

# **Report for 2004GA57B: Decision Support for Georgia Water Resources Planning and Management**

## Publications

- There are no reported publications resulting from this project.

## Report Follows

**Support for**  
**Water Resources Planning and Management in Georgia**

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## **SECTION 1. INTRODUCTION**

### **Georgia Water Resources Conference (1989 – 2005)**

The Georgia Water Resources Conference was begun in 1989 as a collaborative effort, with funding under the Water Resources Research Act of 1984, through the Georgia Water Resources Institute at Georgia Tech. The statewide conference has been held biennially since 1989, growing from the initial 87 presentations to over 240 presentations and panels, with a third day added in 2005 to include training courses. The nine volumes of proceedings (1989 – 2005) were originally published in printed form before each conference and are now available in electronic format, with approximately 1400 papers, on the website of the Georgia Water Resources Institute.

### **2005 Georgia Water Resources Conference**

The ninth biennial Georgia Water Resources Conference was held April 25-27, 2005, to provide a forum for discussion of Georgia water resources and information relevant to the state's initiative to prepare a comprehensive statewide water resources management plan. Over 25 government, professional, and citizen organizations served to co-sponsor the conference and organize sessions and panels with over 250 speakers in these general tracks: State water plan and policy, Atlanta area water issues, water conservation, instream flow and restoration, watershed protection and TMDLs, flood mapping and stormwater, groundwater, coastal water issues, and river basins including Savannah, Etowah, Flint, and Chattahoochee Rivers.

Over 40 students from University of Georgia and Georgia Tech provided assistance for the conference sessions, policy panels and training courses.

The third day of the conference provided five all-day training courses on topics of interest to participants in the statewide water planning process:

- (1) Shared Vision Planning Approach – Linking Participation and Water Planning through a Technical Systems Model, by U.S. Army Corps of Engineers' Institute for Water Resources;
- (2) ArcHydro – Geographic Information System for Water Resources, by David Maidment, University of Texas;
- (3) Introduction to the Clean Water Act for Watershed Stakeholders, by U.S. Environmental Protection Agency, Region IV staff;
- (4) Water Quality Modeling using WASP software, by U.S. Environmental Protection Agency – Environmental Research Laboratory in Athens; and
- (5) Stormwater Management using Locally-Based Planning and Management Tools, by University of Georgia, Biological and Agricultural Engineering; as well as
- (6) Workshop on government programs with technical assistance and funding for water resources planning and management, organized by U.S. Army Corps of Engineers, Mobile District.

## **Policy Panels for Five State Water Issues**

The Georgia Water Resources Conference included five panels, composed of stakeholders, experts and state program staff, organized to discuss five state water policy issues important for the statewide water planning process:

- (1) protection of instream and downstream flows,
- (2) water quantity allocation/reallocation among users,
- (3) minimum aquifer levels protection policy,
- (4) water quality allocation (TMDL allocation policy), and
- (5) water conservation/efficiency and reuse policy.

## **Recommendations for Erosion and Sedimentation Control in Georgia**

This section provides recommendations for improving the effectiveness of the Georgia Erosion and Sedimentation Control program as implemented under the Georgia Erosion and Sedimentation Control Act and the federal NPDES Georgia Stormwater General Permit for Construction Activities.

## **Best Practices in Water Resources Planning**

A guide to best practices in water resources planning is needed for professionals involved in the developing the regional plans for Georgia. This project provides an interactive website with a guide to the current best professional procedures in water resources planning. It is interactive to allow users to easily contribute to and expand the scope of the online information.

## **Graduate Education in Water Resources Planning**

The curriculum and requirements for a proposed masters degree in water resources planning are outlined here, to be offered jointly with University of Georgia and Georgia Institute of Technology. The courses match the content of the curriculum developed by the Universities Council on Water Resources and the U.S. Army Corps of Engineers for water resources planners.

## SECTION 2. GEORGIA WATER RESOURCES CONFERENCE

### 2.1. Conference History

The Georgia Water Resources Conference was begun in 1989 as a collaborative effort of representatives from five organizations: U.S. Geological Survey, Georgia DNR Environmental Protection Division, University of Georgia, Georgia Institute of Technology, and Georgia State University. The first conference was initiated with funding under the Water Resources Research Act of 1984, through the Georgia Water Resources Institute at Georgia Tech. The Georgia Water Resources Institute continued to fund this biennial conference as it grew over the 1990s, and provided primary funding for the 2005 conference. From 1989 to 2005, the conference grew from 87 presentations and panels to over 240 presentations and panels, and added a third day to include training courses. The proceedings were published, for each conference listed below, in bound volumes for all years and also published in electronic format on compact disk for the 2003 and 2005 conferences.

**Table 2.1. List of Published Proceedings of the Georgia Water Resources Conference**

Proceedings of the 1989 Georgia Water Resources Conference			
May 16 and 17, 1989			
ISBN: 0-935835-01-6	LOC# 89-84386	(245 pages)	
Proceedings of the 1991 Georgia Water Resources Conference			
March 19 and 20, 1991			
ISBN: 0-935835-02-4	LOC# 91-70247	(356 pages)	
Proceedings of the 1993 Georgia Water Resources Conference			
April 20 and 21, 1993			
ISBN: 0-935835-03-2	LOC# 92-76060	(412 pages)	
Proceedings of the 1995 Georgia Water Resources Conference			
April 11 and 12, 1995			
ISBN: 0-935835-04-0	LOC# 95-68015	(412 pages)	
Proceedings of the 1997 Georgia Water Resources Conference			
March 20, 21 and 22, 1997			
ISBN: 0-935835-05-9	LOC# 97-71355	(550 pages)	
Proceedings of the 1999 Georgia Water Resources Conference			
March 30 and 31, 1999			
ISBN: 0-935835-06-7	LOC# 99-61857	(604 pages)	
Proceedings of the 2001 Georgia Water Resources Conference			
March 26 and 27, 2001			

ISBN: 0-935835-07-5

LOC# 2001087837 (793 pages)

Proceedings of the 2003 Georgia Water Resources Conference

April 23 and 24, 2003

ISBN: 0-935835-08-3

LOC# 2003104494 (900 pages)

Proceedings of the 2005 Georgia Water Resources Conference

April 25, 26 and 27, 2005

ISBN: 0-935835-09-1

LOC# 2005926249 (931 pages)

## **2.2. Electronic Proceedings (1989-2005)**

As part of this project, the earlier bound volumes have now been converted into electronic format and are being made available on the website of the Georgia Water Resources Institute ([www.gwri.org](http://www.gwri.org)). The website has a combined Table of Contents for all the volumes (1989-2005) which can be electronically searched by author, organization, and keyword in the paper's title, for over 1200 papers. Each paper is hyperlinked to its page number in the Table of Contents; the user can click on the hyperlinked page number to bring up the corresponding paper (in pdf file format) on his computer screen.

## **2.3. The 2005 Georgia Water Resources Conference**

The ninth biennial Georgia Water Resources Conference was held April 25-27, 2005, at the Georgia Center for Continuing Education, Athens, Georgia. In addition to its traditional purpose of providing a biennial forum for presentation and discussion of major water projects, issues, programs and research in Georgia, the 2005 conference was designed with an additional purpose -- to provide information relevant to the state's initiative to prepare a comprehensive statewide water resources management plan by 2008.

The conference steering committee, which sets the goals and theme for the conference, consisted of representatives from the five main sponsors including U.S. Geological Survey, USDA Natural Resources Conservation Service, University of Georgia, the director of the Georgia Water Resources Institute and the director of the Georgia Environmental Protection Division. The Georgia EPD director selected the conference theme, "Creating Georgia's Sustainable Water Future," and gave the plenary session presentation on Georgia's initiative to develop a comprehensive statewide water resources management plan. Governor Sonny Perdue gave the keynote conference address on Georgia water resources.

In addition to the five main sponsors, the conference was supported by over 20 co-sponsoring organizations and a program committee of co-sponsor representatives, who organized 36 of the 70 sessions and panels presented at the conference, and provided exhibits and conference promotion.

## **Conference Co-Sponsors**

The conference is sponsored by: U.S. Geological Survey, Georgia Department of Natural Resources, University of Georgia, Georgia Institute of Technology – Georgia Water Resources Institute, and USDA Natural Resources Conservation Service.

Additional co-sponsors include Georgia offices of:

- American Society of Civil Engineers
- American Water Resources Association
- American Water Works Association
- Association County Commissioners of Georgia
- Georgia Municipal Association
- Georgia Department of Community Affairs
- Georgia Forestry Commission
- Georgia Soil and Water Conservation Commission
- Georgia Pollution Prevention Assistance Division
- Georgia Water & Pollution Control Association
- Georgia Ground Water Association
- Georgia Lake Society
- Georgia Water Wise Council
- National Weather Service, SE River Forecast Center
- Natural Resources Conservation Service (SCS)
- Soil and Water Conservation Society
- Soil Science Society of Georgia
- The Georgia Conservancy
- Upper Chattahoochee River Keeper
- Water Environment Federation
- U.S. Army Corps of Engineers, Mobile/Atlanta/Savannah
- U.S. Environmental Protection Agency, Region 4
- U.S. Environmental Protection Agency, ERL
- U.S. Fish and Wildlife Service

## **Student Participation**

Over 40 students from the University of Georgia and Georgia Institute of Technology provided volunteer assistance to the conference. Thirty-six students served as moderator assistants during the conference sessions, operating the A/V equipment and lighting. Three students provided technical and computer assistance for the all-day training course on the ArcHydro software. Ten students provided research assistance during spring semester for the five water policy panels. The student chapter of American Water Resources Association organized the Monday evening event with speaker for the conference, and also organized the team of students who served as moderator assistants. One graduate student, funded by a research assistantship, helped with editing and peer reviewer correspondence for 200+ papers published in the conference proceedings.

## Conference Technical Program

The conference agenda included over 250 speakers in 70 sessions, with sessions on the Etowah River, Savannah River, Chattahoochee River Basin, Flint River Basin, and Coastal Georgia. The session and panel topics, each with 3-5 speakers, are listed below with the session organizer indicated.

Note: Each technical session listed below included 3-5 speakers. Over 200 papers from these sessions are published in the printed conference proceedings and all are available online for viewing or download from the website of the Georgia Water Resources Institute.

### TRACK 1. STATE WATER PLAN AND POLICY

- + Water Allocation Legal Issues
- + Regional Water Plans in Georgia (GaEPD)
- + Plenary Session: Carol Couch, GaEPD Director
- + Panel: Perspectives on State Water Plan Process (GWC)
- + Panel: Policy on Water Allocation/Reallocation (UGA)
- + Poster and Exhibit Session (USDA-NRCS)
- Low Impact Development
- Integrated Water Resources Planning
- Legislative Update and Water Law
- Panel: Indicators of Sustainability (GaDNR-P2AD)
- Conflict Resolution
- ^ Technical and Financial Assistance Programs (USACE-SAM)
- ^ Technical and Financial Assistance Programs II (USACE-SAM)
- ^ Adopt-A-Stream Monitoring field demonstrations (GaEPD)

### TRACK 2. ATLANTA AREA WATER ISSUES

- + Public Education and Awareness (ARC)
- + Atlanta Area Stream Quality
- + Metro District Water Plans Development (MNGWPD)
- + Metro District Water Plans Implementation (MNGWPD)
- Panel: ACF River Federal Water Requirements
- ACF River Basin Water Negotiations
- Sustainable Mgt w/Lake Lanier Reuse (GW&PCA)
- Atlanta Water Supply Issues
- Sewage Overflow and Infrastructure
- ^ Full-day Course on Basin Planning (USACE-IWR)

### TRACK 3. INSTREAM FLOW AND RESTORATION

- + Instream Flow Guidelines for Georgia (TNC)
- + Instream Flow Studies (Entrix Inc.)
- + Panel: Policy on Instream/Downstream Flow Protection (UGA)
- + Streamflow vs Fish Distribution
- Aquatic Ecosystems
- Imperiled Aquatic Species (USFWS)
- Etowah River Habitat Conservation Plan (USFWS)

- Stream Restoration (USACE-SAD)
- Ecosystem Restoration
- ^ Full-day Course on Clean Water Act (USEPA Region4)

#### TRACK 4. FLOOD MAPPING, WATER CONSERVATION

- + Floodplain Mapping using GIS (AWRA-Ga)
- + GIS Applications in Water Resources (GaEPD)
- + River Flood Forecasting (NWS-SERFC)
- + Watershed Assessment
- Georgia Sustainability Initiative (GaDNR-P2AD)
- Water Conservation in Landscape (GWWC)
- Water Conservation
- Potable Water Reuse (GW&PCA)
- Panel: Policy on Water Conservation and Reuse (UGA)
- ^ Full-day Course on GIS Use for Water Resources (GaEPD)

#### TRACK 5. WATERSHED PROTECTION

- + Stream Riparian Buffers
- + Runoff Impacts to Stream Quality
- + Stream Quality Studies
- + Stream Data for TMDL Models
- Watershed Alliances and Education
- Watershed Management (USEPA Region4)
- Water Quality Permit Trading
- Panel: Policy on TMDL Allocation/Reallocation (UGA)
- TMDL Plans Development (USEPA Region4)
- ^ Full-day Course on Water Quality Modeling (USEPA-ERL)

#### TRACK 6. STORMWATER, SAVANNAH RIVER

- + Stream Channel Restoration
- + Adequacy NPDES Stormwater Regulations
- + Panel: Erosion & Sediment Control (ASCE-Ga)
- + BMPs for Runoff Control (ASCE-Ga)
- Gwinnett County Stormwater Program I (Gwinnett Co)
- Gwinnett County Stormwater Program II (Gwinnett Co)
- Savannah River Basin Models (USACE-SAV)
- Panel: Savannah River Basin Water Use GA/SC (USACE-SAV)
- ^ Full-day Course on Stormwater Management (UGA-Engr)

#### TRACK 7. GROUND WATER ISSUES

- + Conservation Tillage (SWCS-Ga)
- + Piedmont Ground Water Supply I (GGWA)
- + Piedmont Ground Water Supply II (GGWA)
- Education for Private Well Owners I (UGA-CES)
- Education for Private Well Owners II (UGA-CES)
- Irrigation Water Use in Georgia
- Flint River Basin Models

- ^ Surface and Ground Water Interactions
- ^ Coastal Ground Water Levels and Management
- ^ Panel: Policy on Minimum Ground Water Levels (UGA)
- ^ Savannah Harbor Dredging Effects on Ground Water
- ^ Ground Water Contamination

## **Workshops and Training Courses**

The third day of the conference consisted of workshops and one-day training courses. The agenda and contact information for each workshop are available in the online version of the conference proceedings on the website of Georgia Water Resources Institute.

- \* Workshop on Multiple Agency Programs with Technical Assistance and Funding for Water Resources Planning and Management, hosted by US Army Corps of Engineers-Mobile District.
- \* Workshop on Adopt-A-Stream Monitoring (field demonstrations), by Georgia Environmental Protection Division, Adopt-A-Stream program [www.riversalive.org/aas.htm](http://www.riversalive.org/aas.htm)
- \* Course on the Shared Vision Planning Approach - Linking Participation and Water Planning through a Technical Systems Model, by US Army Corps of Engineers, Institute for Water Resources [www.iwr.usace.army.mil](http://www.iwr.usace.army.mil)
- \* Course on ArcHydro: GIS for Water Resources, with application for the Upper Ocmulgee watershed in Georgia, by Dr. David Maidment, University of Texas, and Jack Hampton, PBSJ [48 seats in computer lab] Organized by Georgia Environmental Protection Division. <http://www.ce.utexas.edu/prof/maidment/>
- \* Course on Introduction to Clean Water Act for Watershed Stakeholders, by US Environmental Protection Agency Region IV. [www.epa.gov/r5water/cwa.htm](http://www.epa.gov/r5water/cwa.htm)
- \* Course on Water Quality Modeling using WASP software package, by US EPA Environmental Research Laboratory, Athens. [www.epa.gov/AthensR/research/modeling/wasp.html](http://www.epa.gov/AthensR/research/modeling/wasp.html)
- \* Course on Stormwater Management using Locally-Based Planning and Management Tools, by University of Georgia, Biological and Agricultural Engineering Department.

### **SECTION 3. POLICY PANELS FOR FIVE STATE WATER ISSUES**

The conference program plans, which were outlined in summer 2004 to support the state's comprehensive water plan process, were modified in fall 2004 by the conference steering committee after Governor Perdue expressed his wish that the state water plan process would emphasize resolving state water policy issues which were discussed leading up to the legislation mandating the state water plan. To adjust to this new direction, five water policy panels were added to the conference agenda to foster discussion of several of the key state water policy issues:

1. Protection of Instream and Downstream Flows
2. Water Quantity Allocation/Reallocation among Users
3. Minimum Aquifer Levels Protection Policy
4. Water Quality Allocation (TMDL allocation policy)
5. Water Conservation/Efficiency and Reuse Policy

These five topics were selected for the conference by the chair of the Georgia Water Council (the director of the Georgia Environmental Protection Division), responsible for developing the state water plan ([www.georgiawatercouncil.org](http://www.georgiawatercouncil.org)). Each panel consisted of five panelists: a DNR-EPD representative (nominated by the EPD director) to summarize Georgia's current policy and procedures; three panelists representing diverse stakeholder groups to summarize their group's desired policy choice and view of the pros/cons for the policy choices; and a technical or legal expert. The purpose of the panels was to begin a policy dialogue and provide information useful as background for the Georgia Water Council in considering several of the key state water policy issues facing Georgia. The panels were not intended to reach consensus or to make recommendations, only to provide useful background information about the difficult water policy issues, the policy choices available, and the pros/cons of each choice from the perspectives of the major groups concerned with the issue. The five panels discussions were held during the conference, with four of the interim panel papers included in the conference proceedings (see list under publications) and available online from website of the Georgia Water Resources Institute.

#### **Student Participation**

Teams of graduate students provided research assistance for topics related to each panel's water issue. The students were grouped into five interdisciplinary teams, one for each panel, with each team assigned a student from ecology, economics, and public administration. The students also served as assistant moderators or moderators for the panel discussions during the conference, with their contributions recognized in the panel papers in the conference proceedings.

#### **Publications**

These publications are available online.

Hatcher, Kathryn J. (editor), Proceedings of the 2005 Georgia Water Resources Conference, Volumes I and II, April 25-27, 2005, Athens, Georgia; sponsored by U.S. Geological Survey, Georgia Department of Natural Resources, USDA Natural Resources Conservation Service, Georgia Institute of Technology – Georgia Water Resources Institute, and The University of Georgia, Athens GA, 931 pages.

Bomar, Robert, Joel Cowan, Ciannat Howett, Kevin Farrell, David Newman, Michael Wald, Kathryn Hatcher, “State Water Policy Alternatives for Water Allocation and Reallocation,” in: Proceedings of the 2005 Georgia Water Resources Conference, The University of Georgia, Athens GA, pp. 37-43.

Biagi, John, Jerry Ziewitz, Brian Richter, Bob Scanlon, Billy Turner, Kathryn Hatcher, “State Water Policy Alternatives for Instream and Downstream Flow Protection,” in: Proceedings of the 2005 Georgia Water Resources Conference, The University of Georgia, Athens, GA, pp. 270-278.

Keyes, Alice Miller, Cindy Daniel, Shana Udvardy, Brian Skeens, David Bennett, Kathryn Hatcher, “State Water Policy Alternatives for Water Conservation/Efficiency and Reuse,” in: Proceedings of the 2005 Georgia Water Resources Conference, The University of Georgia, Athens GA, pp. 459-468.

Williams, Vince, Curry Jones, Shana Udvardy, Bill White, Matt Harper, Candace Connell, Kathryn Hatcher, “State Water Policy Alternatives for TMDL Allocation and Reallocation,” in: Proceedings of the 2005 Georgia Water Resources Conference, The University of Georgia, Athens GA, pp. 567-575.

## SECTION 4.

### RECOMMENDATIONS FOR GEORGIA EROSION AND SEDIMENTATION CONTROL

- 4.1. [Public Website on Georgia Erosion and Sedimentation Control](#)
- 4.2. [Georgia's Sediment and Erosion Control Program](#)
- 4.3. [Past Reviews of Georgia Program](#)
- 4.4. [Recommendations](#)
- 4.5. [Related Presentations at Georgia Water Resources Conference](#)
- 4.6. [References](#)
- 4.7. [Appendix A - Organizations](#)
- 4.8. [Appendix B – Georgia EPD Fact Sheet on NPDES Stormwater General Permit](#)
- 4.9. [Appendix C – UCR Guide to Stormwater General Permit](#)
- 4.10. [Appendix D – U.S. Clean Water Act, Section 319](#)

This section provides recommendations for improving the effectiveness of the Georgia Erosion and Sedimentation Control program as implemented under the Georgia Erosion and Sedimentation Control Act and the federal Stormwater General Permit for Construction Activities.

The document is intended to be read online so that the embedded hyperlinks can be used.

#### 4.1. Public Website on Georgia Erosion and Sediment Control

An interactive public website describing the Georgia Erosion and Sediment Control Program has been set up in the form of an online guide at

[http://en.wikibooks.org/wiki/Georgia\\_Erosion\\_and\\_Sedimentation\\_Act](http://en.wikibooks.org/wiki/Georgia_Erosion_and_Sedimentation_Act)

The website includes a description of the relevant laws and the Georgia management program, with hyperlinks to the key references for the program.

#### 4.2. Georgia's Erosion and Sedimentation Control Program

The legal authority guiding Georgia's erosion and sedimentation control program is given by:

- (1) [Georgia Erosion and Sedimentation Control Act](#) of 1975 ([OCGA 12-7-1](#)), amended in 2003 by [HB 285](#), with the [Rules](#) adopted by the Georgia Board of Natural Resources,
- (2) U.S. [Clean Water Act](#) (Federal Water Pollution Control Act of 1972, as amended 1987 to add [stormwater regulation](#)) section 402, administered by the U.S. Environmental Protection Agency with delegated authority to the Georgia Environmental Protection, with USEPA oversight, and
- (3) NPDES Georgia Stormwater [General Permit](#) for Construction Activities (GAR100003) of August 2003 issued by the U.S. Environmental Protection Agency under the U.S. Clean Water Act, to the Georgia EPD, with required consistent state [Rules](#) adopted

under the Georgia Water Quality Control Act by the Georgia Board of Natural Resources.

The state Act (1) and the federal Clean Water Act (2) are both implemented by requiring permits for land-disturbing construction activities which, if not properly managed, could cause impairment of stream water quality due to sediment in stormwater runoff from the site. The permits specify conditions for protecting the stream water quality. Two general administrative approaches for protecting stream quality are: prohibit bad results (prohibit site discharges which cause violation of stream quality standards), or prohibit bad procedures (prohibit improper site erosion control methods). The 2003 NPDES Georgia Stormwater General Permit (3) uses a combination approach; it prohibits bad results if bad procedures have been used. The state Act was amended in 2003, partly to provide consistency with the 2003 federal General Permit and partly to remedy widespread criticism about the ineffectiveness of the state Act and its administrative program.

### **Provisions of the Stormwater General Permit for Construction Activities**

The Georgia Stormwater General Permit was issued to the state in 2003 by the U.S. Environmental Protection Agency under the provisions of the U.S. Clean Water Act and after negotiations to reduce water quality monitoring requirements (to detect bad results) in exchange for increased inspections (to detect bad procedures). The General Permit provides coverage (from prosecution for causing violation of stream quality standards) for the permittee if the permittee has properly designed, installed and maintained erosion controls for the construction site. The General Permit's provisions and administrative background are summarized in the EPD Fact Sheet ([Appendix C](#) here). Table 4-2 provides a list of steps for permittees to meet requirements of the Georgia Stormwater General Permit for Construction Activities (GAR100001).

### **Provisions of Georgia Erosion and Sedimentation Act of 1975 (as amended 2003)**

The state Act requires operators of land-disturbing activities to obtain a permit from the local government or EPD, to design a pollution prevention plan (an erosion and sedimentation control plan using best management practices according to state manual guidance), to install and maintain the erosion control plan, to inspect the plan installation. But the state Act does not penalize a permittee when stormwater runoff from his site causes stream water quality impairment if he has correctly designed, installed and maintained the erosion control plan.

The Act requires a permit for land-disturbing activities of greater than 1.0 acre, particularly land development (construction) activities, while exempting several other types of land-disturbing activities listed here:

- surface mining and granite quarrying
- minor activities such as home gardens and landscaping
- agricultural operations (exempt per CWA 502(14); see [EPA website](#), [BMP manual](#))
- projects conducted under supervision of USDA-NRCS
- projects of the Georgia Department of Transportation ([NRC BMP manual](#))
- county road construction and maintenance (see [EPA website guides](#))

- public water utility reservoirs
- With partial exemptions for
- forestry activities (see [Forestry guides](#) on EPA website)
  - utility company's activities
  - state road and tollway authorities
  - projects less than one acre of disturbed soil area.

### **Administration of the Georgia Erosion and Sedimentation Control Act**

The responsibility for administering the state Act is spread among several state and local agencies. A brief list of duties for each agency is given below, based on the summary from the State Performance Audit Report (2001, and 2004 follow-up) and from [House Bill 285](#) (2003).

Local governments may request to be designated by Georgia EPD as a “local issuing authority” (LIA) for the permits. The LIA’s responsibilities include:

- adopt an approved comprehensive ordinance for land-disturbing activities
- employ qualified personnel for implementing the ordinance
- review and approve permittees’ erosion control plans within 45 days (OCGA 12-7-9)
- review and approve permit applications
- deny permit applications from two-time violators (optional, OCGA 12-7-7(f))
- require permittee to post a bond of \$3000 per acre (optional), if LIA has hearing statute
- inspect permittees’ project sites
- enforce the permits it issues (OCGA 12-7-7(b))
- respond to complaints

The regional State Soil and Water Conservation District’s responsibilities include:

- approve erosion control plans within 35 days (12-7-10)(or delegate approval to LIA)
- approve an LIA’s request for authority to approve erosion control plans (12-7-7(e))
- periodically review the ESC programs of the LIA (12-7-8)
- notify the EPD and request investigation if any deficient LIA program is found (required)
- provide technical assistance to any county or municipality for its ESC program

The State Soil and Water Commission, in Athens, responsibilities include:

- review permittees’ erosion control plans
- periodically review the ESC programs of the LIA (12-7-8)
- notify the EPD and request investigation if any deficient LIA program is found (required)
- provide technical assistance to any county or municipality for its ESC program
- respond to complaints

- implement training and exam program for certification of qualified professionals (2003)
- approve trainers and instructor qualifications
- establish requirements for renewing certification (12-7-19)
- establish procedures for revoking certification, with EPD and Stakeholder Advisory Board
- publish and update the “Manual for Erosion and Sediment Control in Georgia”

#### Georgia Environmental Protection Division

- issue permits in jurisdictions having no certified LIA
- inspect project sites
- review the ESC programs of the LIA (12-7-8) (authorized, not required)
- approve or revoke the certification of a local government as a LIA
- enforce an action if the LIA has failed to secure compliance (12-7-8)
- issue a Stop Work order for certain offenses (12-7-12)
- respond to complaints
- administer the permit fee system (\$80 per acre of disturbed land)
- develop (with P2AD) an electronic filing and reporting system for the program

#### **Table 4.1. Guidance for Permittees to meet Requirements of the Georgia Stormwater General Permit for Construction Activities (GAR100001)**

Source: Excerpts, with modifications, from powerpoint presentation, “NPDES Construction Stormwater Permits,” by Georgia DNR Pollution Prevention Assistance Division,  
[http://www.gadnr.org/p2ad/Assets/ppt\\_files/Construction\\_SW\\_Permits.ppt](http://www.gadnr.org/p2ad/Assets/ppt_files/Construction_SW_Permits.ppt)

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#### **Obtaining Permit Coverage**

- Determine which permit is required for your project. (The land owner or operator of a land disturbing activity over 1.0 acre is required to obtain permit coverage.)
- Obtain copy of Notice of Intent (NOI) form for that permit and permit fee form from EPD’s website at [www.gaepd.org](http://www.gaepd.org) – click on “Technical Guidance” and then “Storm Water”
- Submit NOI form by return receipt certified mail, at least 14 days before beginning construction
- Copy of NOI to Local Issuing Authority (LIA, which is local government)
- Pay permit fee of \$80 per acre of disturbed land. Send half to EPD and half to LIA.

#### **Erosion and Sedimentation Control Plan**

- An Erosion, Sedimentation and Pollution Control (ES&PC) Plan must be developed, implemented and maintained for all permitted construction sites

- Plan developed for entire project by the primary permittee
- Plan must be designed by a qualified professional (passed certification training exam)
- ES&PC Plan must include Best Management Practices (BMPs) consistent with the “Manual for Erosion & Sediment Control In Georgia”
- Plan must also identify all other potential sources of storm water pollution and appropriate BMPs for managing them
- ES&PC Plan requirements in Part IV of the permit
- For new sites, the ES&PC Plan must be completed before beginning construction
- Plan must be kept on site or at a readily available location

### **Plan Submittals**

- For new projects that will disturb equal to or greater than 50 acres, submit a copy of the ES& PC Plan to the EPD District Office with the NOI
- For all projects located in a jurisdiction where there is no local issuing authority for LDA permits, submit a copy of the Plan to EPD’s Water Protection Branch and copies of the NOI and the Plan to the appropriate local Soil & Water Conservation District Office for information / review

### **Inspections**

- ES&C plan designer inspects plan installation within 7 days of construction start; notifies permittee who must remedy any installation problems within 2 days
- Inspections by qualified personnel only (must have passed the certification training exam)
- Daily at vehicle entrances & exits and areas where petroleum products are used, stored, or handled
- Weekly and within 24 hours of each ½ inch or greater storm event: disturbed areas, storage areas, structural BMPs, and outfall locations
- Monthly inspections of final stabilized areas
- If BMP deficiencies are found during an inspection, they should be corrected immediately and the Plan must be revised as appropriate within seven days

### **Sampling Requirements**

- Note: A separate Comprehensive Monitoring Program (CMP) is not required by the new permits
- Two sampling events over the course of the project – sample all receiving waters and/or outfalls: (a) First ½ inch or greater rain event during normal business hours that occurs after clearing and grubbing, and (b) Second from a ½ inch or greater rain event that occurs either 90 days after the first event or after all mass grading operations have been completed

- When BMP deficiencies exist during one of the two required sampling events, corrective action must be defined and implemented within two days
- Additional sampling must be conducted for every ½ inch or greater rainfall event during normal business hours until deficiencies are corrected or turbidity standard is attained

### **Reporting**

- Submit monitoring results by the 15th day of the month following the sampling event
- Reports should include name and location of project, name(s) of sampling personnel, sample locations, date and time of sampling, and sampling results
- Reports submitted to EPD District Office

### **Termination of Coverage**

- Submit Notice of Termination (NOT) when entire project has undergone final stabilization, all storm water discharges associated with construction activity have ceased, and the site is in compliance with the permit
- Final Stabilization = ALL soil disturbing activities have been completed AND 100% of soil surface is covered in permanent vegetation with a density of 70% or more, or equivalent permanent stabilization measures have been used
- If change in Owner/Operator – notify next Owner/Operator; NOI submittal
- Copy of NOT to Local Issuing Authority

### **Likely Areas of Enforcement**

- Failure to submit NOI to obtain permit coverage
- Failure to prepare, implement, or maintain ES&PC Plan
- Improper installation & maintenance of BMPs
- Failure to conduct turbidity sampling
- Incomplete record keeping and reporting
- Improper BMPs resulting in turbidity numbers exceeding Appendix B values
- Failure to pay fee

## **4.3. Previous Reviews of Georgia Erosion and Sedimentation Control Program**

The state Act has been amended several times to attempt to remedy program deficiencies and controversial provisions, most recently in 2003 by [HB 285](#) which noted:

“12-7-2. It is found that soil erosion and sediment deposition onto lands and into waters within the watersheds of this state are occurring as a result of widespread failure to apply proper soil erosion and sedimentation control practices in land clearing, soil movement, and construction activities and that such erosion and sediment deposition result in pollution of state waters and damage to domestic, agricultural, recreational, fish and wildlife, and other resource uses. It is therefore declared to be the policy of this state and the intent of this chapter to strengthen and extend the present erosion and sediment control activities and programs of this state and to provide for the establishment and implementation of a state-wide comprehensive soil erosion and sediment control program to conserve and protect the land, water, air, and other resources of this state.”

The 2003 amendments to the state Act provided several improvements to remedy some of the weaknesses which had been noted in earlier reviews of the state program’s effectiveness.

In 2001, three groups reviewed the state’s erosion and sedimentation control program; their reports are referenced here, with selected statements regarding program weaknesses and recommended improvements.

1) Georgia Department of Audits and Accounts (by request of the Chairman of the Senate Appropriations Committee and the Georgia Board of Natural Resources - resolution adopted 24 January 2001) with report: “[Performance Audit - Erosion and Sediment Control Program](#), DNR Environmental Protection Division and State Soil and Water Conservation Commission, September 2001,” by Performance Audit Operations Division, Georgia Department of Audits and Accounts; with follow-up [2004 Review](#).

2) The Erosion and Sedimentation Control Technical Study Committee (known as the [Dirt II Panel](#)) with report: [Repairing the Chattahoochee - The Dirt II Technical Panel Completion Report](#), A Summary of the Work, Findings, Recommendations, and History of the Erosion and Sedimentation Control Technical Study Committee, published by the Chattahoochee-Flint Regional Development Center, Franklin, Georgia, July 2001. [http://www.gaepd.org/Files\\_PDF/techguide/wpb/dirt2/tpcr\\_published.pdf](http://www.gaepd.org/Files_PDF/techguide/wpb/dirt2/tpcr_published.pdf)

3) Staff of the National Academy of Public Administration, under contract as part of the Dirt II Panel’s project. Dirt II Panel Completion Report, Appendix A- “Policies to Prevent Erosion in Atlanta’s Watersheds: Accelerating the Transition to Performance,” policy paper by the National Academy of Public Administration, January 2001, as Appendix A in the Dirt II Technical Panel Completion Report (online at EPD as the [NAPA Report](#)) [http://www.gaepd.org/Files\\_PDF/techguide/wpb/dirt2/napa\\_published.pdf](http://www.gaepd.org/Files_PDF/techguide/wpb/dirt2/napa_published.pdf)

### **NAPA Report (2001)**

Some quotes from the [NAPA Report](#) are given here: [http://www.gaepd.org/Files\\_PDF/techguide/wpb/dirt2/napa\\_published.pdf](http://www.gaepd.org/Files_PDF/techguide/wpb/dirt2/napa_published.pdf)

“The system has the potential to work well, provided all of those licensed professionals are well trained in the standards and their professions, and fulfill their responsibilities

honestly. EPD will have to enforce the system vigorously to make it clear from the start that the professionals will lose money, reputation, and possibly their license if they certify work that fails to perform as promised.”

“ Maintaining the integrity of that extended enforcement system will require a sufficient number of EPD personnel who can review plans, inspect construction sites, and monitor stormwater runoff. If EPD does not devote the personnel to “checking the checkers,” the entire system will probably fail. The licensed professionals who certify the work must have confidence that their colleagues at other sites are adhering to the same high standards as they are. Otherwise, contractors or developers will push them to compromise on their standards in order save the developers a few out-of-pocket dollars. If the public loses confidence in the network of professionals, EPD will have to bear all of the responsibility of inspecting the projects and enforcing the permits, and that would take significantly more people than checking the checkers.” (page 24 of NAPA report)

“If EPD simply stores the monitoring reports in a file, they will have no such impact. If EPD were to post the reports on a web site, or better yet, require all permit holders to post them there within 24 hours after a storm, the monitoring reports could become an effective driver for improvements in erosion prevention, sediment control, and water quality.” (page 26 of NAPA report)

“If there are no negative financial or legal consequences to sloppy construction and the resulting degradation of the waters of the state, that is what the system will produce.” (page 29 of NAPA report) The report mentioned possibility of (a) state and local governments having provision to only contract with firms which have demonstrated good performance in past projects regarding erosion control, or (b) put cash bonuses into contracts to reward good performance, or (c) local government ordinances to require a bond (\$3000 per acre) but refund part of it with refund amount depending upon performance in erosion control, based on monitoring result.

## **Dirt II Panel Completion Report (2001)**

The Dirt II Panel provided a list of recommendations, targeted to the various organizations involved in the program. A few of those recommendations are listed here.

“The new permit system requires a series of licensed professionals involved in projects to certify that their work complies with the permit and state standards. That system can work efficiently, but only if EPD guarantees its integrity by exposing false certifications and deterring fraud.”

*“Require frequent electronic reporting of monitoring results.* The federal permit requires developers to monitor stormwater runoff during construction and to report the results monthly to EPD. The permit gives EPD the authority to require more frequent reporting, however, and to specify the format of that reporting. EPD should require developers to post monitoring results on an EPD web page within a day or two of a storm.”

“The Legislature will need to ensure that EPD has the qualified staff required to rigorously review the development permit applications and to effectively enforce them on the ground. The Legislature may have to lead the investments in enhanced water-quality monitoring and web-based reporting that will make a performance-driven system work.”

“Professional associations should teach the well-recognized state-of-practice techniques to their members and help EPD expose any irresponsible members who would make the entire industry or profession look bad.”

“Government agencies should write their bid specifications to ensure that only competent, committed firms compete, and then write their contracts to reward strong performance and penalize sloppiness or actions that result in failure to perform.”

#### **4.5. Recommendations**

The first six recommendations listed below are based on Wight’s (1981) “six basic principles involved in managing anything, be it a manufacturing company, a public library, or the United Fund Drive. They are:

- (1) Defining Objectives
- (2) Assigning Accountability
- (3) Developing Understanding
- (4) Providing the Tools
- (5) Measuring Performance
- (6) Providing Incentives.”

The principles can be used systematically for improving a program by first listing all significant program participants and then checking the six management elements for each participant to confirm that they are adequately covered. If not, then the program evaluator will need to identify a way to add or improve the management element, which is usually done by identifying an action to be taken by a higher level participant to improve coverage of the management element for his supervisee. Key groups in the erosion and sedimentation control program include (in hierarchical order of supervision): the public, elected officials, USEPA, GaEPD and GaSWCC, Conservation Districts, local government LIA, land development project owners, general contractors and their ESC plan designers and inspectors, construction workers.

##### **(1) Defining Objectives - Clear Statement of Program Requirements and Expectations**

Each participant in the Georgia Erosion and Sedimentation Control Program needs to understand the overall goal, his role in the program and the expectations for performing that role successfully.

The key participants include:

- \* Citizens (stewards of the environment)
- \* Property Owners
- \* Developers/ Builders/Contractors
- \* Bulldozer Operators
- \* Professionals (designers of erosion control plans)

- \* Site Inspectors
- \* Local Governments (certified local issuing authorities)
- \* Conservation Districts
- \* Georgia Soil and Water Conservation Commission
- \* Georgia Environmental Protection Division
- \* U.S. Environmental Protection Agency
- \* Elected officials

The Georgia EPD should develop and post on its website a document to clearly list the legal requirements and the professional expectations for each significant participant in the Georgia Erosion and Sedimentation Control program.

This information could be covered in the certification training program required of most program participants, per OCGA 12-7-19(b)(4): “An awareness seminar (Level 1) will be established which provides information regarding the erosion and sediment control practices and processes in the state and which will include an overview of the systems, laws, and roles of the participants” (underlining added).

U.S. Environmental Protection Agency, NPDES General Permit for Stormwater Discharges from Construction Activities – Fact Sheet, January 21, 2005, contains detailed information on permit requirements ([http://www.epa.gov/npdes/pubs/cgp2003\\_fs.pdf](http://www.epa.gov/npdes/pubs/cgp2003_fs.pdf)). This outlines the requirements for permittees, but similar information about requirements and accountability is needed for each of the other program participants as well.

## **(2) Provide Understanding (Education) to Enable Participants to Meet Expectations**

To be effective, each program participant needs to understand his role and also to have the skills needed to perform the role successfully.

The 2003 amendments to the state Erosion and Sedimentation Control Act provide that (OCGA 12-719) “(a) After December 31, 2006, all persons involved in land development design, review, permitting, construction, monitoring, or inspection or any land-disturbing activity shall meet the education and training certification requirements, dependent on their level of involvement with the process, as developed by the commission in consultation with the division and the Stakeholder Advisory Board created pursuant to Code Section 12-7-20.”

The Commission and Stakeholder Advisory Board should compare and cross-check the list of legal requirements and professional expectations (in Recommendation 1) with the training modules covered in the certification training program. Any missing training elements, such as training needed for local government officials to conduct an effective administrative program, should be identified and then developed or referred. The Stakeholder Advisory Board should document this cross-checking in its report or minutes to include a table showing the participants list in Recommendation (1) with the corresponding training module. The Commission should post this table on its webpage for the training program.

The certification exam should include questions to test each participant’s understanding of the legal requirements and professional expectations for his role in the program.

Some of the participants listed in Recommendation (1) are not required to attend the education and training certification courses of the ESC program. Other groups do provide

educational programs for these participants. Extensive education for citizens is provided by the Upper Chattahoochee Riverkeeper’s program on “Get the Dirt Out” ([www.getthedirtout.org](http://www.getthedirtout.org)). The Vinson Institute of Government at University of Georgia provides training for elected officials ([www.cviog.uga.edu](http://www.cviog.uga.edu)).

### **(3) Assign Accountability for Meeting Requirements and Expectations**

All participants in the program, and the public, need to know who is accountable for which parts of the program. This information, with names and contact information for the responsible individuals (not just the program offices) should be posted and available online, especially for the state and local government agencies, with link to description of their responsibilities.

Georgia EPD should post this information on its website for the following program participants: USEPA, GaEPD, GaSWCC, Conservation Districts, and list of local government LIAs with link to the LIA webpage for ESC program (not just the main city webpage). The local government LIA’s should post the specific local information, with names of local government program participants and their responsibilities, and also include contact information for any citizen organizations which request to be so listed. The Georgia EPD should consider requiring a local government to provide this information as a prerequisite for being certified as a local issuing authority. At least, providing accountability to the public should be included on the list of professional expectations (or legal requirements) for a local government, per Recommendation (1) and should be covered in the certification training course.

### **(4) Provide Resources and Tools Needed**

All program elements need sufficient funding and resources to perform effectively. The funds authorized under the 2003 amendment (HB 285) in amount of \$80 per acre of disturbed land need to be fully and properly allocated to the state and local agencies.

**Help Kits.** For each program participant listed in Recommendation (1), there should be an online Help Kit with information to help the participant do the best job, including: resources, guides, standard forms, “go-bys”, links to good examples. The contents for each Help Kit could be recommended by panels consisting of representatives from each participant category.

The Georgia Department of Community Affairs provides an online ToolKit for Local Governments; this webpage could be adapted with an extended subpage specifically for the erosion and sedimentation control program. Similar websites are needed for each participant category, in addition to local governments.

**Funding Sources.** The grant program under Section 319 (see [Appendix D](#) here) of the U.S. Clean Water Act, administered in Georgia by the EPD, is a potential source of funding for initiatives to further develop and implement improvements in erosion and sedimentation control for land-disturbing activities not regulated under the NPDES program. A list of funding and technical assistance sources for program improvements is needed for each participant category.

## **(5) Measure Performance**

It would be helpful for each program participant listed in Recommendation (1) to have a self-assessment form, which would list each of his responsibilities and professional expectations, and provide a scale for indicating level of performance. Even a rough scale, such as indicating “high” or “medium” or “low” level, would be useful. It would also be helpful to have a good example listed for each role, such as recognizing a local government LIA which has an outstanding erosion and sedimentation control program (Gwinnett County’s program has been mentioned as a good example), with a description of the features which make an outstanding example.

USEPA provides some helpful self-audit materials and technical guidance online at <http://www.epa.gov/compliance/resources/publications/assistance/sectors/constructmyer.html>

The Construction Industry Compliance Assistance Center also provides materials; see “Managing Your Environmental Responsibilities, III. Permit Requirements for Construction Projects”

[http://www.epa.gov/compliance/resources/publications/assistance/sectors/constructmyer/myerlc\\_stormwater.pdf](http://www.epa.gov/compliance/resources/publications/assistance/sectors/constructmyer/myerlc_stormwater.pdf)

For some program elements, a formal evaluation method is needed, such as the exam for the certification training courses or the certification of a local issuing authority.

A formal written evaluation procedure and detailed evaluation form or checklist are recommended for the program tasks marked by asterisk (\*):

- a) design of low impact project to protect environmental quality including stream buffers
- b) design of site erosion and sedimentation control plan (\*)
- c) design of site water quality monitoring plan and assessment method (\*)
- d) contract language to specify operator’s performance regarding ESC program compliance (provide a model contract language for a construction project)
- e) evaluation and approval of ESC site plan (\*)
- f) approval of ESC permit application (\*)
- g) site inspection and report by the permittee’s agent to the permittee, and follow-up procedure
- h) site inspection and report by the LIA or EPD, and follow-up procedure (\*)
- i) evaluation of site monitoring data by the permittee
- j) evaluation of site water quality monitoring data by EPD (\*)
- h) evaluation of local government application for certification as local issuing authority (\*)
- i) response to citizen complaints by LIA
- j) response to citizen complaints by EPD

Good examples for each program element should be provided or referenced on EPD’s technical guidance website. Technical guidance and links to the relevant certification training module could also be provided for each program task listed above.

The written evaluation procedures and form should be cross-checked with the legal requirements of the General Permit, the Clean Water Act, and the Georgia Erosion and

Sedimentation Control Act, and the rules/regulations for each. EPD should prepare this material and post on its website.

**Annual Reports.** Each agency (USEPA, GaEPD, GaSWCC, Conservation Districts, and each LIA) should prepare an annual report to summarize its activities, accomplishments and future plans for this program. The annual reports should be made available online, and linked from the GaEPD website. The outline and expectations for contents of annual reports should be specified, by the Governor for state agency programs and by the County/City Commissions for the local government programs. Citizen stewards are advised to contact their county/city commission to request to review the annual report specifications for the local erosion and sedimentation program and the permit fees. EPD should prepare a separate annual report regarding the permit fee system, to cover its administrative program and describing accountability of local governments for this program.

#### **(6) Provide Incentives**

Each program participant listed in Recommendation (1) needs sufficient incentives and recognition for good work, as well as penalties for inadequate work, with a clear understanding of this information. This information, along with procedures for distributing incentives and disincentives, should be summarized for each participant category, particularly the land-disturbance permittees, and posted online on websites appropriate for each participant category, and with a central directory with links to each external website.

Examples of existing programs which provide incentives and recognition include:

- a) Georgia Department of Community Affairs, WaterFirst program
- b) Georgia Department of Community Affairs, Signature Communities program
- c) Keep America Beautiful provides community assessment and certification recognition.

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#### **(7) Develop Prioritization Procedures for Major Time-Consuming Tasks**

The following tasks in the program are major time-consumers for the overworked staff:

- a) reviewing ESC site plans
- b) site inspections
- c) review of local governments' LIA certification.

Procedures for streamlining and setting priorities for each task should be written and posted online. The prioritization scheme (who gets priority for inspection or audit) could also serve as motivation for permittees, if it is developed in concert with citizen complaint and response procedures.

**Reviewing ESC Site Plans.** This task could be done under contract with funds from the permit fee system. Now that all ESC plan designers are required to receive training and certification, there should be fewer cases of poor ESC plan designs. A written procedure is needed for handling cases where the submitted ESC plan is found to be inadequate, beyond simply returning the site plan as inadequate. The ESC plan designer should receive a warning after submitting one inadequate site plan design, and should have certification

revoked after two inadequate plan designs. Land developers who submit more than two inadequate ESC plans (who persist in hiring poor ESC plan designers) should also be penalized, to prevent their shopping for plan designers who are most willing to compromise on the quality of the ESC plan design.

**Prioritizing Site Inspections.** The 2003 Stormwater General Permit requires that the ESC plan designer, who shall be a qualified professional, will visit the site within seven days of construction start to inspect the installation of the plan components for consistency with the plan specifications, and will report the inspection results to the permittee, who then has two days to correct any deficiencies. The plan designer is not required to report this inspection result to anyone else. The LIA or EPD could offer a voluntary program whereby the qualified plan designer, with permittee concurrence, certifies the inspection result and provides it to the LIA or EPD. Permittees who provide this voluntary information become a low priority for site inspections by LIA or EPD. High priority project sites are those which receive the most citizen complaints.

**Electronic Filing and Reporting System.** The last section of HB 285 added a provision authorizing the EPD to develop an electronic filing and reporting system to help reduce the manual workload. [http://www.legis.state.ga.us/cgi-bin/gl\\_codes\\_detail.pl?code=12-7-22](http://www.legis.state.ga.us/cgi-bin/gl_codes_detail.pl?code=12-7-22) “12-7-22. In order to achieve efficiencies and economies for both the division and the regulated community by the use of electronic filing for certain application and reporting requirements of this chapter and National Pollution Discharge Elimination System permits, the division and the Pollution Prevention Assistance Division of the department shall jointly work toward implementing such an electronic filing and reporting system as soon as practicable and allowable under federal regulations.”

The EPD is currently working on the first stage of the electronic filing system, which will be an electronic version of the present NOI form. The electronic filing system can be used by EPD and local governments for cross-checking the permits (and acreages) filed under the state ESC Act and under the General Permit. A user can log in as a guest and print out a list of all active permits by county, for example. EPD is also considering a second stage of the electronic filing system which would include additional input and summary data fields.

Recommendations: (1) Ask the DNR Pollution Prevention Assistance Division (P2AD) staff to review the draft project and provide suggestions for how to make the system most helpful, from a pollution prevention perspective.

(2) The electronic filing system should be developed with attention to concerns about privacy of Georgia’s citizens, particularly citizens who are operating on private property and who are not guilty of any offense.

(3) The electronic system should be developed to automate the citizen complaint and response procedures. Post a list of LIA’s with online list of the complaint record (number complaints per number of active permits) for each LIA. Use this information in setting priorities for site inspections and local government audits.

## **(8) Recommendations Regarding Local Governments**

Local governments have an important role in erosion and sedimentation control. This section outlines those responsibilities and provides recommendations for improving local government function.

**Model Local Ordinance.** Under the Georgia Erosion and Sedimentation Control Act, OCGA 12-7-4(a), “the governing authority of each county and each municipality shall adopt a comprehensive ordinance establishing the procedures governing land-disturbing activities which are conducted within their respective boundaries.” The 2003 amendments added a statement encouraging the local governments to integrate the provisions of this ordinance with other local ordinances which address land development and environmental protection.

Recommendation: The model local ordinance (provided on EPD’s website) should include the required provisions of the state Act for construction activities, as well as recommended optional provisions for managing additional categories of land disturbing activities which are exempt under the state Act, particularly road maintenance and forestry activities within the county. The counties already obtain notices of forestry activities for tax purposes. Local ordinances could provide for citizens to recover damages from erosion causing activities, possibly from permittee bonds up to \$3000 per acre, which local governments are authorized (but not required) to collect under the Georgia Erosion and Sedimentation Control Act. For example, the concept of environmental damage recovery is used in the EPA and NOAA damage assessment and recovery programs, <http://www.epa.gov/superfund/programs/nrd/primer.htm>).

**Local Government Contracting.** From Dirt II panel: “Government agencies should write their bid specifications to ensure that only competent, committed firms compete, and then write their contracts to reward strong performance and penalize sloppiness or actions that result in failure to perform.” Recommendation: Georgia Department of Community Affairs could post an example of a bid specification and model contract on their website in the Water Toolkit.

#### **Enforcement of Local Ordinances – Environmental Courts.**

Keep America Beautiful ([www.kab.org](http://www.kab.org)) has an online toolkit for citizens to use in improving their communities, including model ordinances and guidelines for setting up an environmental court for localities where court support for enforcing local ordinances has been weak.

The Georgia Uniform Codes Act (1991) requires local governments to adopt administrative procedures, ordinances, and penalties to enforce. See [ACCG notes](#) on Uniform Codes Act and local communities.

**Reviewing LIA Certification.** Written procedures and checklists are needed for review of local governments for LIA certification and recertification. Note that the Districts and SWCC are required to report any deficiencies to EPD and are required to request EPD to investigate if any deficiencies are found in the LIA program. The Board of Natural Resources has developed rules for this certification and decertification; the rules need to be strengthened.

**Assistance for Failing LIAs.** The Georgia DCA, with participation of EPD and P2AD and SWCC, should develop a written procedure for providing assistance and remediation for local governments which are not meeting the legal requirements and professional expectations for their erosion and sedimentation control programs.

#### **(9) Georgia Compliance with the NPDES Stormwater General Permit**

The requirements for the Georgia Stormwater General Permit (2003), which were approved by the U.S. Environmental Protection Agency, provided some flexibility to the state, in allowing decreased stormwater quality monitoring at construction sites but with increased site inspections by the GaEPD. The regulated community in Georgia accepted the permit fee system of \$80 per acre of disturbed land area, set up by HB 285, in exchange for reduced required stormwater quality monitoring which was estimated to save the development community about \$20-\$40 million per year. The collected permit fees would support, in part, the hiring of 80 additional site inspectors by the Georgia Environmental Protection Division. However, due to state revenue shortfalls, the State of Georgia used part of the collected permit fees for other purposes, and the Georgia EPD did not have sufficient funds to hire the expected number of site inspectors. EPD currently has 23 site inspectors.

Recommendation: The U.S. Environmental Protection Agency should determine whether the provisions of the Georgia Stormwater General Permit, as implemented rather than as promised, are sufficient to meet the requirements of the federal Clean Water Act. The citizen environmental organizations are advised to monitor what procedures USEPA uses to ensure that the provisions of the General Permit are being met.

#### **(10) Well-Qualified and Well-Intentioned Personnel**

The Georgia DNR and EPD should make an effort to hire the most qualified people for the positions in this program. The minimum qualifications should be specified appropriately and the position announcements should be posted on the state jobs website and widely distributed. EPD should have a written procedure for actively recruiting qualified applicants, posted online, and for selecting applicants. Citizen stewardship programs, such as the UCR's Get the Dirt Out program and the Keep Georgia Beautiful program and the Georgia Water Coalition, are advised to monitor the hiring program which is not under the State Merit System.

### **4.5. Related Presentations at Georgia Water Resources Conference**

The following papers were presented at the 2005 Georgia Water Resources Conference on sediment and erosion control topics, covering technical and management methods as well as government and citizen initiatives. The papers are available in the printed and online conference proceedings at the Georgia Water Resources Institute (<http://www.ce.gatech.edu/research/gwri/>).

Growth Readiness for Georgia: Water Quality Matters, by Randy Hartmann, Georgia Department of Community Affairs; and Joel Haden, Sustainable Development Project Manager, Tennessee Valley Authority (p. 47). Presentation described the Non-point Source Education Project for Municipal Officials ([NEMO](#)), the [Tennessee Growth Readiness](#) program for local governments (with consensus review of local codes and ordinances), and also the new program for Georgia communities, called the Georgia Urban Nonpoint Source Reduction Program, by the Georgia Department of Community Affairs.

The Upper Flint River Watershed Alliance: Finding Solutions to Common Goals, by Leigh Askew and Corinne Blencoe, Office of Environmental Management, Georgia Department of Community Affairs (p. 533). Presentation described a coalition of city and county governments, landowners, regional and state agencies, environmental advocacy groups, and economic development and tourism representatives, to protect the unique resources of the Upper Flint River Watershed.

Achieving the WaterFirst Designation - Highlights of Five Communities, by Leigh Askew, Environmental Management, Georgia Dept of Community Affairs (p. 536). Presentation described the WaterFirst Community Program of the Georgia Department of Community Affairs, which provides recognition and reward for communities which go beyond the requirements of the law in managing and protecting water resources.

Water Education Tools For Specific Audiences, by Joseph A. Krewer, Georgia Department of Community Affairs (page 540). Describes the [Water Resources Toolkit for Local Government](#) and activity of Keep America Beautiful affiliates in educating citizens and local officials. <http://www.georgiaplanning.com/watertoolkit/main.asp?PageID=24>

FLOW: Forging Leadership in our Watershed, Garden Club of Georgia, by Becky Champion, Columbus State University, online at <http://www.uga.edu/gardenclub/flow.html> Describes a program of the Garden Club of Georgia for community-based watershed protection.

Coastal Region Training Center for the Georgia Adopt-A-Stream Program at Savannah State University, by Joseph P. Richardson, Marine Sciences Program, Savannah State University (p. 816)

Initiative for Watershed Excellence, by William L. Cox and Mark Nuhfer, U.S Environmental Protection Agency, Region IV (p. 543) Describes a project, funded by US EPA Region IV at University of Georgia, setting up a Watershed Management Support Institute to provide technical, organizational and legal assistance to watershed stakeholders and local governments for activities such as permitting, enforcement, land use planning. See: <http://www.rivercenter.uga.edu/service/iwe.htm>

Controlling Construction Stormwater Runoff, by Alice J. M. Champagne, Upper Chattahoochee Riverkeeper (p. 586) Describes the Upper Chattahoochee Riverkeeper's project, "Get the Dirt Out", funded by USEPA, to monitor the implementation and effectiveness of Georgia NPDES Stormwater General Permit in five watersheds, and to educate citizens, developers and local officials about the requirements. See extensive education and legal materials on website: [www.getthedirtout.org](http://www.getthedirtout.org)

Panel: Erosion and Sediment Control, sponsored by Georgia Section of American Society of Civil Engineer, Environmental Tech Group (p. 605)

Greenscapes and Greenbuilding: Integrating AEngineered Soils@ as a Stormwater Best Management Practice in Sustainable Landscape Construction, by Wayne King, Sr., EARTH Products LLC (p. 617)

Field Evaluation of Compost and Mulches for Erosion Control, by L. Mark Risse et al., University of Georgia (p. 621)

Land Use Effects on Suspended Sediment Yield in Six Small Georgia Watersheds, by J. Kenneth Bradshaw, et. al., University of Georgia (p. 486).

Phosphorus, Sediment, and E.coli Loads in Unfenced Streams of the Georgia Piedmont, USA, by Harris L. Byers, et al., University of Georgia (poster, p. 494)

Hydrologic and Sediment Transport Response to Forestry; Southwest Georgia Headwater Stream, by William B. Summer et al., University of Georgia (p. 858)

#### **4.6. References**

Georgia General Assembly, full text of 2003 [HB 285](#) (as passed) which amends the Georgia Erosion and Sedimentation Act.  
[http://www.legis.state.ga.us/legis/2003\\_04/fulltext/hb285.htm](http://www.legis.state.ga.us/legis/2003_04/fulltext/hb285.htm)

Georgia General Assembly, [Georgia Erosion and Sedimentation Control Act \(as amended 2003\)](#)  
[http://www.gaepd.org/Files\\_PDF/rules/rules\\_exist/ocga12-7-1.pdf](http://www.gaepd.org/Files_PDF/rules/rules_exist/ocga12-7-1.pdf)  
OCGA 12-7-1 [Full text](#) of Georgia Erosion and Sedimentation Control Act (as amended 2003)  
[http://gaswcc.georgia.gov/vgn/images/portal/cit\\_1210/18/53/56818622ocga12-7-1.pdf](http://gaswcc.georgia.gov/vgn/images/portal/cit_1210/18/53/56818622ocga12-7-1.pdf)

Georgia Environmental Protection Division, [Rules for Erosion and Sedimentation Control](#)

Georgia Environmental Protection Division, NPDES [Georgia Stormwater General Permit \(GAR100003\)](#) under the U.S. Clean Water Act  
[http://www.getthedirtout.org/pdf/8a\\_GA\\_GenPermit.pdf](http://www.getthedirtout.org/pdf/8a_GA_GenPermit.pdf)  
[http://www.gaepd.org/Files\\_PDF/techguide/wpb/cnstrct\\_swp\\_commondev.pdf](http://www.gaepd.org/Files_PDF/techguide/wpb/cnstrct_swp_commondev.pdf)

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[http://www.gaepd.org/Files\\_PDF/techguide/wpb/cnstrct\\_swp\\_factsheet.pdf](http://www.gaepd.org/Files_PDF/techguide/wpb/cnstrct_swp_factsheet.pdf)

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[http://www.gaepd.org/Files\\_PDF/techguide/wpb/20060110\\_Erosion\\_and\\_Sedimentation\\_Control\\_Procedures\\_Final.pdf](http://www.gaepd.org/Files_PDF/techguide/wpb/20060110_Erosion_and_Sedimentation_Control_Procedures_Final.pdf)

Georgia Environmental Protection Division, [Model Ordinance](#) for Erosion and Stormwater

[http://www.gaepd.org/Files\\_PDF/forms/wpb/modelsoil.pdf](http://www.gaepd.org/Files_PDF/forms/wpb/modelsoil.pdf)

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[Dirt II Panel](#) project completion report: [Repairing the Chattahoochee - The Dirt II Technical Panel Completion Report](#), A Summary of the Work, Findings, Recommendations, and History of the Erosion and Sedimentation Control Technical Study Committee, published by the Chattahoochee-Flint Regional Development Center, Franklin, Georgia, July 2001.

[http://www.gaepd.org/Files\\_PDF/techguide/wpb/dirt2/tpcr\\_published.pdf](http://www.gaepd.org/Files_PDF/techguide/wpb/dirt2/tpcr_published.pdf)

Georgia Department of Audits and Accounts, Performance Audit Operations Division, “[Performance Audit - Erosion and Sediment Control Program](#), DNR Environmental Protection Division and State Soil and Water Conservation Commission, September 2001” <http://www.audits.state.ga.us/rptSearch/report/1518> with a follow-up review conducted in 2004: [2004 Review](#) <http://www.audits.state.ga.us/rptSearch/report/1749>

Georgia Department of Community Affairs, Water Resources ToolKit for Local Governments, <http://www.georgiaplanning.com/watertoolkit/main.asp?PageID=24>

Georgia Stormwater Management Manual, Vol. I – Stormwater Policy Guidebook, and Vol. II – Technical Handbook, website from Atlanta Regional Commission: <http://www.georgiastormwater.org/>

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U.S. Environmental Protection Agency, Stormwater Permitting Program [http://cfpub1.epa.gov/npdes/home.cfm?program\\_id=6](http://cfpub1.epa.gov/npdes/home.cfm?program_id=6)

U.S. Environmental Protection Agency, National Pollutant Discharge Elimination System - Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule, Federal Register Vol. 64, No. 235, pp. 68721-68851 (12/08/1999), CFR Title: 40, Part 9, 122, 123, 124. “Phase II regulations expand the existing NPDES stormwater program (Phase I) by addressing stormwater discharges from small MS4s and construction sites that disturb 1 to 5 acres.” [http://cfpub.epa.gov/npdes/regresult.cfm?program\\_id=6&view=all&type=1](http://cfpub.epa.gov/npdes/regresult.cfm?program_id=6&view=all&type=1)

U. S. Environmental Protection Agency, Model Ordinances to Protect Local Resources - Erosion and Sediment Control, <http://www.epa.gov/owow/nps/ordinance/erosion.htm>

U.S Environmental Protection Agency, list of “Best Nonpoint Sources Documents” (2001) <http://www.epa.gov/owow/nps/bestnpsdocs.html>

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Upper Chattahoochee Riverkeeper, project on Get The Dirt Out, [Site Inspection Report Card](http://www.getthedirtout.org/pdf/ReportCard_v5.pdf) (for use by citizens), [http://www.getthedirtout.org/pdf/ReportCard\\_v5.pdf](http://www.getthedirtout.org/pdf/ReportCard_v5.pdf)

Wight, Oliver W. “Chapter 6. The Old Principles of Management,” in MPR II: Unlocking America’s Productivity Potential, CBI Publishing Co., Boston, Massachusetts, 1981.

#### **4.7. Appendix A - Organizations**

Georgia Secretary of State, Construction Industry Licensing Board

Georgia Department of Community Affairs

- \* Construction Codes Program and State Codes Advisory Committee
- \* Georgia Uniform Codes Act (1991) requires local governments to adopt administrative procedures, ordinances, and penalties to enforce.
- \* Government Management Initiative Survey (uses electronic filing)
- \* Georgia Planning and Quality Growth Program  
<http://www.georgiaplanning.com/>
- \* Sample Local Ordinance for Sediment and Erosion Control  
<http://www.dca.state.ga.us/development/PlanningQualityGrowth/programs/downloads/SoilErosionOrd.pdf>
- \* Signature Communities Program,  
<http://www.dca.state.ga.us/DCANews/PressReleaseDetail.asp?view=218>

US Department of Agriculture, Rural Development

- \* State Staff: <http://www.usda.gov/rus/water/states/ga.htm>

Georgia Department of Transportation

- \* Transportation Online Policy and Procure System, by subject name  
<http://www.dot.state.ga.us/topps/subname.shtml>
- \* TOPPS, Appendix S - Erosion, Sedimentation and Pollution Control Plan, NPDES Phase I  
<http://www.dot.state.ga.us/topps/pre/dir/4050-29.htm>

Training Materials (webcast by TetraTech Inc. sponsored by EPA Office of Water)  
Stormwater Phase II: Developing an Effective Municipal Stormwater Management Program For Construction Sites (Construction 101)

[http://cfpub.epa.gov/npdes/courseinfo.cfm?program\\_id=0&outreach\\_id=284&schedule\\_id=927](http://cfpub.epa.gov/npdes/courseinfo.cfm?program_id=0&outreach_id=284&schedule_id=927)

Atlanta Regional Commission, Stormwater Regulations

Metropolitan North Georgia Water Resources Management District  
[www.northgeorgiawater.org](http://www.northgeorgiawater.org)

Upper Chattahoochee Riverkeeper, program on “Get the Dirt Out”  
[www.getthedirtout.org](http://www.getthedirtout.org)

Nonpoint Source Education for Municipal Officials - [Coastal Georgia NEMO Program](#)  
[http://nemonet.uconn.edu/programs/about\\_members/ga/georgia.htm](http://nemonet.uconn.edu/programs/about_members/ga/georgia.htm)

Nonpoint Education for Municipal Officials (NEMO), University of Georgia Marine  
Extension Service. [http://nemonet.uconn.edu/programs/about\\_members/ga/georgia.htm](http://nemonet.uconn.edu/programs/about_members/ga/georgia.htm)

[Southeast Watershed Forum](#), with assistance for local governments including consensus  
review of local codes and ordinances.  
<http://www.southeastwaterforum.org/training/growthreadiness.asp>

#### **4.8. Appendix B – Georgia EPD Fact Sheet on NPDES Stormwater General Permit**

Fact Sheet (June 26, 2003), Georgia Environmental Protection Division  
[http://www.gaepd.org/Files\\_PDF/techguide/wpb/cnstrct\\_swp\\_factsheet.pdf](http://www.gaepd.org/Files_PDF/techguide/wpb/cnstrct_swp_factsheet.pdf)

NPDES Georgia Stormwater General Permit for Construction Activities (GAR100003)

The 1972 amendments to the Federal Water Pollution Control Act (FWPCA, also referred to as the Clean Water Act or CWA) prohibit the discharge of any pollutant to waters of the United States from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Efforts to improve water quality under the NPDES program have focused traditionally on reducing pollutants in discharges from industrial and municipal wastewater treatment plants. Prior to 1990, efforts to address storm water discharges under the NPDES program have generally been limited to a few industrial categories with storm water effluent limitations.

In response to the need for comprehensive NPDES requirements for discharges of storm water, Congress amended the CWA in 1987 to require the U. S. Environmental Protection Agency (USEPA) to establish phased NPDES requirements for storm water discharges. To implement these requirements, USEPA published the Phase I permit application and other requirements for certain categories of storm water discharges associated with industrial activity, including construction activities, on November 16, 1990 (50 FR 47990) and April 2, 1992 (57 FR 11394). In conjunction with the federal regulations, the Georgia Environmental Protection Division (EPD) amended the Georgia Rules and Regulations for Water Quality Control (Rules) in April 1990 to allow the issuance of general NPDES permits. In January 1991, USEPA granted authority to EPD to issue general NPDES permits.

In September 1992, EPD issued the first of five different general NPDES permits for construction activities. Each of these permits was administratively appealed and did not become effective. The Phase I general NPDES permit developed during the course of settlement negotiations with the participating parties became effective on August 1, 2000, and regulated construction activity disturbing between five and 250 acres. This permit is set to expire on July 31, 2003.

The USEPA established the Phase II storm water regulations on December 8, 1999, in order to regulate construction sites that disturb between 1 and 5 acres. In conjunction with the federal regulations, the Georgia Environmental Protection Division (EPD) amended the Georgia Rules and Regulations for Water Quality Control (Rules) in April 2001 to incorporate all Phase II regulations.

EPD proposes to issue three NPDES general permits that will authorize the discharge of storm water from three distinct types of construction activity. These permits are expected to become effective on or about August 1, 2003, and will regulate all construction activity disturbing 1 or more acres. The first permit regulates stand-alone construction activity (GAR100001); the second regulates infrastructure (i.e., linear) construction sites (GAR100002); the third regulates common development construction (GAR100003). Each permit will contain significant common language and requirements as well as individual differences specific to each type of activity. In preparing the proposed permits, the Director of the EPD considered the goals, objectives, and public policies embodied in the Georgia Water Quality Control Act, O.C.G.A. §§ 12-5-20 *et seq.*, and the Erosion and Sedimentation Act, O.C.G.A. §§ 12-7-1 *et seq.*, the authority contained therein to promulgate the proposed permits, the methodologies available to insure compliance

with the provisions of the proposed permits, and the important public policy of reducing sedimentation in the waters of the State from construction activities.

The proposed permits are being issued pursuant to the authority contained in O.C.G.A. §§ 12-5-27 and 12-5-30. As required, the permits incorporate the applicable provisions of O.C.G.A. §§ 12-7-6. The proposed permits include the requirement that regulated activities perform turbidity sampling on all receiving water(s), or all storm water outfalls, or a combination of receiving water(s) and outfall(s). The numbers applicable to the alternative outfall monitoring were established as estimated surrogates for the otherwise applicable in-stream turbidity levels using factors applicable on average basis statewide.

The proposed permits define construction activities as those disturbing a land area of 1 acre or greater, or tracts of less than 1 acre that are part of a larger overall development with a combined disturbance of 1 acre or greater (i.e., common plan of development or sale). EPD can require an applicant to submit an NPDES permit application for an individual NPDES permit upon written notification to the applicant. In addition to storm water discharges, the proposed general NPDES permits authorizes certain non-storm water discharges such as fire fighting water and uncontaminated groundwater. The proposed general permits will be valid for a term of five (5) years.

The major provisions of the proposed permits are: notification of the facility/site's intent to comply with the permit by submitting a Notice of Intent (NOI); the preparation of an Erosion, Sedimentation and Pollution Control Plan (Plan); and the implementation of this Plan. Coverage under the proposed permits is achieved by submitting a NOI to EPD by the permittee(s). A permittee structure for common developments remains similar to the previous permit. A primary permittee is the facility/site owner or operator. A secondary permittee is a home builder, a utility contractor, or similar entity conducting land disturbance activities within a common development. Both stand-alone and infrastructure construction activities have primary permittees only. NOIs are required to be submitted to EPD by all permittees at least fourteen (14) days prior to the commencement of the construction activity, with certain exceptions specified in the permits. The NOI will include basic information about the facility/site including the specific waters of Georgia where the discharges will occur, except in the case of Blanket NOIs for utility companies and utility contractors that are secondary permittees. Specific forms will be available from EPD and must be used for the NOI. NOIs are required to be submitted to EPD by return receipt certified mail or similar service. Coverage by the general NPDES permit is provided without acknowledgment from EPD. When final stabilization of the facility/site is achieved, the permittee must notify EPD they are terminating coverage under the general NPDES permit by submitting a Notice of Termination (NOT).

The Plan will detail those best management practices to be used at the facility/site to control erosion, sedimentation and other pollutants. The primary permittee is responsible for developing and implementing the Plan for the entire infrastructure, stand-alone, or common development construction site. The Plan must be prepared, on the behalf of the primary permittee, by an individual licensed by the State of Georgia in the field of engineering, architecture, landscape architecture, forestry, geology or land surveying; or by a person that is a Certified Professional in Erosion and Sediment Control (CPESC) with a current certification by the International Erosion Control Association.

The Plan is also required to establish procedures to collect and analyze samples from the receiving stream(s) or the storm water outfall(s) based on the methodologies set forth in the proposed permits. Permittees are required to perform sampling of turbidity levels as a means

of determining whether an additional violation of the permit terms and conditions has occurred in the event best management practices (BMPs) were not properly designed, installed or maintained. Sampling shall be performed during qualifying rain events following distinct points in the construction process as outlined in the permits.

As a result of work done by the Erosion and Sediment Control Overview Council and the stakeholders on the General Permit Advisory Committee during the last two years, House Bill 285 was passed by the Georgia General Assembly and signed by the Governor in 2003. This bill establishes the development of a mandatory education and training program for persons involved in the land disturbance process, and the establishment of an NPDES permit fee system to offset the costs of the state-wide implementation of the NPDES general permits for construction activities. The proposed permits include these provisions, as well as reduced monitoring requirements as compared to the current general permit.

Permittees must maintain records of their activities relative to compliance with the terms and conditions of the proposed general NPDES permits. These records include copies of the NOI, Plan, site inspections, sampling results and NOT. For new facilities/sites disturbing more than 50 acres, the Plan must be submitted to EPD with the NOI. For new facilities/sites disturbing between one and 50 acres and where there is no local issuing authority pursuant to the Georgia Erosion and Sedimentation Act, the Plan must be submitted to EPD with the NOI.

Public notice of the proposed general NPDES permits is being distributed by newspaper and mailing to all those persons who have requested notice of NPDES permits in order to satisfy requirements of the Georgia Administrative Procedures Act and the Georgia Water Quality Control Act.

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#### **4.9. Appendix C – UCR Guide to Stormwater General Permit**

Upper Chattahoochee Riverkeeper

Get the Dirt Out! [http://www.getthedirtout.org/pdf/3b\\_NPDES%20permit.pdf](http://www.getthedirtout.org/pdf/3b_NPDES%20permit.pdf)

##### **UNDERSTANDING PERMITS ASSOCIATED WITH CONSTRUCTION ACTIVITY FOR COMMON DEVELOPMENTS**

Section 402 of the Clean Water Act prohibits the discharge of pollutants from a point source into waters of the United States without a National Pollutant Discharge Elimination System (“NPDES”) permit or in violation of a NPDES permit. Discharges associated with construction and industrial activities, including clearing, grading, and excavation **of at least one acre** require a storm water discharge permit under the Clean Water Act’s National Pollutant Discharge Elimination System. 40 C.F.R. §§ 122.26(b)(14)(x); 122.26(b)(15); 33 U.S.C. §§ 1311, 1342.

**In Georgia, stormwater discharges associated with such construction activities are regulated by a general permit.** The permit, “Georgia Environmental Protection Division Authorization to Discharge under the NPDES, Storm Water Discharges Associated With Construction Activity for Common Developments, General Permit No. GAR 100003,” became effective as of August 13, 2003 (hereinafter referred to as the “General Permit”). A developer permitted under GAR 100003 has continuing liability for any violations of the General Permit until a Notice of Termination has been submitted to EPD. GAR 100003, Part(I)(E).

**The General Permit requires the submittal of a Notice of Intent (NOI) at least fourteen days prior to the commencement of construction activities.** GAR 100003 Part II (A). The General Permit also specifies that best management practices, to prevent or reduce pollution, must be properly implemented for all construction activities. GAR 100003, Part III(C)(1)&(2). Where best management practices have not been properly designed, installed, and maintained, it is a violation of the General Permit for each day that those BMPs are not properly designed, installed, and maintained. In addition, when BMPs are not properly designed, installed, or maintained, it is a second violation on each day that discharges increase turbidity by more than 25 nephelometric turbidity units. GAR 100003, Part III(C)(3). The General Permit also requires monitoring and reporting following qualifying events. GAR 100003, Part IV (D)(5) & (E).

**In addition, the General Permit specifies that discharges shall not cause violations of water quality standards.** GAR 100003, Part I(C)(4). The following are just some of the applicable state water quality standards:

- \* Ga. Comp. R. & Regs. 391-3-6-.03(5)(b), which states that “[a]ll waters shall be free from ... floating debris ... in amounts sufficient to be unsightly or to interfere with legitimate water uses”;
- \* Ga. Comp. R. & Regs. 391-3-6-.03(5)(c), which states that “[a]ll waters shall be free from material ... which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses”;
- \* Ga. Comp. R. & Regs. 391-3-6-.03(5)(d), which states that “[a]ll waters shall be free from turbidity which results in a substantial visual contrast in a water body due to man-made activity”; and
- \* Ga. Comp. R. & Regs. 391-3-6-.03(2)(b) and 40 C.F.R. § 131.12(a)(1), which state that “[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.”

The general permit further requires an Erosion, Sedimentation and Pollution Control Plan (ESPCP or the Plan) which shall include, at a minimum, best management practices, including sound conservation and engineering practices to prevent and minimize erosion and resultant sedimentation, which are consistent with the Manual for Erosion and Sediment Control in Georgia. GAR 100003, Part IV. The Plan must include provisions to retain sediments on site and preclude sedimentation of adjacent waters. GAR 100003, Part IV. The Plan must include provisions for adequate sediment control basins, with storage of at least 1800 cubic feet (67 cubic yards) per acre drained. GAR 100003, Part IV(D)(2)(a)(3).

There are layers of laws and regulations that govern construction activities in Georgia including federal law and regulations, state law and regulations and local ordinances. In addition, the Green Book is specifically incorporated into the General Permit and, as such, has the force of law. A developer must comply with *all* of these laws and regulations. However, in resolving ambiguities between these regulations and laws, **federal law always trumps state and local law, and state law always trumps local law. However, if local or state law is more stringent, then the developer must comply with the most stringent requirement.**

#### **4.10. Appendix D – U.S. Clean Water Act, Section 319**

Source: Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations, page 68733. <http://www.epa.gov/npdes/regulations/sw2-part1.pdf>

“In 1987, section 319 was added to the CWA to provide a framework for funding State and local efforts to address pollutants from nonpoint sources not addressed by the NPDES

program. To obtain funding, States are required to submit Nonpoint Source Assessment Reports identifying State waters that, without additional control of nonpoint sources of pollution, could not reasonably be expected to attain or maintain applicable water quality standards or other goals and requirements of the CWA. States are also required to prepare and submit for EPA approval a statewide Nonpoint Source Management Program for controlling nonpoint source water pollution to navigable waters within the State and improving the quality of such waters. State program submittals must identify specific best management practices (BMPs) and measures that the State proposes to implement in the first four years after program submission to reduce pollutant loadings from identified nonpoint sources to levels required to achieve the stated water quality objectives. State nonpoint source programs funded under section 319 can include both regulatory and nonregulatory State and local approaches. Section 319(b)(2)(B) specifies that a combination of ‘‘nonregulatory or regulatory programs for enforcement, technical assistance, financial assistance, education, training, technology transfer, and demonstration projects’ may be used, as necessary, to achieve implementation of the BMPs or measures identified in the section 319 submittals.’’

See also:

EPA website for the Section 319 program

<http://www.epa.gov/owow/nps/cwact.html>

See also: EPA website for the State-EPA Nonpoint Source Partnership which has information about management of Section 319 grants (and other important links)

<http://www.epa.gov/owow/nps/partnership.html>

## **SECTION 5. BEST PRACTICES IN WATER RESOURCES PLANNING**

### **Guide for Best Practices in Water Resources Planning**

The state of Georgia is currently developing a statewide water resources management plan which will include sub-state water resources plans for the major river basins or regions such as coastal Georgia. The sub-state planning is scheduled to begin in 2008, after the state level component of the plan has been approved by the General Assembly. The state component is the state policy guidance, with any needed revisions of Georgia water law, and the specified framework for the sub-state planning.

Developing a regional water resources plan is a highly complex and controversial task with multiple competing objectives and high stakes for the future of the region's inhabitants. It involves identifying a set of management policies (restrictions) and actions (projects) which will determine how the natural water resources assets will be distributed among competing water users in the region, and how public funds will be allocated for water related purposes. The challenges and pitfalls for regional water planning were highlighted in the preface to the National Research Council's report (2004) which evaluated federal water resources planning procedures:

“Effective water project planning in this new environment requires an approach that seeks to balance a diverse range of objectives that cannot be directly or easily compared and to forecast outcomes and impacts of water projects in the midst of the considerable uncertainty inherent in large and complex natural systems. Such efforts are difficult not only because of the complexity of the contemporary multi-objective, multi-stakeholder planning environment, but also because of the complex and conflicting mix of legislation, congressional committee language, administration guidance, and legal precedent that operates as our nation's water policy. The clear policy guidance and consistent funding and authority necessary for integrated planning at the scale of river basins and coastal systems do not presently exist. Integrated water resources planning must also be conducted in competition with strong pressures to build specific projects advocated by local interests and their congressional representatives. Further, even in cases where the need for a comprehensive regional analysis is widely supported, the funding necessary to carry out the analysis may not be available.”

From the Preface to the [NRC report](#) on “River Basins and Coastal Systems Planning Within the U.S. Army Corps of Engineers, “ Panel on River Basin and Coastal Systems Planning, Committee to Assess the U.S. Army Corps of Engineers Methods of Analysis and Peer Review for Water Resources Project Planning, National Research Council, 184 pages (2004). <http://www.nap.edu/catalog/10970.html>

A guide to best practices in water resources planning will be useful for professionals involved in the developing the regional plans for Georgia. This project provides an interactive website with a guide to the current best professional procedures in water resources planning. It is interactive to allow users to easily contribute to and expand the scope of the online information.

[http://en.wikibooks.org/wiki/Water\\_Resources\\_Directory/Best\\_Practices/Planning](http://en.wikibooks.org/wiki/Water_Resources_Directory/Best_Practices/Planning)

The professional planning process outlined on the website follows the process specified in the planning principles and guidelines (P&G) developed by the U.S. Water Resources Council for use by the federal water planning agencies (Corps of Engineers, USDA-NRCS, TVA, BOR), but with modifications to include procedures from the USACE-IWR's shared vision planning methods and the Watershed Approach advocated by the U.S. Environmental Protection Agency. (The 2005 Georgia Water Resource Conference included a one-day course on the shared vision planning method, presented by the USACE Institute for Water Resources staff.) The federal water resources planning guidelines have been developed, critiqued, and improved by some of the best minds in the water resources field over the past four decades, with the intention of providing clear guidance to water resources planners and accountability to the public.

#### The USACE Planning Process

<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1105-2-100/c-2.pdf>

“The Corps planning process follows the six-step process defined in the P&G. This process is a structured approach to problem solving which provides a rational framework for sound decision making. The six-step process shall be used for all planning studies conducted by the Corps of Engineers. The process is also applicable for many other types of studies and its wide use is encouraged. The six steps are:

- Step 1 - Identifying problems and opportunities
- Step 2 - Inventorying and forecasting conditions
- Step 3 - Formulating alternative plans
- Step 4 - Evaluating alternative plans
- Step 5 - Comparing alternative plans
- Step 6 - Selecting a plan”

#### References

National Research Council, “Analytical Methods and Approaches for Water Resources Project Planning,” 2004.

U.S. Environmental Protection Agency, “Handbook for Developing Watershed Plans to Restore and Protect Our Waters,” EPA 841-B-05-005, October 2005.

<http://www.epa.gov/owow/nps/pubs.html>. (Also see the USACE view of the EPA handbook: [https://swwrp.usace.army.mil/portal/alias\\_swwrp/lang\\_enUS/tabID\\_3625/DesktopDefault.aspx](https://swwrp.usace.army.mil/portal/alias_swwrp/lang_enUS/tabID_3625/DesktopDefault.aspx))

U.S. Army Corps of Engineers, “Guidance for the Development of Watershed Management Plans,” CESPDM-CM-P, 31 August 2001

<http://www.spd.usace.army.mil/cwpm/public/plan/pdguide/spd/watershed.htm>

Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management (6 Fed. Reg. 62566, October 18, 2000). <http://water.usgs.gov/owq/cleanwater/ufp/>

## **SECTION 6. EDUCATION FOR WATER RESOURCES PLANNERS**

### **Need for Education in Water Resources Planning**

The state of Georgia is currently developing a statewide water resources management plan. The planning is being done in two phases: Phase I (due July 2007) includes review and revision of state water policy (laws, regulations) and outlining the framework for sub-state planning, while Phase II includes preparation of the regional water resources management plans. In order to participate successfully in this planning process, each sub-state region in Georgia and each major municipality needs staff with expertise in water resources planning. The state, major municipalities and 18 Regional Development Centers throughout Georgia have an ongoing need for staff with training in water resources planning.

Currently, there is no university degree program in Georgia to train water resources planners. A graduate degree program is needed to provide for the continuing long-term need for new professionals in this discipline. However, given the short time frame for statewide water resources planning in Georgia, there is also a need to provide immediate training for the mid-career professionals who will be involved in the regional planning efforts over the next 1-5 years. The Table 6.1. outlines a proposed graduate degree program in water resources planning, as a joint program at University of Georgia and Georgia Institute of Technology.

Note that another government agency, the U.S. Army Corps of Engineers, faced a similar problem of having major responsibilities for water resources planning but with loss of expertise from staff retirements and need to provide training for new hires. Their response was to set up a Planning Capabilities Task Force to assess the needs and to recommend solutions (see [USACE Planning Capabilities](#) Task Force and its report). The recommendations given below for Georgia are patterned after the recommendations for the USACE, but have been adapted to better fit the educational needs for regional water resources planning in Georgia and other southeastern states.

## **Table 6.1. Graduate Certificate or MS Degree in Water Resources Planning**

### **Joint Graduate Program between UGA and Georgia Tech.**

Student is admitted to either UGA or Georgia Tech, and may take courses for credit toward the degree at both schools.

### **Admission Requirements**

- \* Bachelors Degree in any field, and following undergraduate courses:
- \* Biology, chemistry or physics (4 semester courses)
- \* Ecology
- \* Probability+statistics
- \* Economics

### **Graduate Certificate Requirements (18 semester hours):**

- \* Six courses taken as 3 approved electives (from List B) and 3 core courses (from List C)
- \* The student must attain competency in 9 subject areas (List A) with 6 areas from the certificate coursework and 3 areas from other sources (undergraduate courses, other graduate coursework, experience, or competency demonstrated by exam).

### **MS Degree Requirements (30 semester hours):**

- \* Ten courses taken as 6 electives, 3 core courses, and 1 independent project course. The 6 electives consist of 4 approved electives from List B and 2 electives from the student's selected area of specialization (List D). Students who already have an MS degree in an appropriate field may receive transfer credit for two courses toward the two free electives for the area of specialization.
- \* The student must attain competency in 9 subject areas (List A), with 6 areas from the MS degree coursework and 3 areas from other approved sources (undergraduate courses, other graduate coursework, experience, or competency demonstrated by exam).

**Acknowledgment:** This curriculum was developed based on an [MS degree program](#) of the US Army Corps of Engineers, with six participating universities. (<http://www.water-resources.us/Advanced/corecourses.cfm>) The USACE degree program was recommended by a UCOWR-USACE team (see report). We have adapted the USACE curriculum by adding a water quality course.

## **List A. Nine Basic Subjects for Water Resources Planners**

1. Hydrology
2. Water Quality
3. Environmental Impact Assessment
4. Legal and Institutional Considerations
5. Social Decision-Making (policy analysis)
6. Economics and Finance
7. Water Resources Infrastructures (\*)
8. Quantitative Methods (simulation, optimization) (\*)
9. Planning Process (\*)

\*Note: These last three subjects are covered in the core courses (List C).

## List B. Approved Electives

Certificate students select 3 courses, and MS degree students select 4 courses, with each course from different subject area.

- (a) Click on the (notes) hyperlink to see our curriculum development notes for each subject area.
- (b) Click on the GIT or UGA hyperlink to see the course syllabus.
- (c) Status codes: +a = course fits objectives, +b = course needs modification, +c = new course is needed.

### 1. Hydrology/Hydraulics/Climatology (notes)

- FORS 6120 - Quantitative Hydrology [UGA++](#), Rasmussen
- FORS 6110 - Hydrology and watershed management, [UGA+](#), spring, Jackson
- CEE 6221 - Physical hydrology, GIT, (spring and fall), Stieglitz, Webster or Fu

### 2. Water Quality

- 1. ..
- EHSC 6610 - Water Pollution and Human Health, [UGA+b](#), Black

### 3. Environmental Considerations in Water Resources Planning (notes)

- CEE 4620 - Environmental Impact Assessment (law) [GIT+](#), Guensler
- CP 6214 - Environmental planning and impact assessment, [GIT+](#), (spring), Patton
- ECOL 8420 - Watershed Conservation, UGA, (fall), Freeman
- ECOL 8990 - Aquatic Ecosystems (and water quality), UGA+, (spring), Rosemond

### 4. Institutional/Legal Considerations in Water Resources Planning (notes)

- PUBP 6314 (also [CP 6223](#)) - Policy Tools for Environmental Management, [GIT+](#), Elliott
- CP 6261 - Environmental law, [GIT+](#)
- ECOL 8700 - Environmental policy and management, [UGA+](#), (fall), Kundell and Mumford
- FORS 7820 - Natural resources law for managers, UGA (spring, 4hrs)
- FORS 7800 - Forest Resources Policy [UGA+](#), Newman
- ECOL 8720 - Environmental Law for Design Professionals, UGA+, (spring), Fowler

### 5. Social Decision Making (notes)

- PUBP 6010 - Ethics in Public Policy, [GIT+](#), Norton
- CP 6821 - Basic Methods of Policy Analysis and Planning [GIT+](#)
- PADP 8650 - Public policy seminar, UGA

### 6. Water Resources Planning (philosophy and planning methods) (notes)

- CP 6821 - Basic Methods of Policy Analysis and Planning [GIT+b](#) (ok if change to water cases)
- CP 6214 - Environmental Planning and Impact Assessment, [GIT+](#)
- CP 6241 - Water resources planning (stormwater management), [GIT+](#), fall, Debo
- AAEC 4800/6800 - Water resources economics, [UGA+b](#) (fall) Mullen, 2nd syllabus

### 7. Economics for Water Resources Planning (notes)

- CP 6031 - Economic Analysis for Planning, [GIT+](#), (spring), Contant (transportation oriented)
- AAEC 8100 - Applied Resources Policy and Project Analysis, [UGA++](#), (fall), Bergstrom

### 8. Quantitative Methods for Water Resources Planning (notes)

- CEE 6241 - Water Resources Management I (LP) [GIT+](#), (spring), Georgakakos
- PUBP 6281 - Quantitative (decision) models in public policy, [GIT](#), no instructor listed.
- INTA 6004 - Modeling, forecasting and decision-making [GIT+](#), (spring), Peter Brecke
- EAS 8803 - Intro to Complex Environmental Systems, [GIT](#), [Chang](#)
- GEOL/FORS 8740 - Hydrologic Flow and Transport Modeling, [UGA+](#), Dowd+Rasmussen
- FORS 6150 - Control and systems theory for the environmental scientist, [UGA+](#), Beck
- FORS 8150 - System Identification for the Environment, [UGA+](#), irregular, Beck (pre-req FORS 6150)
- CSCI 6210 - Modeling and Simulation [UGA](#), irregular
- ECOL 6130 - GIS for Environmental Planning, [UGA](#), (spring), Kramer

**List C - Core Courses** (MS degree and Certificate students take all three courses):

1. **Water Resources Infrastructure for Planners** (engineering, demand management)
  - a) New course will be needed. (See outline: Infrastructure course.)
  - b) CP 6831 - Urban Growth and Infrastructure Systems, [GIT+](#)
2. **River Basin Models** (water quantity and quality, social/economic interactions)
  - CEE 6242 - Decision support systems for water resources planning, GIT, Georgakakos
  - ENGR - new course to be taught by new faculty hire
3. **Capstone Course - Advanced Planning Practicum** (case studies and project)
  - a) CEE 8902 - Special Problems (See outline: Capstone course.)
  - b) JHU course outline at Johns Hopkins University.

**List D - Area of Specialization** (MS degree students take 2 courses from one area);

Take 2 courses in one area of specialization. Suggested areas of specialization and courses are listed below, but other specializations are possible if approved by the student's Graduate Committee.

- \* Public Health
- \* Coastal Issues
- \* Water Quality Modeling
- \* Groundwater Hydrology
- \* Environmental Impact Assessment
- \* Environmental Economics (see Joint Programs)
- \* Environmental Restoration
- \* Conservation Ecology and Sustainable Development (see Joint Programs)