

Jeff Gibson
Jennifer Plourde
Claire Carothers
Upper Altamaha Practicum Fall 2006

Question Presented

What entity makes the decision to change the use designation of a particular stream or river segment? What criteria are used to make that decision? How does an interested party bring the request to change the use designation to the decisionmaker's attention?

Problem Background

Little Commissioner Creek in Wilkinson County Georgia has been listed by the U.S. Environmental Protection Agency (EPA) as exceeding the acceptable total maximum daily loads (TMDLs) for fecal coliform and biota. The nine-mile listed segment runs through the heart of the City of Gordon. Mayor Kenneth Turner and a number of other participating parties have begun a campaign to de-list the stream in the hopes of promoting Gordon as a clean town for future residents, and to assure adequate assimilative capacity to allow new discharge permits for potential industry.

A team from the University of Georgia's (UGA) Environmental Law Practicum ran initial tests in order to determine the extent of the impairment. Due to time constraints, the focus was solely on fecal coliform. The test sites were spread throughout the entire nine-mile segment (except the uppermost reaches because they were dry). The results indicated that the stream was no longer impaired. A Quality Assurance Project Plan is being drafted by the team for use by the Mayor in de-listing Little Commissioner Creek for fecal coliform.

The source of the initial fecal coliform however, still remains unclear. The original contamination could have come from the City of Gordon's Wastewater Treatment Facility which predominantly consists of a constructed wetland. At the time of the impaired sample, the treatment center did not have the Ultra Violet (UV) Radiation unit to kill bacteria as it does now. It is possible that flood water in a storm event exceeded the capacity of the facility to treat the bacteria. Since the listing, UV Radiation has been installed and the UGA team found the lowest levels of fecal coliform in the Little Commissioner Creek tributary that the wastewater treatment plant discharges into.

Given that the UGA group did not find any fecal loads in excess of the state's standards, it is probable that baseline fecal is acceptable. The UGA group has recommended future sampling before the implementation of their Quality Assurance Project Plan (QAPP). If this pre-QAPP sampling, which will occur at high flow times, indicates higher levels of fecal coliform, and there are no known human sources, there are two conceivable courses of action.

Legal Background

Under the Clean Water Act (“CWA”), states must develop Water Quality Standards (“WQS”) in addition to effluent limitations and Total Maximum Daily Loadings (“TMDL’s”) to assist in the conservation of waters.¹ Water quality standards contain two components: designated uses and water quality criteria. Designated uses represent the purpose for which the body of water is to be protected. Water quality criteria are judgments concerning the degree of protection from individual pollutants needed to protect the water body for its designated use.

Georgia’s potential water use classifications are closely aligned with those proposed by the CWA. A body of water may be designated for drinking water, recreation, fishing, as a wild river, a scenic river, or for coastal fishing. The classifications decrease in strictness of water quality requirements down the list for the first three classifications, with drinking water having the most stringent water criteria. Fishing has the lowest bacterial standards, as wild and scenic rivers mandate “no alteration of natural water quality from any source,” and coastal fishing adheres to the same bacterial standard as fishing. Some examples of rivers listed as wild and scenic include the Conasauga River and Jacks Creek, both of which lie within the Cohutta Wilderness Area.²

While occasionally a stream’s designated use may be increased a level, resulting in more stringent criteria for the water, it is much more difficult to decrease a designated use level (and thereby relax the water quality requirements). In Georgia, the default use designation is fishing.³ That is, unless a given stream segment is specifically listed in the EPD Rules as having a different use designation, the stream is designated for fishing.⁴ Little Commissioner Creek, the stream at issue in the City of Gordon, is designated for fishing, a use requiring the most lenient bacterial standards.⁵

Discussion

I. Triennial Review

Because the CWA delegates the development, review, and amendment of WQS to the states, Georgia’s Environmental Protection Division (“EPD”) determines when a particular use designation or WQS requires alteration. Neither the CWA nor EPD’s Water Quality Control regulations provide a specific method by which an interested party may request a change in a stream’s designated use, but the CWA specifies the criteria for determining whether such a change will be granted by the federal and state agencies.

¹ 33 USC § 1313.

² Water Quality Control, EPD Environmental Rule 391-3-6-.03.

³ EPD Environmental Rule § 391-3-6-.03(14), at <http://rules.sos.state.ga.us/docs/391/3/6/03.pdf> (last visited Nov. 8, 2006).

⁴ *Id.*

⁵ Fishing: Propagation of Fish, Shellfish, Game and Other Aquatic Life; secondary contact recreation in and on the water; or for any other use requiring water of a lower quality.

The CWA requires states to review their WQS every three years and make available to the EPA the results of that review.⁶ During this review, the EPD looks at all the WQS, the designated uses, and the criteria enacted to promote those uses for the pertinent body of water.⁷ Presumably, if EPD feels the designated use of the stream is not sufficient to promote the goals of the act, it can propose an increase in the stream's designated use. The CWA also requires a public hearing during the review during which the public can voice concerns over different water bodies.⁸

The next triennial review will occur in 2008. According to Susan Halter, an official at EPD, the most feasible way to petition for a change in the designated use of the stream would be to present the stream, its current criteria, and the party's reasons for requesting the change at the triennial review. While she admitted a letter to EPD might work outside the review period, she states that requests for changes in a stream's designated use are extremely rare and, as such, are seldom granted. Further, Ms. Halter heavily emphasized that changes in designated use resulting in a higher (or stricter) use are the only proposals which will be considered.

II. Use Attainability Analysis

Due to the CWA's anti-degradation policy, if a state wishes to decrease a stream's designated use because of infeasibility of use attainment, it must first meet numerous qualification criteria⁹ and then submit a Use Attainability Analysis (UAA), a structured scientific assessment of the factors affecting the attainment of uses of a water body, to the

⁶ 33 USC § 1313(c).

⁷ The water quality criteria for fishing may be found in the Water Quality Control regulations, EPD Environmental Rule 391-3-6-.03(6)(c).

⁸ 40 CFR 131.20.

⁹ A designated use may be changed only if the body of water cannot meet its designated use for one of the following reasons delineated in 40 CFR 131.10(g):

(1) Naturally occurring pollutant concentrations prevent the attainment of the use; or

(2) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or

(3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

(4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or

(5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or

(6) Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

EPA. Mere failure of a water body to meet criteria of a designated use is not sufficient to prove the use is non-attainable. Ms. Halter explained that the excessive cost and time required to propose an UAA to the state EPD, complete it, and then submit it for EPA approval do not make it a very efficient mechanism for change.

III. Statutory Exception

The CWA also permits states flexibility in the development of WQS, as long as they protect the public health or welfare, enhance the quality of water, and serve the purposes of the Act.¹⁰ Due to this flexibility, EPD's bacteria criteria for bodies of water designated fishing contain an exception for levels of fecal coliform. For the months of May through October, if water quality and sanitary studies reveal fecal coliform levels from non-human sources exceed 200 per ml, the "allowable geometric mean fecal coliform shall not exceed . . . 500 per 100 ml in free flowing freshwater streams."¹¹ This exception allows a slight increase in non-human fecal coliform without requiring a change in the stream's designated use.

The wildlife exception technically allows for the City of Gordon to prove the existence of wildlife fecal coliform contamination and increase the limit in Little Commissioner Creek. After discussion with Joel Hansel of the Georgia Environmental Protection Division (GA EPD) Water Management Division, it became apparent that while this legally gives the City of Gordon the right to change the allowable fecal limit, it has never been done before, and would thus set a precedent.

There are two options the City of Gordon could use to prove the lack of human fecal coliform in Little Commissioner Creek if they chose to pursue this regulatory change. The City of Gordon could design and conduct a Sanitary Survey or utilize Peter Hartell at the University of Georgia in order to genetically determine the origin of the fecal coliforms.

The first option, the Sanitary Survey, would require the City of Gordon to write a letter to the GA EPD Water Protection Branch Chief, Linda MacGregor, requesting input on a Sanitary Survey plan (contact information is provided at the close of the memo). A Sanitary Survey would be an extensive chemical and biological investigation of the water quality. It would also include an intensive land-use evaluation to rule out the possibility of any additional contamination.

Linda MacGregor is the overseeing entity for the project and is ultimately responsible for reporting the results to the state for the final decision. Mork Winn of the Georgia EPD Watershed Monitoring Program reiterated Joel Hansel's claim that this type of decision has never been made before. In all other attempts, there has not been sufficient evidence to support an increase in allowable fecal coliform limits.

¹⁰ 33 USC § 1313(c).

¹¹ Water Quality Control, EPD Environmental Rule 391-3-6-.03(6)(c)(iii).

The second option has a stronger scientific base as it genetically determines the source of the fecal coliform, though it is extremely expensive. The type of genetic identification used by Peter Hartell's lab is called Ribotyping and Bacterial Source Tracking (BST). According to the Southern Regional Water Program, BST examines the differences in RNA, DNA or bacterial products within a fecal coliform sample to determine which species of mammals contributed to the total coliform. Ribotyping is one specific type of bacterial source tracking that deals with *Escherichia coli* (E.coli). Ribotyping involves examining variations in DNA sequences that produce ribosomal RNA. These samples are then compared with the DNA sequences of E.coli from other mammals. A drawback of this method is that it requires an extensive library of the E. coli DNA for all prospective wildlife sources. Such a library does not currently exist for this area. Ribotyping or other BST methods would be very costly for the City of Gordon.

US Geological Survey (USGS) Virginia 2000 Project VA129 is an example of an attempt to use bacterial source tracking to develop a library for TMDL de-listing purposes. This project, which began in 1999, is run by the USGS in cooperation with the Virginia Department of Conservation and Recreation, the Virginia Department of Environmental Quality, and Fairfax County. The main difference between this project and the Little Commissioner Creek project is funding. Perhaps a grant or a partnership with UGA for graduate student work would provide some funding to allow for fecal DNA libraries to be created in Georgia.

Conclusions

Designated use decisions are made by the state EPD under the supervision of the EPA. Changes to designated uses for specific segments occur as a result of the triennial review of WQS after an analysis of the designated use and the water quality criteria applicable to the pertinent water body. Petitioning the EPD for a more stringent designated use would likely be done during this period. Petitioning for a less restrictive designated use is much more difficult to do due to the difficulty in qualifying for non-attainability status, and the time, resources, and money required by petitioning, completing, submitting, and gaining approval for an UAA. While a small exception allowing for slightly escalated levels of non-human fecal exists, it is narrowly defined and does not rise to the level of a change in designated use.

EPD staff indicate that a use designation or bacterial limit change are not likely to occur. It is probable that initial fecal loads were due to the wetland waste water treatment facility, however further land use analysis could identify additional point sources beyond wildlife. EPD staff also support the UGA team's plan to regularly monitor fecal levels during storm events at various points along the stream. This would provide the baseline data needed to start a larger evaluation of the stream segment.

General Contacts

Joel Hansel
U.S. EPA, Region 4
Water Management Division
Planning, Standards and Community Support Section
61 Forsyth St.
Atlanta, GA 30303
(404) 562-9274
hansel.joel@epa.gov

(Joel Hansel expressed an interest in working with Gordon on this project. He is willing to meet with any interested parties to help plan for the de-listing of Little Commissioner Creek. Mr. Hansel also has many additional contacts and responds in a timely manner.)

Frank Henning
GA Northeast District-CES
(County Extension Service)
Clark Clarke Co. CES
Athens, GA 30606
(706) 613-3640
fhenning@uga.edu

Mork Winn
GA EPD
Watershed Planning & Monitoring Program
(404) 675-1644
Mork_Winn@dnr.state.ga.us
(Recently retired)

Sanitary Survey/Bacterial Source Tracking Plan Contact

Linda MacGregor
GA EPD
Watershed Protection Branch Chief
4220 International Parkway Suite 101
Atlanta, GA 30354-3902
Phone (404) 675-6232
Fax (404) 675-6247