



## **Success Story – Water Quality Trading**

### **Situation**

According to the United States Environmental Protection Agency (USEPA), over 40% of the nation's assessed waterways still do not meet the water quality standards set by states and territories for a number of pollutants. In response, stringent effluent limitations have been set in New York, New Jersey and Puerto Rico in response to Total Maximum Daily Loads (TMDLs) that calculate the maximum amount of a pollutant that a waterway can receive while still meeting water quality standards. To meet new effluent requirements, existing permitted dischargers may have to make significant upgrades to their facilities. In this time of constraint on resources available for watershed protection, funding must be directed to the most cost effective applications. Trading, a market-based mechanism that directs funding to the lowest cost point source and nonpoint source pollution controls, is an important alternative for restoring and protecting our critical water resources. The Regional Water Coordination Program (RWCP), as part of its Nutrient Management Initiative, is assessing water quality trading within the region.

### **Actions**

- In New Jersey, the Rutgers Cooperative Extension (RCE) Water Resources Program is leading a team to develop the Passaic River Phosphorus Trading Program. This central New Jersey watershed encompasses one of the most heavily developed areas of the state. The team includes RCE and Cornell University, the New Jersey Department of Environmental Protection (NJDEP) and the Passaic River Alliance, representing wastewater treatment plants. Funding has been provided through a \$900,000 USEPA Targeted Watershed Grant. The goal of the project is to develop a trading framework to optimize pollution control in the non-tidal portion of this watershed. The project is focusing on the 24 large wastewater treatment plants in the watershed, but may also include regulated municipal separate storm sewer systems (MS4s) and nonpoint sources. The project team is researching trading frameworks, applying water quality and economic models, and analyzing technologies to establish comparative costs of phosphorus control. A phosphorus TMDL for this watershed will soon be issued by NJDEP, setting specific goals and operating parameters within which the trading program must function. The TMDL is anticipated to reference trading as a cost effective tool to improve water quality.
- Also in New Jersey, a phosphorus trading market feasibility study will be conducted in a subwatershed of the Raritan River Basin watershed. Currently, total phosphorus TMDLs have been adopted for six eutrophic lakes in the Raritan River Basin (NJDEP, 2003b), and a TMDL is being considered for total phosphorus for all the impaired streams within the basin, including the Raritan River. A previous study by Rutgers University determined the technical feasibility of water quality trading for 12 study areas (delineated on a sub-

watershed scale) within the Raritan River Basin. Four study areas were determined to have a high potential for trading, requiring more in-depth analysis. For each study area, an economic analysis needs to be conducted to explore the potential cost savings that a point-nonpoint source trading program can provide the wastewater treatment plants and the financial incentives that the program can provide to the farmers and municipalities. A team of Bioresource Engineering and Industrial and Systems Engineering undergraduates from Rutgers University will further evaluate one of the four study areas as part of a course design project in participation with the USEPA National P3 Award Design Competition.

- In New York, the RWQP is working with the Upper Susquehanna Coalition (USC), a coalition of soil and water conservation districts and other local entities, to identify how water quality trading could support implementation of the New York State Upper Susquehanna River Tributary Strategy. The Strategy, which is in the final stages of development, will include an array of nonpoint source best management practices (BMPs) that will reduce nutrient and sediment loading to the Chesapeake Bay. Trading can optimize the use of available funding through the sale of credits to regulated point sources. A critical assessment of how trading can be effective in fostering greater degrees of BMP adoption is a forthcoming task. In the meantime, we are beginning to aid USC in ranking the cost effectiveness of BMPs and in identifying an appropriate trading framework. In 2004, the RWCP provided seed funding to a Cornell University-led project to evaluate nutrient mass balances on a cross section of farms in the watershed. This preliminary work led to a successful USC-Cornell proposal to the United States Department of Agriculture (USDA) Conservation Innovation Grant Program to expand the scope of this work and to advance precision animal feeding techniques. This work will improve the quantification of BMP cost effectiveness, which will be an important underpinning for assessing the feasibility of water quality trading.
- The RWQP is also working with USEPA and our state partners to assess trading feasibility in other watersheds. We participate in regional and national work groups where trading program development issues are considered and innovative approaches are brought forward. This past May, the RWCP participated in and offered a presentation on the Passaic project at the Second National USEPA/USDA Water Quality Trading Conference in Pittsburgh. At the conference there were over 300 participants from USEPA, USDA, universities, state agencies and public and private entities (including financial analysts) developing or interested in trading programs. The event demonstrated a growing interest in water quality trading, explored critical issues, and profiled existing and planned trading projects.

## **Impact**

Trading programs can optimize point source control and provide incentives for nonpoint sources to implement cost effective BMPs. Improving water quality through trading has profound implications for improving quality of life associated with protection of source water, recreation activities and ecosystem health. Trading leads to economic impacts from the development of a cost-effective solution to an otherwise costly problem for wastewater treatment plant upgrades that could be passed on to homeowners. Trading has the potential to improve water quality while targeting nonpoint sources of pollution, which may not have otherwise been addressed quickly within a particular watershed. The actions presented above are important steps towards realizing these impacts through successful trading markets.