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DEP Announces Research Partnership with Harvard School of Public Health to Enhance Modeling and Monitoring of Drinking Water Quality

Studies Will Provide Quantitative Information on How Storms Affect Turbidity in Watershed Streams and Reservoirs;

Data Will Improve NYC Water Supply Operators' Forecasting Models for Water Quality in Anticipation of Severe Weather

New York City Department of Environmental Protection (DEP) Commissioner Carter Strickland today announced a new scientific collaboration with Harvard School of Public Health (HSPH) to study water supply turbidity and to enhance watershed modeling and monitoring. The study, which will include scientists from both HSPH and DEP, consists of three specific projects designed to assist in the operation of the New York City water supply: Statistical Analysis of Turbidity in Reservoirs; Sediment Source Tracking; and Hydrodynamic Circulation in Kensico Reservoir. By developing quantitative water quality metrics and scientific modeling, the study will help improve DEP's understanding of the relationship between turbidity and the intensity and duration of rainstorms. After receiving record levels of rainfall in 2011 through events such as Hurricane Irene and Tropical Storm Lee, the study's results will produce data critical to improving water quality modeling predictions in anticipation of severe weather events. The three studies will cost \$80,000, are funded by the Harvard Club of New York City and will conclude in the spring of 2013.

"Through this partnership with the Harvard School of Public Health DEP will gain considerable assistance with our water quality modeling and data analysis," said Commissioner Strickland. "These studies will help us better understand the link between severe weather and turbidity, and improve our water quality operations as a result."

"What is attractive to us is that we will bring together students at all levels, both undergraduate and graduate students, from throughout the University," said Dr. James Shine of Harvard School of Public Health, Department of Environmental Health. "Our goal is to engage students interested in environmental sciences and allow them to see how science is used to inform public decision making, in this case the quality of water delivered to New York City. These experiences will reaffirm the students' commitment to the environment."

The research collaboration will consist of three major studies:

- Statistical Analysis of Turbidity in Reservoirs will assess the uniqueness and duration of major deviations in turbidity levels over the course of DEP's long-

term monitoring records, determining the link between elevated turbidity levels and meteorological factors;

- Sediment Source Tracking will involve laboratory study of field samples collected from select streams in the Catskill and Delaware systems to assist in determining specific sources of turbidity, providing chemical measurements that will help assess current water quality models; and
- Hydrodynamic Circulation in Kensico Reservoir will insert a “numerical tracer” into a two-dimensional computer model of Kensico reservoir, and use the model run to monitor water quality during simulations of increased flow through the reservoir. The model outputs will be evaluated in comparison to both current monitoring at Kensico Reservoir as well as hypothetical weather scenarios created for the purpose of experimentation.

DEP manages the city’s water supply, providing more than one billion gallons of water each day to more than nine million residents, including eight million in New York City, and residents of Ulster, Orange, Putnam and Westchester counties. This water comes from the Catskill, Delaware, and Croton watersheds that extend more than 125 miles from the City, and the system comprises 19 reservoirs, three controlled lakes, and numerous tunnels and aqueducts. DEP employs nearly 6,000 employees, including more than 750 scientists, engineers, surveyors, watershed maintainers and others professionals in the upstate watershed. In addition to its 68 million payroll and \$153 million in annual taxes paid in upstate counties, DEP has invested more than \$1.5 billion in watershed protection programs—including partnership organizations such as the Catskill Watershed Corporation and the Watershed Agricultural Council—that support sustainable farming practices, environmentally sensitive economic development, and local economic opportunity. For more information, visit www.nyc.gov/dep, like us on Facebook at www.facebook.com/nycwater, or follow us on Twitter at www.twitter.com/nycwater.

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