

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. Diel, 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)."

Baumann, H., Wallace, R.B., Tagliaferri, T., and Gobler, C.J., 2014, Large natural pH, CO₂, and O₂ fluctuation in a temperate tidal salt marsh on diel, seasonal, and interannual time scales, *Estuaries and Coasts* (published online 3/2014). <http://dx.doi.org/10.1007/s12237-014-9800-y>

Murray, C.S., Malvezzi, A., Gobler, C.J., and Baumann, H., 2014, Offspring sensitivity to ocean acidification changes seasonally in a coastal marine fish, *Marine Ecology Progress Series* 504: 1-11.

SELECT NYWSC PUBLICATIONS

Kreitinger, E.A., and Kappel, W.M., 2014, Hydrogeology and water quality of the Nanticoke Creek stratified-drift aquifer, near Endicott, New York: U.S. Geological Survey Scientific Investigations Report 2014-5063, 19 p plus appendixes, <http://dx.doi.org/10.3133/sir20145063>

Misut, P.E., and Aphale, Omkar, 2014, Simulation of groundwater flow pathlines and freshwater/saltwater transition zone movement, Manhasset Neck, Nassau County, New York: U.S. Geological Survey Scientific Investigations Report 2013-5201, 44 p.

Zaugg, S.D., Phillips, P.J., and Smith, S.G., 2014, Analysis of pharmaceutical and other organic wastewater compounds in filtered and unfiltered water samples by gas chromatograph/mass spectrometry: U.S. Geological Survey Open-File Report 2013-1297, 24 p.

Yager, R.M., and Heywood, C.E., 2014, Simulation of the effects of seasonally varying pumping on intraborehole flow and the vulnerability of public-supply wells to contamination: Groundwater, doi: 10.1111/gwat.12150

Misut, P.E., 2014, Simulation of zones of contribution to wells at site GM-38, Naval Weapons Industrial Reserve Plant, Bethpage, New York: U.S. Geological Survey Scientific Investigations Report 2014-5036, 58 p.

McHale, M.R., Siemion, Jason, Lawrence, G.B., and Mast, M.A., 2014, Long-term soil monitoring at U.S. Geological Survey reference watersheds: U.S. Geological Survey Fact Sheet 2014-3002, 2 p., ISSN 2327-6932 (online)

Scott, Tia-Marie, and Nystrom, E.A., 2014, Groundwater quality in the Upper Hudson River Basin, New York, 2012: U.S. Geological Survey Open-File Report 2014-1084, 21 p.

Kappel, W.M., 2014, The hydrogeology of the Tully Valley, Onondaga County, New York--an overview of research 1992-2012: U.S. Geological Survey Open-File Report 2014-1076, 28 pp., plus 3 appendixes

Bugliosi, E.F., Miller, T.S., and Reynolds, R.J., 2014, Hydrogeology and water quality of the stratified-drift aquifer in the Pony Hollow Creek Valley, Tompkins County, New York: U.S. Geological Survey Scientific Investigations Report 2014-5059, 23 p.

Baldigo, B.P., Phillips, P.J., Ernst, A.G., Gray, J.L., and Hemming, J.D.C., 2014, Spatiotemporal variations in estrogenicity, hormones, and endocrine-disrupting compounds in influents and effluents of selected wastewater-treatment plants and receiving streams in New York, 2008-09: U.S. Geological Survey Scientific Investigations Report 2014-5015, 32 p.

Lumia, Richard, Firda, G.D., and Smith, T.L., 2014, Floods of 2011 in New York: U.S. Geological Survey Scientific Investigations Report 2014-5058, 236 p.

Wall, G.R., Murray, P.M., Lumia, Richard, and Suro, T.P., 2014, Maximum known stages and discharges of New York streams and their annual exceedance probabilities through September 2011: U.S. Geological Survey Scientific Investigations Report 2014-5084, 16 p., <http://dx.doi.org/10.3133/sir20145084>.

Coon, W.F., 2014, Flood-inundation maps for the Mississinewa River at Marion, Indiana, 2013: U.S. Geological Survey Scientific Investigations Report 2014-5060, 13 p., <http://dx.doi.org/10.3133/sir20145060>



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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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