WATER QUALITY TRADING:
LEGAL ANALYSIS FOR GEORGIA WATERSHEDS

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Prepared by

Kristin Rowles and Ben Thompson*

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***Rowles is affiliated with Georgia State University's Northern Georgia Water Planning and Policy Center. Thompson is affiliated with Georgia Southern University's Coastal Rivers Water Planning and Policy.** **The authors gratefully acknowledge financial support for this work provided by the U.S. Environmental Protection Agency, Grant No. X7-96408704-0; the Georgia Soil and Water Conservation Commission, Contract No. 480-05-GSU1001; and the U.S. Department of Agriculture, Award Document No. 2003-38869-02007-1.**

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Abstract

Water quality trading is a policy tool that could improve the cost effectiveness of achieving environmental goals, but it is not currently used in the state of Georgia. This paper seeks to evaluate the applicability of water quality trading in Georgia watersheds with a specific focus on legal issues. This paper reviews Georgia law and regulations to evaluate barriers to and support for water quality trading. It also reviews water quality trading policies from other states and explores the value of adopting a state water quality trading policy in Georgia. The paper concludes that while existing law provides implicit authority to implement water quality trading in Georgia, inadequate regulatory pressure in most Georgia watersheds and possible legal challenges could be significant impediments to implementing water quality trading in the state at this time. The paper also suggests that successful pilot trades should precede the development of statewide water quality trading policy.

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I. Introduction

Over the past several years, policy makers have developed a high level of interest in the use of water quality trading (WQT) to manage water pollutants in watersheds across the U.S. In 2003, the EPA issued a national water quality trading policy to support the development and implementation of trading in water quality management (USEPA, 2003). The EPA advocates WQT as a cost-effective means to preserve and improve water quality. To date there are over forty WQT programs established in the U.S. and an additional thirty programs or more currently in development, but at this time, WQT has not yet been established in Georgia.

For the past three years, WQT has been the subject of an on-going research project at Georgia State University and the Georgia Water Planning and Policy Center. This research is intended to assist Georgia policy makers in evaluating the applicability of WQT in Georgia. As a part of this research, this paper offers a policy analysis of legal issues relating to WQT. It reviews Georgia law and regulations for barriers to and support for water quality trading. It also reviews water quality trading policies from other states and explores the value of adopting a state water quality trading policy in Georgia. The paper concludes with policy recommendations relating to the potential future adoption of water quality trading in Georgia.

II. Background

Water quality trading is a policy that allows pollutant sources to trade pollution control obligations in order to lower the joint costs of compliance. Trading takes advantage of differences in pollution reduction costs among pollution sources. The costs of pollution reduction are not uniform. Different pollution sources have different pollution reduction costs as a result of factors such as treatment plant size, level of reduction required, and available treatment technology. When trading is an option, a discharger can choose between reducing its pollutant load and purchasing pollutant reduction credits from another source that has exceeded its own pollution reduction obligation. Trading allows pollution sources to achieve environmental goals more cost-effectively. Furthermore, trading can be designed to achieve environmental improvement by requiring a trade premium (i.e., the trading ratio is greater than 1:1).

The success of water quality trading hinges on a broad range of economic, environmental, social, and political factors. Implementation is complex, and the potential benefits can only be realized when trading is implemented under appropriate conditions. Despite its complexity, trading can offer a tool for enhancing the cost effectiveness of water quality expenditures. With over 50% of the state's rivers and streams only partially supporting or not supporting water quality standards, the costs of restoring water quality in Georgia's waters will be high. A policy tool that can improve the cost effectiveness of water quality expenditures deserves serious consideration.

Nationally, water quality trading is a subject of great interest to policymakers, and research efforts on the topic are underway in watersheds around the U.S. In Georgia, over the past few years, the Andrew Young School of Policy Studies (AYSPS) at Georgia

State University and the Georgia Water Planning & Policy Center (GWPPC) have issued several policy papers that have examined the potential use of water quality trading in Georgia (Morrison, 2002; Cummings et al., 2003; Rowles, 2004; Jiang et al., 2004; Rowles, 2005(a); Rowles, 2005(b); Rowles, 2005 (c); Jiang et al., 2005). Research on water quality trading at AYSPS and the GWPPC is continuing in collaboration with the Warnell School of Forestry at the University of Georgia. This research project aims to lay the policy research foundation on the issue of WQT for Georgia. Elsewhere in the state, another project at the University of Georgia is studying the potential use of water quality trading in the Lake Allatoona watershed in northern Georgia.

At this time, Georgia is beginning the process of setting a statewide plan for managing water and water quality through the Georgia Water Council, established by the Comprehensive Statewide Water Management Planning Act in 2004. This process presents the opportunity to discuss how water quality will be managed in the state for the foreseeable future. In these discussions, the potential use of WQT in Georgia should be considered as a potential tool to enhance the cost-effectiveness and flexibility of water quality regulation. This paper and other papers issued through this project are intended as a resource to assist in evaluating whether WQT is an appropriate tool for Georgia.

Enthusiasm for WQT has driven several states to develop WQT policies and programs. Because of the complexity of implementing WQT, initiation of WQT requires a substantial investment in research, policy development, and partnership building. Many other states have already made this investment, but the returns to their investments are not yet clear. This research effort is designed to learn from the experiences of other states that have preceded Georgia in the use of WQT.

To evaluate the applicability of WQT in Georgia, this research project has several components:

(1)*Evaluate 14 major Georgia watersheds for their suitability for WQT:* This evaluation uses criteria identified in our study conducted last year of the opportunity for water quality trading in the Upper Chattahoochee watershed (Rowles, 2004). These criteria include: environmental suitability, regulatory incentive, participant availability, economic incentive, and stakeholder response. (See Rowles, 2005(a))

(2) *Analyze the legal framework for water quality trading in Georgia*: (this paper) Here, we examine the legal issues surrounding the possible implementation of WQT in Georgia by reviewing existing Georgia policy and by analyzing water quality trading policies and programs adopted in other states that could provide policy models for Georgia.

(3) *Develop estimates for point source treatment costs*: The driving force of WQT is the variability of treatment costs among various pollution sources. In this project, we have developed cost estimates for point source treatment of phosphorus. These estimates can be used to evaluate demand for WQT by point sources, which are usually the primary buyers in WQT markets due to their regulatory obligations. Two reports have been issued on the methods and results of estimating these costs. (See Jiang et al., 2004; Jiang et al., 2005).

(4) *Develop a simulation model for water quality trading in a Georgia watershed*: The STAND model (Sediment-Transport-Associated Nutrient Dynamics) developed at the University of Georgia will be used to bring together the results of our recent work to develop cost curves for phosphorus reduction by municipal wastewater treatment plants

in a sophisticated water quality model that will be able to demonstrate the effects of water quality trading under various scenarios.

(5) *Conduct a monitoring study to support the development of trading ratios applicable for point to nonpoint source trades*: Continuous sampling methods will be used to estimate pollutant loads from potential sellers of nonpoint source pollutant credits. Monitoring results will support modeling efforts described above and provide a basis for the development of trading procedures, including trading ratios.

(6) *Engage stakeholders in discussion about the development of water quality trading in Georgia*: A new water quality trading program would affect stakeholders across the state. Successful adoption of water quality trading in Georgia will require that stakeholders are involved in the discussion of how trading should be implemented in the state. The primary focus of this part of our research effort is a stakeholder workshop planned for the fall of 2005. The workshop will be designed to provide an educational simulation of the use of market mechanisms in water quality policy. We are also continuing and expanding our efforts to meet with stakeholders from community organizations, private interests, and all levels of government to provide information and facilitate discussion on the issue.

III. Legal Review for Water Quality Trading in Georgia

While Georgia law does not explicitly provide a basis for water quality trading in the state, there is implicit legal authority that could be used as a foundation for the creation of a water quality trading framework in Georgia. The Georgia Water Quality Control Act states that it is:

> the policy of the State of Georgia that the water resources of the state shall be utilized prudently for the maximum benefit of the people, in order to restore and maintain a reasonable degree of purity in the waters of the state and an adequate supply of such waters, and to require where necessary reasonable usage of the waters of the state and reasonable treatment of sewage, industrial wastes, and other wastes prior to their discharge into such waters. To achieve this end, the government of the state shall assume responsibility for the quality and quantity of such water resources and the establishment and maintenance of a water quality and water quantity control program adequate for present needs and designed to care for the future needs of the state. O.C.G.A. § 12-5-21 (a).

Further, the Act holds that:

> the achievement of the purposes described in subsection (a) of this Code section requires that the Environmental Protection Division of the Department of Natural Resources be charged with the duty described in that subsection, and that it have the authority to regulate the withdrawal, diversion, or impoundment of the surface waters of the state, and *to require the use of reasonable methods after having considered the technical means available for the reduction of pollution and*

economic factors involved to prevent and control the pollution of the waters of the state. O.C.G.A. § 12-5-21 (b) (Emphasis added).

Therefore, EPD has been given the implicit authority, through its responsibilities under the Water Quality Control Act, to allow the use of a water quality trading program to prevent and control pollution of the waters of the state.

In its Rules related to Water Quality, EPD has included provisions for the degree of waste treatment required relative to the issuance of pollution discharge permits. Ga. Comp. R. & Regs. r. 391-3-6-.06. These provisions would provide a starting point for the practical implementation and oversight of WQT in Georgia.

An additional basis for WQT in Georgia is found in the delegation of NPDES permitting under the federal Clean Water Act. A National Pollutant Discharge Elimination System (NPDES) permit is required for any discharges of pollutants from a point source into navigable waters of the US. The thresholds are established according to national technology-based standards, and the conditions of the waters that receive the discharge based on state water quality standards. EPA is authorized to delegate NPDES permitting authority to the states. 33 U.S.C. § 1342(b), 1344(g). Georgia became an approved state for the NPDES Permit Program in 1974. As such, Georgia could use its NPDES permitting authority as a basis for allowing WQT to help point source dischargers meet pollutant thresholds.

In January 2003, the Environmental Protection Agency provided guidance to states interested in WQT by promulgating its "Water Quality Trading Policy" (USEPA, 2003). The policy states that its purpose is "to encourage states, interstate agencies and tribes to develop and implement water quality trading programs for nutrients, sediments

and other pollutants where opportunities exist to achieve water quality improvements at reduced costs." The policy further states that "(EPA) believes that market-based approaches such as water quality trading provide greater flexibility and have potential to achieve water quality and environmental benefits greater than would otherwise be achieved under more traditional regulatory approaches." In an effort to provide states with direction on implementation of WQT programs, EPA drew from experiences of pilot trading programs in several states in order to make implementation smoother for those states interested in developing their own such programs. Georgia policy makers could use the EPA policy as a foundation for development of its on WQT framework. In fact, use of the EPA policy would provide Georgia with protection against failure to follow the guidelines of NPDES permitting. Such failure allows EPA to withdraw approval of a state's delegated authority to issue NPDES permits. 33 U.S.C. § 1342 (c).

Recent movements in the Georgia Legislature also provide an opportunity for the state to develop a WQT framework. In its 2004 Session, the Georgia General Assembly passed HB 237, codified as the "Comprehensive State-wide Water Management Planning Act." O.C.G.A. §12-5-520 *et seq*. This Act calls for Georgia EPD to develop and propose a comprehensive state-wide water management plan, to be submitted to the Georgia Water Council no later than July 2007. While the statutory guidelines for the comprehensive plan are fairly broad, water quality is cited in several sections of the Act. O.C.G.A. § 12-5-522. The consideration of a comprehensive plan provides EPD, the Georgia Water Council, and the General Assembly with a unique opportunity to provide for the implementation of innovative methods of water quality improvement, including WQT.

Georgia can also look to other states that have implemented pilot water quality trading programs to determine how those jurisdictions provided a legal basis for WQT programs. For example, the Colorado General Assembly passed legislation creating the Cherry Creek Basin Water Quality Authority, and included the explicit power of that Authority to "develop and implement programs to provide credits, incentives, and rewards within the Cherry Creek basin plan for water quality control projects." Co. Rev. Stat. §§ 25-8.5-111. In Wisconsin, the state legislature passed a more general statute as part of its Pollution Discharge Elimination framework, calling for its Department of Natural Resources to "administer at least one pilot project to evaluate the trading of water pollution credits." Wis. Stat. § 283.84. The statute goes on to outline the requirements for a WQT pilot program in Wisconsin.

Thus, the legal authority to implement WQT is not explicit in Georgia law, but sufficient authority is granted by existing law and supported by the EPA WQT policy. Other states provide legal models for creating explicit legal authority for trading if Georgia chooses to do so. The legal foundation of water quality trading in other states and the issue of creating a statewide WQT policy is explored further in section V.

IV. Potential Legal Barriers to Implementing Water Quality Trading in Georgia

Review of the relevant statutes and rules at the federal and state levels does not reveal any explicit impediments to WQT in existing law in Georgia. However, a potential impediment to trading in Georgia relates to existing water quality regulations in Georgia. A common focus of water quality trading projects is nutrients, including nitrogen and phosphorus. Trading is possible with other pollutants, but generally, the EPA supports trading in nutrients and sediment at this time. Trading in sediment is not well-developed at this time. For nutrients, in most Georgia watersheds, nitrogen and phosphorus are not regulated or regulated at a level insufficient to support water quality trading at this time (Rowles, 2005(a)).

Nutrient limits exist in the watersheds of six lakes in Georgia: West Point Lake, Lake Walter F. George, Lake Jackson, Lake Allatoona, Lake Sidney Lanier, and Carters Lake. Ga. Comp. R. & Regs. r. 391-3-6-.03. Additionally, TMDLs for nutrients have been developed in the following watersheds: Ocklochonee, Satilla, St. Mary's, Suwannee, and Coosa. However, the limits set by these regulations are generally not restrictive enough to drive nutrient trading activity. It is possible that only in the Lake Lanier and West Point Lake watersheds are regulations within a range to create an economic impetus for trading activity at this time.

A potential trade will be driven by a cost difference for pollution abatement between different sources. As the level of regulation on one type of pollution source (i.e., point sources) increases, abatement costs increase, and the difference in abatement costs from other pollutant sources (i.e., nonpoint sources) also increases. Furthermore, as the level of regulation increases, the costs among point sources may become more variable if

the returns to scale become more prominent, and the costs for small source diverge widely from large sources.

A recent analysis of the costs of phosphorus treatment by point sources indicates that the marginal costs of abatement may not be adequate to stimulate trading until regulation is at least as restrictive as a 0.5 mg/l concentration limit. For example, at a limit of 1 mg/l phosphorus, the costs of abatement for a 1 million gallon per day (mgd) discharger were estimated between $13 and $40 per pound. For a 20 mgd discharger, the costs at the same level were estimated between $7 and $15 per pound. These cost ranges overlap directly with cost estimates for nonpoint source abatement, which range from $5 to $100 per pound (Ross and Associates, 2000; Faeth, 2000; Camacho, 1991; Environomics, 1999). With the addition of a trading ratio greater than 1:1 and transaction costs, on-site abatement by the point source is likely cost less than compliance through trading at this level of regulation.

If regulation is set at 0.5 mg/l phosphorus, the cost estimate ranges are $89 to $122 per pound for a 1 mgd plant and $28 to $34 per pound for a 20 mgd plant. Even at this level, only the smallest plants (1 mgd) would be likely to have an economic interest in trading. With a 0.13 mg/l phosphorus limit, the cost estimate ranges are $114 to $126 per pound for a 1 mgd plant and $54 to $59 per pound for a 20 mgd plant. At this level of regulation, some larger plants might be interested in trading, but if trading ratios require trading at 2:1 or greater, trading is probably still only likely by the smallest plants. At this time, regulation of phosphorus this restrictive is found only Chattahoochee River basin.

Future tightening of nutrient limits may increase the impetus for trading in some watersheds. Tightening may be driven by TMDLs, mass-based load allocations, or the

EPA's effort to promote the adoption of nutrient criteria by the states. TMDL development for phosphorus is currently underway in the Lake Allatoona and Lake Seminole watersheds. In lake watersheds with existing phosphorus loading limits, as communities grow, concentration limits will continue to decrease to maintain loading rates. The state of Georgia's response to the EPA's nutrient criteria is uncertain at this time, but regulation of nutrients is likely to become more prevalent in Georgia as a result of this effort. However, until regulation of phosphorus becomes at least as restrictive as 0.5 mg/l, trading activity would be likely to be limited.

Implementation of the anti-degradation clause of Georgia water quality regulations may have an effect on the level of nutrient regulation in Georgia. A recent Georgia Supreme Court decision regarding the limits for the proposed Gwinnett County discharge to Lake Lanier raises questions about how anti-degradation will be implemented in Georgia. Hughey v. Gwinnett County, 278 Ga. 740 (2004). If the Georgia Supreme Court's interpretation of the Georgia anti-degradation rule stands, discharge limits on nutrients and other pollutants are likely to become more restrictive across the state. The Board of Natural Resources will soon consider a rule change proposal that would preclude the implementation of this interpretation on a broader scale in Georgia, but the impact of Hughey on future pollution discharges in Georgia is yet to be determined. For a further discussion of the Hughey case, see Section VI of this paper.

Although the current level of regulation and implementation of the anti-degradation policy could be significant impediments to WQT, a focus on mass-based limits under TMDL and future growth in Georgia could create conditions conducive to trading in the future. Furthermore, other models for trading (i.e., in addition to point to

nonpoint nutrient trading) may offer opportunities for WQT in Georgia (see Rowles, 2005(a)). Additionally, cross-pollutant trading that allows for exchanges between sources of oxygen-demanding wastes and nutrients may also increase opportunities for trading in Georgia. Thus, although current regulatory conditions are not favorable for nutrient trading, future use of water quality trading is not completely precluded in Georgia.

V. WQT Policy Initiatives in Other States

Several states in the U.S. have pursued the adoption of state-level water quality trading programs or policies. This section summarizes these state level policy efforts to implement WQT.

A. Michigan

The state of Michigan adopted WQT rules in November 2002. The rules were developed to create an incentive to increase implementation of nonpoint source pollution controls. Mich. Admin. Code r. 323.3001-323.3025. The rules set requirements regarding WQT eligibility, baselines (point and nonpoint), notification, and registration. Trades are to be governed by the rules and do not require permit modifications. Some interesting features of the Michigan rules include:

- Agricultural nonpoint sources can receive credits for projects that receive NRCS financial support to the extent of the local match.
- A portion of credits generated must be retired to provide a water quality benefit (10% of pollutant credits generated by point sources and 50% of pollutant credits generated by nonpoint sources).
- Credit buyers are not liable for credit generators' actions, but must practice due diligence when entering into trades.
- Review of trades by state agencies is to be completed in 30 days.

B. Wisconsin

In 1997, Act 27 created three pilot WQT programs to serve as the basis for the development of a state trading framework. Wis. Stat. § 283.84. This Act was adopted to explore WQT after the adoption of a statewide 1mg/l limit on phosphorus. Funding for

the pilot programs was discontinued in 2002. It was determined that the 1mg/l limit was not an adequate driver for WQT in Wisconsin. This finding is consistent with the observations made in section II above regarding regulatory drivers for WQT. The state did not follow-up the pilot programs with statewide rules, but might explore the issue further at a later time.

C. Virginia

In May, 2005, the Virginia Department of Environmental Quality held a public meeting to accept comments on the proposed issuance of a watershed general permit for point source discharges of nutrient and phosphorus to the Chesapeake Bay in order to facilitate the state's compliance with Chesapeake Bay Agreement goals for nutrient reductions by 2010. The new general permit will set nutrient waste load allocations for point sources, allow point:point source trading to meet waste load allocations, and require nonpoint offsets for new or expanding point sources. Action on general permit is expected by the State Water Control Board in the fall of 2005. The Chesapeake Bay Program adopted WQT guidelines in 2001. These guidelines are intended to provide guiding principles for the development of nutrient trading in the states within the Chesapeake Bay watershed.

D. West Virginia

West Virginia Department of Environmental Protection convened a stakeholders committee in 2002 to develop a consensus-based recommendation as to whether water quality trading is appropriate for West Virginia. The group was unable to reach a consensus about whether developing a state-wide trading program was appropriate for West Virginia. As a result, at the completion of the stakeholder group process in 2004,

the development of a state WQT program in West Virginia was not pursued. The group's final report makes several recommendations about the implementation of WQT on which the group did reach consensus. Group members noted in the final report that national momentum toward WQT and other external forces may lead to the development of WQT in West Virginia regardless of whether a state policy exists. The team members also note that the process was useful in identifying key issues and areas of stakeholder agreement for WQT implementation.

E. North Carolina

North Carolina was one of the first states to develop a water quality trading initiative. WQT was developed in the Tar-Pamlico river basin starting in 1989 as a part of the Nutrient Sensitive Waters (NSW) Implementation Strategy for the watershed. When the North Carolina Division of Environmental Management proposed new technology-based nutrient limits for dischargers in the watershed in 1989, a coalition of dischargers worked in coalition with two environmental organizations (Environmental Defense and Pamlico-Tar River Foundation) to form a basin association and propose a nutrient trading program. The program was implemented through an agreement between the association, which included the dischargers and the two environmental organizations, and the Environmental Management Commission. The agreement allowed dischargers who were members of the association to use point:point source trading to meet a collective nutrient loading limit. If they exceeded their collective loading limit, the association dischargers were required to purchase point:nonpoint offsets in the form of credits from the state agricultural best management practice program. The Tar-Pamlico program establishes abatement responsibility at the group level as opposed to the individual level. Trading

transactions are conducted at the level of the group. The program operates like an exceedance tax for point sources implemented at the scale of a watershed-wide permit.

The program has been implemented in multiple phases and new nonpoint controls have been added over time. The state has implemented a similar strategy which allows trading in the Neuse River basin. In that trading program, the dischargers' association can purchase nutrient offsets from the state's wetlands restoration program if they exceed their loading limit. The Neuse River trading program has been adopted into rule by the Environmental Management Commission (EMC) at N.C. Admin. Code tit. 15A r. 2B.0240, while the Tar-Pamlico program is implemented through agreements with the Environmental Management Commission.

F. Oregon

The Oregon Department of Environmental Quality is currently exploring the use of WQT in Oregon through a three-year grant from the EPA. The grant is being used to identify a model trade in the state that can be used to explore trading in Oregon. Through this project, the DEQ has identified a trade involving multiple sources and multiple pollutants. The DEQ has issued a watershed-based NPDES permit that incorporates permits for four publicly-owned treatment works, one municipal separate storm storage system (MS4) permit, and two individual stormwater permits and allows for trading among these sources. The pilot trades within this permit will include cross-pollutant trades among oxygen demanding wastes and ammonia and trades focused on temperature. This arrangement will provide a model for the combined use of watershed-based permitting and WQT.

G. Colorado

The state of Colorado has been a leader in implementing WQT, and it has trading projects in several of its watersheds. The first trading point:nonpoint trading program in the country was established in Colorado's Dillon Lake watershed in 1984 as a part of the Dillon Reservoir Control Regulation adopted by the Colorado Water Quality Control Commission. Similarly, the Commission adopted the Cherry Creek Control Regulation that allowed trading the Cherry Creek basin in 1989. Since then, trading programs have been established under the watershed regulations in Bear Creek and Chatfield Reservoir, and WQT is being explored in Clear Creek and the Lower Colorado River. In 2004, after 20 years of developing and implementing WQT in watersheds across the state, the Colorado Department of Public Health and Environment Water Quality Control Division issued a statewide pollutant trading policy that was developed through a stakeholder process (CDPHE, 2004). The policy has not been formally adopted as a regulation, but a framework through which future WQT initiatives can be designed and considered for approval.

H. Connecticut

In 2001, the EPA approved a joint TMDL from Connecticut and New York for nitrogen loading to Long Island Sound. The TMDL required a 64% reduction in nitrogen loading from Connecticut sewage treatment plants that discharge to Long Island Sound. To help meet this goal, the Connecticut state legislature passed Public Act 01-180 to support the development of nutrient trading among affected dischargers. Conn. Gen. Stat. § 22a-521 to-527. The Act created the Nitrogen Credit Exchange (NCE), to be overseen by the Nitrogen Credit Advisory Board (NCAB), and authorized the issuance of a

Nitrogen General Permit to implement trading. Members of the NCAB are appointed by the Governor and the General Assembly. The General Permit regulates the discharge of nitrogen by 79 sewage treatment plants with individual nitrogen loading limits for each facility. The NCE provides performance payments to facilities that over-comply with their nitrogen limits while charging an exceedance fee to facilities that exceed their nitrogen limits. The general permit has provisions to provide for the equalization of environmental impact by the location of facilities to determine incentive payments and fees. The aggregate permit limit set by the General Permit declines over time.

I. Minnesota

In Minnesota, WQT was incorporated into NPDES permits for two dischargers in the Minnesota River basin: Rahr Malting Company in 1997 and the Southern Minnesota Beet Sugar Cooperative in 1999. Now, in response to the development of a TMDL for phosphorus in the same watershed, a group of 11 municipal dischargers and one private discharger formed to consider WQT as a part of TMDL implementation. The group is negotiating with the Minnesota Pollution Control Board to issue a watershed-based NPDES permit for the group that will incorporate nutrient trading.

J. Summary of Other State WQT Policy Approaches

Trading has been developed using a different policy approaches in each state that has implemented a WQT initiative. In most states, however, an interest in individual trades or trading programs in specific watersheds have preceded the development of statewide trading policies. Very few states have adopted statewide WQT policies at this time. Interest in WQT has been driven by dischargers, environmental organizations, state rule-making commissions, and in some cases, the state legislature. Most trades have

required modifications to NPDES permits. The existence of a TMDL has not been essential to the development of trading initiatives, although the TMDL process and implementation can facilitate the development of WQT. Watershed-based permits and general permits have been used to implement trading in several states, including Oregon, Connecticut, and Virginia.

Perhaps the most important issue to consider at the state-level is whether a state-wide policy for WQT is needed. Only two states have statewide policies at this time: Michigan and Colorado. Notably, West Virginia and Wisconsin explored whether to create statewide policies on WQT and decided not to do so. Other states have demonstrated that existing permitting processes can be used to initiate WQT. The state of Oregon has set out to demonstrate effective trades before considering the adoption of a statewide policy. Policy development processes can be lengthy and costly. Demonstration of the effective use of WQT, if no policy barriers preclude its use, is an appropriate first step prior to the development of statewide policy.

VI. Other Possible Legal Issues for Water Quality Trading in Georgia

Because WQT programs do not presently exist in Georgia, there are a number of unknown legal issues that may arise to preclude or otherwise negatively impact the viability of such programs. The implementation of WQT may result in legal actions filed by citizens opposed to WQT. One of the provisions of the Georgia Water Quality Control Act provides that "any person aggrieved or adversely affected" by the issuance of a permit under the Act may challenge the permit and receive an administrative hearing. O.C.G.A. § 12-5-43. Georgia courts have provided a fairly broad interpretation of those who may challenge under similarly worded statutes. The threat of legal challenges could make the use of WQT inefficient for prospective traders and unpalatable to EPD.

The Georgia Constitution includes a provision that "the General Assembly shall not have the power to grant any donation or gratuity." Ga. Const. Art. III, § VI, Para. VI (2004). This constitutional provision has been cited by some as a basis for disallowing remuneration for changes in water-related rights. An EPD water withdrawal permit does not require a "payment" to the state in order to acquire the permit. By this view of the "gratuity clause", if a permit holder were to receive payment for transferring the withdrawal right, the permittee would receive a gratuity from the state in violation of this provision of the constitution. Using the same logic, a similar argument could be made concerning NPDES permits issued by EPD. That is, since a NPDES permit does not require a "payment" from the permittee, any remuneration received as a consequence of trading water quality units by a permittee would be a gratuity from the state. This issue has yet to be reviewed by the Georgia courts and remains an outstanding issue for WQT and other market-based policy instruments.

Another possible legal concern involves Georgia's anti-degradation statute and the recent case of Hughey v. Gwinnett County. The Hughey case involved a NPDES permit issued to Gwinnett County allowing an additional 40 million gallons of treated wastewater to be discharged into Lake Lanier. After determining that such a discharge would degrade the water quality in the Lake, the Court held that "before a permit will issue to allow the degradation of water quality in Lake Lanier, the clear and unambiguous language of Georgia's anti-degradation rules require the permittee to utilize the "highest and best [level of treatment] practicable under existing technology." The Court determined that "because the treatment plant at issue… is capable of removing more pollutants from the discharged water than the permit requires, the permit violates the anti-degradation rules." Hughey v. Gwinnett County, 278 Ga. 740 (2004). The Court cited EPD's permitting rules, particularly a two part test to determine if water degradation is acceptable. First, the degradation must be "justifiable to provide necessary social or economic development." Then, the permit must require the utilization of the "highest and best practicable [level of treatment] under existing technology to protect existing beneficial water uses." Ga. Comp. R. & Regs. r. 391-3-6-.03 (2) (b).

As Georgia's surface water resources face higher levels of contaminants due to population growth and other factors, it is certainly possible that WQT programs could be justified as helping to provide for necessary social or economic development. However, arguments are certainly possible that WQT programs would allow point source dischargers to avoid implementation of existing technologies that could be used to minimize pollution discharge. This avoidance could be considered impermissible under current state anti-degradation rules. However, as Justice Hines pointed out in the

Dissenting opinion in Hughey, the majority arguably rewrote the anti-degradation regulation “to read "the highest and best *possible*" rather than "the highest and best *practicable*." Hughey at 745. If the Georgia Supreme Court’s interpretation of the Georgia anti-degradation rule stands, strict adherence to technology requirements would create a significant impediment to implementing WQT in the state. The Board of Natural Resources will soon consider a rule change proposal that would preclude the implementation of this interpretation on a broader scale in Georgia, but the impact of Hughey on future pollution discharges in Georgia is yet to be determined, and the implications for WQT are uncertain at this time.

VII. Conclusions and Recommendations

Existing law in Georgia provides implicit authority to implement water quality trading. However, inadequate regulatory pressure in most Georgia watersheds and possible legal challenges create significant impediments at this time. As discussed in this paper and others from this research project, the traditional approach to WQT, which usually focuses on nutrient trading among point and nonpoint sources, may not be the most appropriate model for Georgia at this time. Given the paucity of trading activity in WQT initiatives in other states, it may not be the most appropriate WQT model for most watersheds at this time. It is likely that this type of WQT can still offer benefits in the future. TMDLs and future growth in the state are likely to create conditions more conducive to this type of WQT in the next several years. At this time, however, alternative models for trading may offer more immediate opportunities for WQT in Georgia (see Rowles, 2005(a)). Thus, although current regulatory conditions are not favorable for nutrient trading, future use of water quality trading in Georgia is not completely precluded.

Given these conditions, is this an appropriate time to develop a statewide WQT policy for Georgia? While a statewide policy could facilitate the development and implementation of WQT in Georgia, developing a policy as a first step is probably not appropriate. Very few states have adopted statewide WQT policies at this time. Two states initiated the process of developing a statewide policy, but abandoned it. A more appropriate approach to developing WQT in Georgia would be to demonstrate its use with successful trades. The use of pilot trades would provide state policy makers with experience in what works well and what does not work well in implementing WQT in

Georgia. It would also allow for the development of WQT if and when conditions are most appropriate to support beneficial and active use of this tool and avoid the costs of jumping onto the WQT "bandwagon" prematurely. Experience with pilot trades will highlight the issues that will consistently require the most attention and would be the appropriate focus of state-level policy-making. The existing EPA water quality trading policy, the trading experience of other states, and state and federal laws and regulations should be adequate to guide decision-making in implementing pilot water quality trades at this time. By focusing on the development of pilot trades, Georgia policy makers can seek to identify what works best for Georgia, rather than trying to predict how WQT would be implemented prior to any in-state experience with this policy tool.

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