



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2004DE46B

Title: Design and Field Testing of Advanced Surveillance Systems for Delaware's Shallow Depth Estuaries

Project Type: Research

Focus Categories: Water Quality, Hydrogeochemistry, Ecology

Keywords: water pollutants, monitoring, real-time surveillance

Start Date: 06/01/2004

End Date: 02/28/2005

Federal Funds: \$1,750

Non-Federal Matching Funds: \$3,500

Congressional District: At-large

Principal Investigator:
James Lawrence Glancey

Abstract

A cooperative effort between the University of Delaware and DNREC has led to the development of a low cost monitoring station that is capable of measuring whole water column water quality data throughout the entire depth of a water body. The device utilizes the data sondes currently in owned by DNREC. As configured, the monitoring station following parameters can be measured: water quality variables [water temperature, pH, dissolved oxygen, and turbidity] and meteorological variables (air temperature, relative humidity, barometric pressure, incident solar radiation, wind speed and direction, rain gauge). The resulting information provides a complete snapshot of important water quality data – over a period of time, the data provides a comprehensive understanding of water quality changes in a body of water throughout the entire depth. In addition, the monitoring station is equipped with cellular telemetry which transmits the data to a host computer that can broadcast the data on the web in real time; data can also be processed and sent to a list of scientists and other personnel for further analysis.

This technology provides a unique and effective means to monitor estuarine waters with high temporal resolution, which is critical for an effective Harmful Algal Bloom (HAB) detection. The goal of this project is to deploy a monitoring station for extended testing in

the Inland Bays and to begin to understand, in cooperation with DNREC's Environmental Laboratory, water quality dynamics throughout the entire water column during critical periods of the 2004 summer season. The continuously recorded results from the monitoring station will promote a better understanding of the influences of nutrient enrichment on HAB dynamics, assist in determining the temporal relationships between HABs and shellfish health/toxin contamination, and provide an early warning system for the detection of HABs in one of Delaware's prime recreational waters.