxic (no dissolved oxygen) bottom waters, the State of Rhode Island awarded a joint academic-industry partnership research grant to a team of researchers from ASA, SubChem Systems Inc., WET Labs, and University of Rhode Island's Graduate School of Oceanography to build and operate a real-time observation system for Narragansett Bay.

SCIENCE. SERVICES. SOLUTIONS.

Data collection platforms for the project included an autonomous (robotic) underwater vehicle (AUV) with smart sampling systems, a bottom mounted Acoustic Doppler Current Profiler (ADCP), and an Autonomous Moored Profiler for vertical profiling in the water column. The collected data was transmitted via wireless modem to a shore station where it was processed and published to ASA's Environmental Data Server (EDS). The EDS manages in-situ observations and gridded data products. Using tools within the ASA platform, the data was assimilated and integrated into graphical data products accessible through a suite of open standard Web services. Maps and data were made available by ASA through a custom internet Web application that integrated commercial (Yahoo!) maps with time-varying scientific data.

PRODUCTS. RESULTS.

This project has proven the capability of ASA's ocean observing and modeling software and Web services to meet the visualization and data display demands for ocean observing and modeling to allow for the collection, fusion, display, and analysis of data from changing configurations of re-locatable underwater sampling systems. The integrated system of data collection platforms and analysis and display tools are useful to scientists and environmental managers to study water quality changes in any coastal area or ocean ecosystem. The system also has application for port security and maritime safety as well as for recreational boaters and fisherman who will be able to access real-time information on currents, water depths, and temperatures.