FEATURED ARTICLE

The Importance of USGS Continuous Water-Quality Monitoring to Coastal Marine Research on Long Island, NY.

Recent data from a USGS continuous water-quality monitoring station on the Long Island Sound embayment of Flax Pond in Old Field, N.Y., were fundamental to the publication of two new journal articles related to ocean acidification and its effect on coastal marine organisms. Diehl, seasonal, and interannual variability of dissolved oxygen and pH from Flax Pond during 2008 to 2012 were quantified and used in conjunction with short-term, simultaneous pCO₂ measurements. Findings suggest that coastal marine organisms are adapted to a wide range of environmental conditions and may tolerate long-term increases in anthropogenic CO₂ (Baumann and others, 2014). These adaptations were explored in the laboratory using wild fish populations of the Atlantic silverside Menidia menidia (Murray and others, 2014). The long-term, high-frequency pH data for Flax Pond were used to help demonstrate that these species adapt to natural seasonal fluctuations in pH and CO₂ by preconditioning their offspring to rapidly changing environmental conditions. The 2008-12 USGS data were collected in cooperation with the New York State Department of Environmental Conservation and The Nature Conservancy; presently (2014), these data are being collected in cooperation with the Suffolk County Department of Economic Development and Planning. Hannes Baumann, a researcher in both studies, emphasized the importance and usefulness of USGS monitoring. “Our research demonstrated that high-resolution time series, like the one from Flax Pond, comprise highly valuable tools to further understand the dynamics and future changes of coastal ecosystems (Hannes Baumann, written commun., 2014).”


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The USGS Water Mission Area (WMA) has the principal responsibility within the Federal Government to provide the hydrologic information and interpretation needed by others to achieve the best use and management of the Nation’s water resources. WMA actively promotes the use of its information products by decision makers to:

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- Effectively manage groundwater and surface-water resources for domestic, agricultural, commercial, industrial, recreational, and ecological uses.
- Protect and enhance water resources for human health, aquatic health, and environmental quality.
- Contribute to wise physical and economic development of the Nation’s resources for the benefit of present and future generations.

If you have an environmental or resource-management issue in which you would like to partner with the USGS to investigate, please contact any of our senior management staff (listed below). Projects are supported primarily through the Cooperative Water Program. This is a program through which any State, County, or local agency may work with the USGS to fund and conduct a monitoring or investigation project.

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