








**Stormwater  
Management  
Workshop**

**February 13, 2006**

**Coastal Waccamaw**  
Stormwater Education Consortium



### Education Providers

-  Coastal Carolina University's Waccamaw Watershed Academy
-  North Inlet-Winyah Bay National Estuarine Research Reserve Coastal Training Program
-  SC Sea Grant Consortium Extension Program
-  Clemson University Extension Service (Carolina Clear)
-  Waccamaw Riverkeeper™
-  Murrells Inlet 2007

### Agenda

- Introduction
- Overview of NPDES Phase II Stormwater Program (Susan Libes, CCU, Waccamaw Watershed Academy)
- Nonpoint Source Pollution: Mapping Activity (Karen Fuss, CWSEC)
  - Sources
  - Types
  - Driving Forces
- Managing Stormwater Quality and Quantity
  - Role of Planning (Jeff Pollock, CTP NI-WB NERR)
  - Best-management practices (Dan Hitchcock, SC SG Consortium)
- Wrap-up (Susan Libes, CCU, Waccamaw Watershed Academy)
  - What next?
  - Evaluation


### CWSEC Goal


*Develop and implement effective, outcomes-based stormwater education and outreach programs that meet federal requirements and satisfy local environmental and economic needs.*

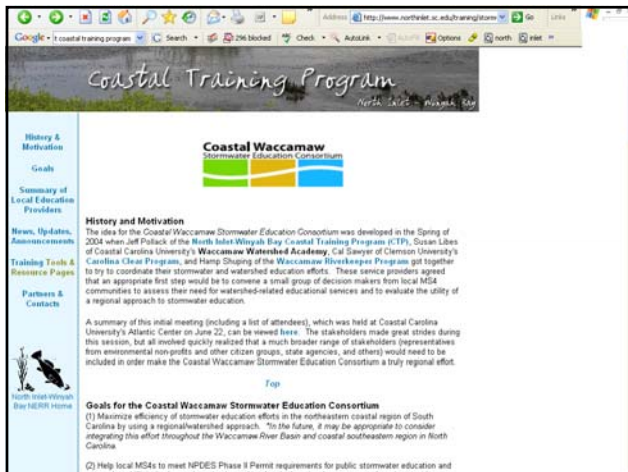
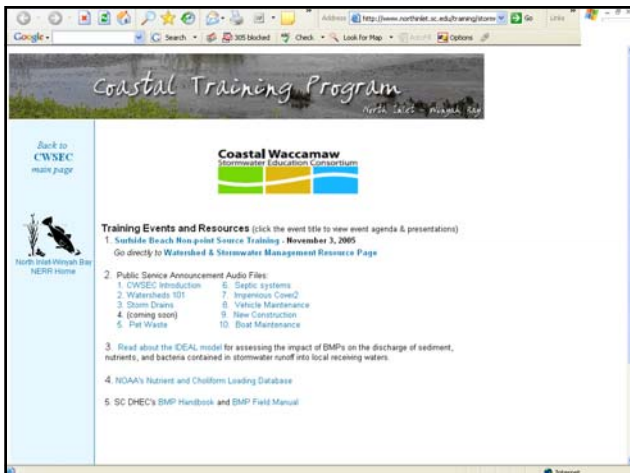
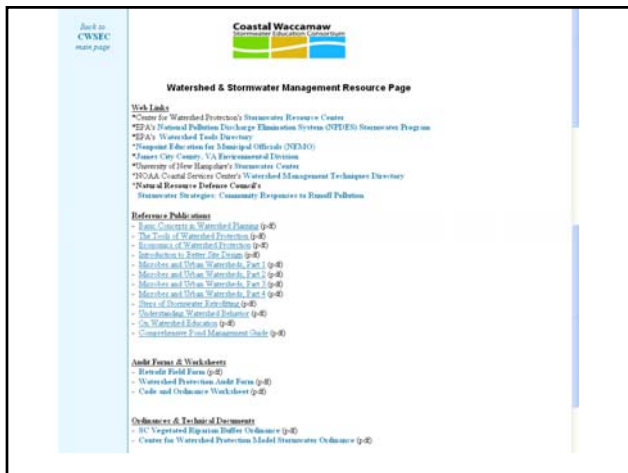



## CWSEC Resolution

- Signed June 1, 2005
- Press Conference







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### Point Source Pollution



### Nonpoint Source Pollution

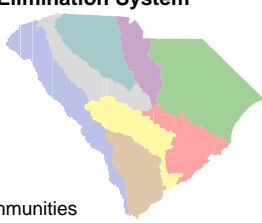


## Regulatory Driving Force: Federal Clean Water Act

### National Pollution Discharge Elimination System (NPDES) – Permit Program

- Point Sources
- Nonpoint Sources
  - Phase I Stormwater Program
    - 1990
    - >100,000
  - Phase II Stormwater Program
    - 2003
    - "Certain" Small MS-4 communities
    - Construction activities threshold lowered to 1 acre


*Municipal Separate Storm Sewer Systems*



### NPDES Phase II Stormwater Program for small MS-4 communities

#### Goals

- Reduce pollutant discharge to *maximum extent practicable*
- Protect water quality
- Satisfy Clean Water Act requirements




### Comparison of the State Sediment, Erosion, & Flood Control Program & the NPDES Storm Water Program as of 11/06/2001

Description	Sediment, Erosion & Flood Control Program	NPDES Storm Water Program
State Legislation	1991 Storm Water Management and Sediment Reduction Act	SC Pollution Control Act
Federal Legislation	None	1987 Clean Water Act Amendments
State Regulation	Regulations 72-300	Regulation 61-9.122.26
Federal Regulation	None	40 CFR 122.26
Applicability	Any land disturbing activity (2 acres or less are required to submit a simplified SWPPP but a permit is not required - must comply with BMP requirements of the program at the site)	Land disturbing activities of 5 acres or more. Beginning March 10, 2003, New Federal Regulations take this down to 1 acre with less than 1 acre on a case-by-case basis.
Exemptions:		
1. Single family lots	Yes	No
2. Agricultural activity	Yes	Yes
3. Gas, electric, and communication lines	Yes	No
4. Mines permitted under the SC Mining Act	Yes	No
5. Dams permitted under the SC Dams & Reservoir Safety Act	Yes	No
6. Emergency activity	Yes	Yes
Key Program Components:		
1. SWPPP (Storm Water Pollution Prevention Plan)	Yes	Yes
2. Flood control	Yes, post dev. runoff rate can't exceed pre dev. runoff rate for 26.0 yr storms	No
3. Storm water utility	Yes	No
4. Program delegation to a local entity	Yes	No, but Municipal Systems will have to regulate under the MS4 program.
5. Temporary sediment pond required if 10 or more acres are disturbed	Yes	Yes

### NPDES Phase II Stormwater Program for small MS-4 communities

#### Six Minimum Measures

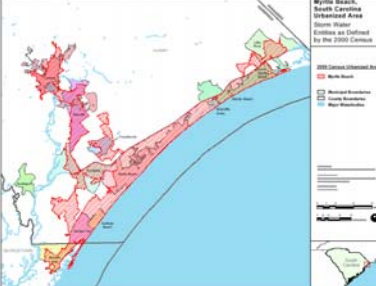
1. Public *education* and outreach on stormwater impacts
2. Public *involvement*/participation
3. *Illicit discharge* detection and elimination
4. *Construction* site stormwater runoff control
5. *Post-construction* stormwater management in new development and redevelopment
6. Pollution *prevention/good housekeeping* for municipal operations (*you are the role model*)

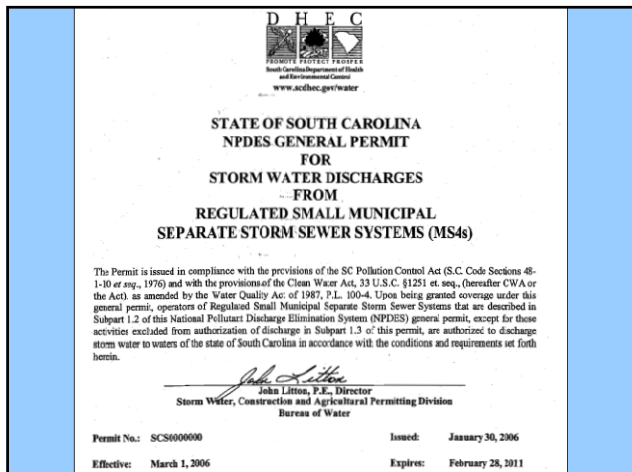


### Small MS-4 Communities of the Grand Strand

- **Horry County**
  - North Myrtle Beach
  - Atlantic Beach
  - Briarcliffe Acres
  - Myrtle Beach
  - Surfside Beach
  - Conway
- **Georgetown County**


**CWSEC Members**





### Submission of NOI

- Application Package
  - Fee
  - Proposed Stormwater Management Plan
    - Implementation Timeline
    - Assessment
    - Enforcement
- Submitted March 2003
  - Commented
  - Revised



### Official Start Date

- March 1, 2006
- 18 months
  - Construction-Site Runoff Control
  - Post Construction Runoff Control
- 5 years
  - Other minimum measures iteratively

*Stormwater Ordinance*  
*Stormwater Design Manual*  
*Erosion Control Ordinance*  
*Land-Development Regulations*

### Iterative Perspective

- First 5 years: Set up
  - Stormwater Ordinance
  - Support Staff
  - Funding Mechanism
- Second 5 years
  - Start to see improved water quality
- Third 5 years
  - Stable, productive program

*PERMIT BECOMES MORE RESTRICTIVE OVER TIME*

## Penalties

- Civil
  - Up to \$25,000/ day
- Criminal
  - Up to \$50,000/ day

Community as watchdog.

## Progress to date

- Started the NPDES Phase II Process
  - Application submitted
  - Educational activities through CWSEC
- Stormwater Advisory Committee
- Ordinance in development
- Consultant report on funding
- Rehiring Stormwater Engineer

## Challenges

- Maintain dual focus
  - Prevention
  - Retrofit/Restoration
- Assessment of Pollution Reduction
  - Developmental Process
    - Public input and comment
    - Information accessibility
  - *Maximum Extent Practicable*
  - *Reasonable Assurance*
  - Priority to 303(d) listed sites
  - Science-based

## 2004 303(d) List

- |                       |                  |
|-----------------------|------------------|
| ● Mercury             | ● pH             |
| ● Pee Dee Rivers: 2   | ● Winyah Bay: 1  |
| ● Black River: 7      | ● Sampit: 2      |
| ● Santee: 2           | ● Turbidity      |
| ● Sampit: 1           | ● Minim Creek: 1 |
| ● Fecal Coliform (24) | ● Black River: 1 |
| ● Murrells Inlet      | ● Copper         |
| ● Pawleys             | ● Sampit: 1      |
| ● North Inlet         |                  |
| ● Winyah Bay          |                  |
| ● Santee              |                  |

**Environmental Quality Control**  
S.C. Department of Health and Environmental Control

**Fish Smart! Eat Smart!**  
South Carolina  
Fish Consumption Advisories  
It's for your health!

**SC 2005 Fish Consumption Advisories**  
*Complete Alphabetical Listing*

WATERBODY	LOCATION	SPECIES OF FISH	ADVISORY
Waccaman River <i>(continued from previous page)</i>	From the NC-SC State Line to U.S. Hwy 17	Waccamaw	1 meal a week
		Chain Pickerel	1 meal a month
		Bowfin (Moonfish)	DO NOT EAT ANY
		Largemouth Bass	DO NOT EAT ANY
Waccaman River <i>(continued on next page)</i>	From the NC-SC State Line to U.S. Hwy 17	Black Crappie	1 meal a week
		Blue Catfish	1 meal a week
		Bluegill	1 meal a week
		Channel Catfish	1 meal a week
		Redear Sunfish	1 meal a week

## Total Maximum Daily Load (TMDL)

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**Pee Dee River Basin**

**Public Notices of Availability**

- Chesterfield, Clarendon, Dillon, Horry, Lancaster, Marion, Sumter Counties:** Chinnors Swamp, Flat Creek, Gully Branch, Hills Creek, Little Pee Dee River, Lynchess River, Maple Swamp, Nasty Branch, North and South Branch of Wildcat Creek, Oak Creek, Smith Swamp, Turkey Creek, White Oak Creek (Fecal Coliform) July 29, 2005
- Jefferson County:** Fork Creek, Stations PD-067, PD-068, (Fecal Coliform) May 25, 2005 [PDF, 11KB] CLOSED
- Georgetown and Horry Counties:** Litchfield-Pawley's Island Estuary Stations 04-09, 04-10, 04-11, 04-12, 04-13, 04-14, 04-15, 04-21, (Fecal Coliform) June 6, 2005 [PDF, 2pp., 14KB] CLOSED
- Georgetown and Horry Counties:** Murrell's Inlet Estuary Stations 04-01, 04-01A, 04-02, 04-06, 04-08, 04-16, 04-26, 04-27, (Fecal Coliform) June 6, 2005 [PDF, 1pp., 12KB] CLOSED

**TMDLs Proposed by EPA**

- Chesterfield, Clarendon, Dillon, Horry, Lancaster, Marion, Sumter Counties:** Chinnors Swamp, Flat Creek, Gully Branch, Hills Creek, Little Pee Dee River, Lynchess River, Maple Swamp, Nasty Branch, North and South Branch of Wildcat Creek, Oak Creek, Smith Swamp, Turkey Creek, White Oak Creek (Fecal Coliform) July 29, 2005 [PDF, 12pp., 7.19MB]
- Jefferson County:** Fork Creek, Stations PD-067, PD-068, (Fecal Coliform) May 25, 2005 [PDF, 47pp., 5.25MB]
- Georgetown and Horry Counties:** Litchfield-Pawley's Island Estuary, Stations 04-09, 04-10, 04-11, 04-12, 04-13, 04-14, 04-15, 04-21, (Fecal Coliform) June 6, 2005 [PDF, 60pp., 3.63MB]
- Georgetown and Horry Counties:** Murrell's Inlet Estuary, (Fecal Coliform) June 6, 2005 [PDF, 61pp., 3.65MB]

**TMDLs Finalized by EPA**

None at this time. [top of page](#)

### Total Maximum Daily Load (TMDL) Development

**Commencement of TMDLs**

Development of a total maximum daily load(s) is currently underway for the area(s) listed in the table below. Please send any data or information that supports the development of the TMDL to [John Stecker \(803\)896-4911](mailto:John.Stecker@deh.sc.gov). All data and information submitted, including characterization of local conditions that affect attainment of water quality standards, shall be considered before completing the TMDL.

Waterbody	County(ies)	Parameter	Water Quality Monitoring Sites	Date of Commencement
Durban Creek	Oconee, Laurens	pH	B-097	10/20/05
Fishing Creek Reservoir	Chester	Phosphorus	CW-016F, CW-057	prior to 05/20/05
Great Falls Tailrace	Chester	Phosphorus	CW-175	prior to 05/20/05
Cedar Creek Reservoir	Chester, Lancaster	Phosphorus	CW-174, CW-033	prior to 05/20/05
Lake Wateree	Fairfield, Kershaw	Phosphorus & pH	CW-207, CW-209	prior to 05/20/05
Lake Wateree	Fairfield	Phosphorus, pH, & Chl. a	CW-208	prior to 05/20/05
Big Swamp	Florence	Fecal Coliform	PD-169	prior to 05/20/05
Reedy River	Laurens	Phosphorus	S-308, S-311	prior to 05/20/05
Four Mile Branch	Barnwell, Aiken	Fecal Coliform	SE-02470	05/23/05
Savannah River	Aiken	Fecal Coliform	SV-251, SV-252	10/19/05
Lower Three Rivers	Kanawha	Fecal Coliform	SV-328	10/19/05
Middle Atlantic Coastal Plain and Southeastern Plains Ecoregions in SC	All counties within these ecoregions in SC	Mercury	All sites with fish consumption advisories for mercury within these ecoregions in SC	10/19/2005

## Monitoring

### 5.1 Monitoring

The Department will monitor the quantity of, and the concentration of pollutants in, storm water discharges from the areas and/or locations designated in the County's SWMP and will monitor impact to receiving water. The Department will establish a water quality monitoring plan for its jurisdictional area to be in compliance with its NPDES permit for storm water discharges. This monitoring plan will address at a minimum the appropriate measures as outlined in the County's Phase II SWMP (when developed).

Draft, Georgetown County Stormwater Ordinance

## Monitoring

- You can't monitor everything, all the time, everywhere.
- Development of a prioritized monitoring and assessment plan
- What are the highest priority stormwater issues – biggest source impacts on uses?
- Regional (watershed-scale) collaboration
  - Waccamaw COG?

## Monitoring Options

- USGS continuous monitoring stations
- SC DHEC Ambient Monitoring Sites
- Volunteer Monitoring
- CCU's Environmental Quality Laboratory



## Next talks

- Nonpoint Source Pollution: Mapping Activity (Karen Fuss, CWSEC)
  - Sources
  - Types
  - Driving Forces
- Managing Stormwater Quality and Quantity
  - Role of Planning (Jeff Pollock, CTP NI-WB NERR)
  - Best-management practices (Dan Hitchcock, SC SG Consortium)

### Progress in Other Communities

- Horry County
  - Visioning Process
  - Stormwater Advisory Board
  - Stormwater Utility
  - CWP's COW
  - Upgrading Stormwater Design Manual
  - Watershed modeling
  - Stormwater educator

### Progress in Other Communities

- Conway
  - Water Quality and Drainage Commission
  - Grant to install Stormtreat
  - Kingston Lake Watershed Management Plan
- Surfside
- Myrtle Beach
- North Myrtle Beach
- Briarcliffe

### 2004 Federal 303(d) List of Impaired Waterbodies

- Updated every two years
- Four year averages with two-year lag
- Over some percentage of exceedances of state WQC
- By Parameter
- By Use

