

WATER QUALITY TRADING: CURRENT GEORGIA RESEARCH

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REFERENCE: *Proceedings of the 2007 Georgia Water Resources Conference*, held March 27–29, 2007, at the University of Georgia.

Abstract. Water quality trading is a market-based policy tool that is intended to bring increased flexibility and cost savings to wastewater management. It is being actively promoted by federal agencies including the U.S. Environmental Protection Agency (USEPA) and the U.S. Department of Agriculture, and it is currently included in the draft statewide water management plan for Georgia. Water quality trading is a complex policy tool that raises questions that are both technical and policy oriented. This session will provide an overview of current research on water quality trading in Georgia. This type of research is important because it helps to answer the questions that the potential application of water quality trading in Georgia might raise. Another session in the water policy track at this conference considers the policy issues that water quality trading might raise in Georgia.

The panelists include four researchers involved in project examining various aspects of water quality trading:

- David Radcliffe, University of Georgia
- Josh Romeis, University of Georgia
- M. Bruce Beck, University of Georgia
- Kristin Rowles, Georgia Water Planning and Policy Center, Albany State University

David Radcliffe and Josh Romeis are both a part of an integrated project entitled “A Framework for Trading Phosphorus Credits in the Lake Allatoona Watershed.” The project includes research, education, and extension activities focused on developing a framework for water quality trading between point and nonpoint sources in the Lake Allatoona watershed in North Georgia. As a whole the objectives of this project are to estimate pollutant loading for phosphorus and sediment in the watershed, to use monitoring data to calibrate a watershed model, and to use the model to examine the spatial distribution of the current point and nonpoint sources in the watershed. This model will support evaluation of the feasibility of trading under various scenarios in the watershed. The project will develop scientifically-based trading ratios using uncertainty analysis of the model for best management practices that might be used to generate nonpoint trading credits. The project also aims to study feasibility of trading in the watershed using a cost analysis and evaluate possible institutional arrangements for trading in the watershed. More-

over, the project is actively working with stakeholders in the watershed to initiate discussion about water quality trading. In this panel, Dr. Radcliffe will discuss the project’s modeling efforts, and Mr. Romeis will discuss the project’s on-going monitoring program.

Bruce Beck and Kristin Rowles have been involved in research on the possible application of water quality trading in Georgia through a project of the Georgia Water Planning and Policy Center (GWPPC) entitled “Building a Foundation for Water Quality Trading in Georgia.” This project set out to evaluate the potential use of water quality trading in Georgia on several levels, including economics, policy, and environmental science and engineering. Dr. Beck and his student Rodrigo Villaroel-Walker completed an intensive monitoring effort using high-frequency sampling in an agricultural watershed in the Soque River Basin. Dr. Beck and his student Shi Feng developed a watershed model which can be used to evaluate water quality trading scenarios in Georgia watersheds. Furthermore, together with Dr. Ronald Cummings and Kristin Rowles of the Georgia Water Planning and Policy Center, Dr. Beck and his student Feng Jiang developed cost estimates for point source treatment of phosphorus by Georgia wastewater treatment plants. These estimates were designed to allow comparison of the cost per kilogram of phosphorus reduction by wastewater plants with the same for treatment of other phosphorus sources (e.g., agriculture). This type of comparison supports the evaluation of whether an economic driver for trading will exist.

Ms. Rowles completed several aspects of the project including assisting with the interpretation and policy implications of the point source cost estimates, a statewide evaluation of watersheds for water quality trading feasibility, a more intensive look at the potential for water quality trading in the Upper Chattahoochee watershed, and outreach to stakeholders to initiate discussion about the possible use of water quality trading in Georgia.

In this panel, Dr. Beck will discuss the modeling and monitoring efforts in this project. Ms. Rowles will focus on the findings related to the project’s cost estimates for point source treatment of phosphorus.

This panel discussion will provide the audience with an overview of current research on water quality trading in Georgia. Additionally, however, it can also serve as an opportunity to discuss research needs related to the potential application of water quality trading in Georgia. The

Georgia Environmental Protection Division currently includes water quality trading as a policy option in its draft statewide water plan. This plan will go on to be considered by the Georgia Water Council and the Georgia Legislature. Comments in recent Town Hall meetings about the draft plan reflect concerns among some stakeholders about water quality trading. Many comments relate to concern about the availability of sufficient scientific data to evaluate the potential effects of water quality trading in Georgia. A discussion among stakeholders, researchers, and regulators could help to identify new information needs and to evaluate the adequacy of our current body of knowledge. This type of discussion will be critical to ensuring that as Georgia considers water quality trading as a policy option, it is thoroughly and carefully evaluated.