

# CONTROLLING CONSTRUCTION STORMWATER RUNOFF

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*REFERENCE:* *Proceedings of the 2005 Georgia Water Resources Conference*, held April 25-27, 2005, at The University of Georgia. Kathryn J. Hatcher, editor, Institute Ecology, The University of Georgia, Athens, Georgia.

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**Abstract.** The U.S. Environmental Protection Agency (EPA) has long recognized stormwater runoff as one of the leading causes of impairment of streams, and as a result, developed Phase I stormwater requirements in 1990, which resulted in the first NPDES Stormwater Discharge Associated with Construction Activity General Permit ("General Permit"). In 2003, Georgia adopted a second issuance of its General Permit. Partnering with other riverkeeper groups and watershed protection groups throughout Georgia, the Upper Chattahoochee Riverkeeper (UCR) is tackling contamination of our waterways from polluted sediment runoff from construction activities. Through an innovative project called "*Get the Dirt Out*", the implementation and effectiveness of the General Permit are being monitored. By creating educational materials about the Georgia General Permit for citizens, local governments and developers, the *Get the Dirt Out* project will target one of Georgia's leading water quality problems associated with runoff from construction sites.

## INTRODUCTION

Sediment carried by stormwater runoff from construction sites in Georgia has been documented as the leading cause of non-point source pollution to rivers throughout the state. This sediment can cause severe water quality degradation in Georgia's streams and rivers, which citizens depend on for our drinking water, assimilation of waste, recreation, wildlife habitat, and fishing. Because of the dramatic increase in Georgia's population, the number of new development projects is increasing exponentially. With this development has come serious water quality problems associated with runoff from construction sites.

Home to three of the fastest growing counties in the nation, Georgia is in the midst of an unprecedented construction boom. In the past ten years, Georgia's population increased 26% from 6.5 to 8.1 million people. Much of this growth is occurring within the 13-county metropolitan Atlanta area where the population has increased by 39%. In addition to the loss of greenspace, this increased development damages natural riparian buffers, imperiling our streams and rivers. The

Chattahoochee River is especially impacted by this development as it is an urban river, flowing through the metropolitan Atlanta area, and eventually emptying into the Gulf of Mexico at Apalachicola Bay, an estuary of national significance.

## BACKGROUND

According to the Georgia Environmental Protection Division (EPD), many of our streams and rivers throughout Georgia are severely impacted by urban development and resultant stormwater (Water Quality in Georgia, 2000-2001, Report). Stormwater runoff is the major cause of impaired water quality in Georgia's streams, rivers and lakes. Many sedimentation problems are the result of inadequate erosion and sedimentation controls (BMP's) on construction sites.

Silt and sediment (mud) runoff from a construction site chokes the life out of streams and increases the cost of our drinking water. The mud fills waterways, decreasing flood storage capacity and degrading water quality for fish and other aquatic species. It negatively impacts recreation and carries other pollutants, such as bacteria and fertilizers downstream. The increasing number of construction sites throughout urban areas in Georgia and in the metro Atlanta area, combined with the lack of qualified inspectors, insufficient education and personnel, and the lack of priority afforded by some officials, has made erosion and sedimentation control a daunting task for all involved.

The overall purpose of the state's Erosion and Sedimentation Control Program is to conserve and protect the state's land and water resources. The Program was established by the General Assembly in 1975 with the passage of the Georgia Erosion and Sedimentation Act (GESA). Persons engaged in land-disturbing activities of greater than 1-acre are required by the Act to obtain a permit from their local government or the Georgia EPD. In addition, requirements were established in August 2000 by the General Stormwater Permit for Construction Activities issued by EPD in compliance with the Clean Water Act (CWA). Both regulations require implementation of best management practices (BMP's) for

preventing and minimizing erosion and resultant sedimentation. Under the terms of the Permit, persons engaged in land-disturbing activities of 1 acre or more are required to file a Notice of Intent (NOI) with EPD, implement erosion and sediment control BMP's and conduct monitoring and record keeping activities to document the amount of sediment entering state's waters.

Despite the combined state and federal regulations and provisions governing soil erosion, the state lacked effective implementation of the program, according to the September 2001 Performance Audit of the state's Erosion and Sedimentation Program. From 2000 through 2003, a diverse stakeholder group met to collaborate on changes to the confusing regulations and failed erosion program. All agreed that the regulatory program needed to be fair, funded and clearly understood. The state law was amended during the 2003 session of the General Assembly by HB 285 and provided much needed reform to the confusing regulations. In July of 2003 the second issuance of the General Permit was the result of the stakeholder agreement which represented a fragile balance between diverse interests.

**Erosion Reform of 2003**

HB 285 primarily amended the GESA to mirror the requirements of the federal permitting process for construction activity under the CWA. In addition, the first user fees required for water-related permits in the state of Georgia are now mandatory. Developers must pay a user fee of \$80/per disturbed acre which helps to fund the state EPD and local governments in the administration and enforcement of the erosion programs. These significant changes are anticipated to address the problems associated with the overall effectiveness of the erosion program. However, full implementation of all aspects of the reform needs to take place in order for erosion program improvements to be measurable.

**CITIZEN INVOLVEMENT**

Complaints about the lack of enforcement of erosion control laws have flooded Upper Chattahoochee Riverkeeper's (UCR) Citizen Response HOTLINE for years. People call about the mud in their backyard streams, neighborhood ponds, lakes and drinking water sources. In fact, over one-third of all inquiries to the

**Table 1 – Summary of HB 285 Erosion Control Reform Legislation**

- Merger of state and federal erosion requirements
- Criteria for certification, overview and de-certification of local issuing authorities
- Mandatory erosion control training for plan designers, reviewers and enforcers
- User fees (\$80/per disturbed acre) to fund enforcement personnel and mandatory education and certification programs
- Mandatory stop work orders for violations
- Reduction of monitoring (from previously issued permit) required at construction sites

HOTLINE are erosion-related. UCR began its river protection work in 1994 and, throughout its 10 year history, has focused significant effort and financial resources on tackling the Chattahoochee's most serious problem--polluted stormwater runoff from construction and land disturbing activities.

In 1997, UCR completed a 2-year study of the Big Creek sub-watershed, verifying that rain events were causing sediment to flow from uncontrolled construction sites and enter Big Creek at unprecedented rates. From 1999 through 2003 UCR trained over 1,200 citizens using our "Soil Watch" workshops. This educational effort, and subsequent other projects led by UCR, have continued to focus on improving education and enforcement results related to this wide-spread problem.

Recently, UCR received an EPA grant to update our Soil Watch educational materials with current regulatory information related to the General Permit. This two-year project begins in January 2005 and involves five of Georgia's major river basins.

**GET THE DIRT OUT: GEORGIA CONSTRUCTION STORMWATER PROJECT**

**Project Objective**

The goal of this project is to ensure that water quality is protected from construction activities through a regulatory program that is enforceable and clearly understood.

The *Get the Dirt Out* project will investigate and study Georgia's 2003 NPDES Stormwater Discharge Associated with Construction Activity General Permit ("General Permit") and its implementation by local governments and EPD. UCR will provide training workshops and materials developed specifically for citizens, developers, and local governments on the requirements of the General Permit. UCR and its partners will study the effectiveness of the General Permit by investigating how the requirements of

the General Permit are being implemented and adhered to in five selected river basins.

### **Project Description**

Through the development of educational materials, including training CDs that explain the regulatory process to citizens, local governments, and developers, we will augment other educational efforts regarding the General Permit. We will conduct “train-the-trainer” workshops that will provide our local partner groups with the information needed to understand the new law, identify violations, and take actions to remedy problems. These trainers will then use this information in their own communities to provide training for concerned citizens, local governments, and developers, as appropriate. Sub-watersheds will be targeted in each larger watershed, where the impact of the implementation and enforcement of the General Permit can be more easily analyzed. Where possible, in targeted sub-watersheds, aerial surveys will assist in documenting sediment plumes and impacts to the watershed, as well as providing baseline data.

To monitor enforcement, standard assessment criteria and standard forms will be completed to evaluate compliance and implementation. This site assessment criteria will be used to monitor the compliance with the General Permit at land disturbing activity sites. There will also be a separate assessment form to monitor the level and effectiveness of oversight by local governments. The assessment forms will be analyzed and the findings will be summarized to determine compliance patterns by sub-watershed. Site compliance will be evaluated in targeted sub-watersheds and final recommendations will be developed concerning the effectiveness of this stormwater control program. Final flyovers will be made to compare findings and assessments, as appropriate. Recommendations regarding areas of improvement for the future will be provided to EPD, EPA and local governments.

### **Innovative Project Methods**

Using a unique, statewide approach, UCR will partner with five other riverkeeper organizations (Canooshee, Lower Chattahoochee, Altamaha, Savannah, Coosa) located in North, Piedmont and Coastal Georgia to communicate with, and train, stakeholder groups on the new General Permit, while investigating and studying how effectively local governments and the state are enforcing the General Permit. We believe this type of statewide collaborative “cradle-to-grave” effort has never before been attempted in Georgia for an NPDES program. The project will address the impacts from construction stormwater runoff using a four-step performance process: 1) Training, 2) Monitoring, 3) Assessment and 4) Evaluation. Each primary partner will have the ability to follow this process on the project web site,

[getthedirtout.org](http://getthedirtout.org). The web site will house the training materials and assessment forms for each participant.

The 2003 General Permit includes many changes for developers and local governments who are charged with enforcing these new requirements. These changes come at a time when local and state governments are under-funded and many are concerned that they will not be able to adequately support the important new General Permit requirements. In order to address this problem and ensure proper implementation of the General Permit, UCR’s *Get the Dirt Out* project has been created as a collaborative community-based project that is designed to evaluate the new regulatory program for its effectiveness in stemming the tide of silt-laden runoff from construction sites.

This innovative project will provide useful training materials that will assist the developers and local government in integrating the elements of this stormwater permitting program, while supporting existing local watershed protection and land use plans.

### **Expected Outcomes**

The *Get the Dirt Out* project will assist EPD in its overall mission by helping to ensure that the new General Permit is implemented properly. UCR will remain an integral part of the process, as the General Permit and associated training programs are improved over time. UCR will use what we learn from this project to provide insight and recommendations to EPD when it develops the next General Permit (2008). The *Get the Dirt Out* project will assist EPD in achieving its strategic goal of compliance assurance/enforcement by providing education to local governments that will bear oversight responsibility for General Permit compliance.

As we analyze our findings and benefit from lessons learned through the General Permit implementation process, we will be uniquely positioned to work cooperatively with other stakeholders to develop effective revisions to Georgia’s construction stormwater program over time. We will also develop a model to be used by other areas that are facing stormwater runoff issues.



**Fig. 1 – Project Logo for the *Get the Dirt Out: Georgia Construction Stormwater Project***

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### **Project Status and Next Steps**

This two-year project began in January 2005. The educational materials were developed in early 2005 and the first partner training held in February 2005. The website will be developed and launched in late spring or early summer of 2005. The project partners will hold additional trainings in their watersheds through the summer of 2005. Identification, assessment and monitoring of construction sites will continue through June 2006. Local governments will be evaluated continuously throughout the project. Targeted sub-watersheds will be selected for aerial surveys and further technical BMP assessment dependent on site specific criteria. Continued coordination with EPD District offices, the State Soil and Water Conservation Commission and the state Soil and Water Conservation Districts will be imperative to properly indicate the success or failure of the state's erosion program.

### **CONCLUSION**

In 2003, Georgia finalized a revised General Permit, which incorporates EPA's Phase II stormwater permitting requirements, and amendments to GESA. These combined tools provide workable measures and controls with the potential to dramatically reduce the levels of sediment and associated toxins that are contaminating Georgia's waters. The success of this new General Permit, and an overall construction stormwater program, is critical not only for Georgia's waterways, but for other states that look to Georgia to learn how to address the serious water quality problems that accompany that growth.

### **ACKNOWLEDGEMENTS**

Special thanks to UCR Development Director, Page Gleason for preparing the grant request to EPA, and to EPA Region IV and Headquarters for funding the *Get the Dirt Out* project. Personal thanks to Betsy Nicholas and Justine Thompson for their legal expertise and to all the citizens who work to protect streams in Georgia.

### **LITERATURE CITED**

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