Coastal Waccamaw Stormwater Education Consortium

FY 05-06
Annual Report of Activities

1 June 2006
The idea for the Coastal Waccamaw Stormwater Education Consortium began in the spring of 2004 when individuals representing several organizations first discussed the need for coordination of stormwater and watershed education efforts. These service providers agreed to convene a small group of decision makers from local SMS4 (Small Municipal Separate Storm Sewer System) communities to assess their need for watershed-related educational services and to evaluate the utility of a regional approach to stormwater education. In fact, both the US Environmental Protection Agency and the SC Department of Health and Environmental Control recognize the idea that it is generally more cost-effective to develop regional education consortia, than to have numerous operators developing their own local programs (USEPA, 2005).

Following a period of spirited interactive discussions, the Coastal Waccamaw Stormwater Education Consortium (CWSEC) hosted its initial meeting in June 2004. The participants unanimously endorsed a coordinated approach to regional stormwater education while quickly realizing the need for a broader range of stakeholders, such as representatives from environmental non-profit organizations, other citizen groups and state agencies, in order to make CWSEC a truly regional effort. During the fall of 2004, a Regional Stormwater Education Strategy and a Phased Education Work Plan were finalized. The next few months entailed drafting and finalizing a resolution in support of a collaborative approach to regional stormwater education, adding core educators, and creating an Environmental Educator position partially funded by the SMS4 communities.

On June 1, 2005 CWSEC hosted a meeting and press release to feature the public signing of the Resolution in Support of Regional Collaboration. Stormwater managers and public officials from each of the participating MS4 communities (City of Conway, City of Myrtle Beach, City of North Myrtle Beach, Georgetown County, Horry County, and Town of Surfside Beach) were present to endorse the Resolution. The seven regional agencies that jointly serve as core education providers include: Clemson University; Coastal Carolina University’s Waccamaw Watershed Academy; Murrells Inlet 2007; North Inlet-Winyah Bay National Estuarine Research Reserve Coastal Training Program and Community Education Program; South Carolina Sea Grant Extension Program; and Winyah Rivers Foundation’s Waccamaw Riverkeeper™ Program. These individual entities collectively seek to develop and implement effective, results-oriented stormwater education and outreach programs to meet federal requirements and satisfy local environmental economic needs.
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There are numerous organizations who participate to varying degrees in the implementation of the CWSEC work plan. Each plays a vital role in the planning and delivery of overall Consortium activities. The work of the Core Education Providers however, comprises the bulk of educational efforts conducted on behalf of the CWSEC. These four (4) entities are (in alphabetical order): Clemson University Cooperative Extension Service; Coastal Carolina University; North Inlet-Winyah Bay Estuarine Research Reserve Coastal Training Program; and the SC Sea Grant Extension Program. Through the Consortium, these entities seek to develop and implement effective, results-oriented stormwater education and outreach programs to meet federal requirements and satisfy local environmental economic needs. Each provider brings their own set of strengths to the Consortium, making the overall educational service of greater effect than would be achieved if we were working separately.

**Table 1 Summary of Local Education Service Providers**

<table>
<thead>
<tr>
<th>Provider</th>
<th>Programs</th>
<th>Services/Foci</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson University</td>
<td>Carolina Clear Program</td>
<td>PSAs and workshops, 4H2O Pontoon Classroom</td>
</tr>
<tr>
<td>Coastal Carolina University</td>
<td>Waccamaw Watershed Academy</td>
<td>Volunteer monitoring, Watershed management planning, 4H2O Pontoon Classroom, K-12 class &amp; teacher activities</td>
</tr>
<tr>
<td>Murrells Inlet 2007</td>
<td>K-5 environmental education programs</td>
<td>In-class and in-field programs</td>
</tr>
<tr>
<td>North Inlet-Winyah Bay National Estuarine Research Reserve</td>
<td>Coastal Training Program</td>
<td>CWSEC website, Technical workshops, Outreach programs and materials for public, Classroom and field experiences focusing on watershed concepts</td>
</tr>
<tr>
<td>North Inlet-Winyah Bay National Estuarine Research Reserve</td>
<td>Community Education Program</td>
<td></td>
</tr>
<tr>
<td>SC Sea Grant Extension Program</td>
<td>Nonpoint Education for Municipal Officials (NEMO)</td>
<td>Stormwater education for elected and appointed officials</td>
</tr>
<tr>
<td>SC Sea Grant Extension Program</td>
<td>Public Education</td>
<td>Land use and best management practices</td>
</tr>
<tr>
<td>Waccamaw Riverkeeper™</td>
<td>Public Education</td>
<td>Community workshops, presentations and festivals</td>
</tr>
</tbody>
</table>
1. Maximize efficiency of stormwater education efforts using a regional watershed approach.

2. Help local SMS4s meet NPDES Phase II Stormwater Program permit requirements for public stormwater education, public involvement, and illicit discharge detection by providing educational resources and services such as public education, outreach and community involvement.

3. Develop a comprehensive stormwater education plan for the region that capitalizes on local training resources to meet the needs of local SMS4s.

4. Foster collaboration among local service providers to best meet the educational needs of local SMS4s and their constituents.

5. Serve as a model for collaborative stormwater education.

Arriving at sound, achievable yet comprehensive goals for a multidisciplinary consortium can be an arduous task. The CWSEC goals were no different. The members debated these guiding principles over several months and multiple formats from June 2004 to January 2005!
One of the initial activities of the Consortium was to conduct a formal needs assessment survey of its members to determine what the primary target audiences were for educational efforts. This survey was made available on-line, so participants could complete the questions and results could be tabulated more efficiently. A prioritized list of target audiences was generated along with other valuable information regarding capabilities and available infrastructure.

CWSEC was clearly committed to make every effort to reach and engage all economic and ethnic groups and all technical levels, including civil engineers, landscapers, developers, municipal officials and staff. Home and property owners associations, neighborhood architecture review boards, churches, and other community groups are also key audiences among the general public. Audiences merit- ing special consideration include minority and disadvantaged communities, children, and those commercial, industrial, and institutional entities that are likely to have significant stormwater impacts.

The next subject to address collectively was the development of a work plan, which not only addressed the prioritized audiences, but divided tasks that capitalized on the institutional capabilities of the education providers. A draft work plan was created and circulated to the Consortium membership. After considerable revisions, a work plan was agreed upon in December 2004. It is the approved work plan which comprises the framework of this Year 1 Report of Activities.

“Continuing the quality of life enjoyed along the coast of South Carolina and continuing the growth of our economy will depend on maintaining the quality of our water resources, including the beaches and the rivers.”

Susan Libes, Professor of Marine Science
Coastal Carolina University
### SG
- **Activity**: Create CWSEC logo by blending service provider logos & cooperator logo. Emphasize interconnectedness and equal footing.
- **Location and Date Delivered**: June 1, 2005
- **Number of Participants**: N/A
- **Other Providers Involved**: All

The official logo of the Consortium was unveiled at the inaugural press conference on June 1, 2005 in Conway. The core education providers have agreed to utilize the logo on all Consortium related materials. The image is intended to convey a meandering coastal stream as it flows along its way to the sea.

### CCU
- **Activity**: Create a professional-looking traveling exhibit for festivals and possibly hotels. Will require purchase of display.
- **Location and Date Delivered**: Non-specific
- **Number of Participants**: N/A
- **Other Providers Involved**: All

Laminated posters have been created. Copies are posted in in the Center for Marine and Wetland Studies, the US Fish and Wildlife Service and a local high school. A traveling exhibit will be developed in Year 2. Clemson has also purchased a traveling exhibit that has arrived, but needs to be slightly modified. This exhibit will be available to all CWSEC members on a reservation basis. There will be general water quality educational material available, but can be modified for any event or function.

### CCU
- **Activity**: Keep online calendar of events including festivals, meetings, workshops for CWSEC cooperators and service providers. Provide online mechanism for reserving traveling displays. WebCT site for cooperators and providers.
- **Location and Date Delivered**: Non-specific
- **Number of Participants**: N/A
- **Other Providers Involved**: All

This idea was originally proposed as a way for everyone to stay updated on regular Consortium business. However, due primarily to lack of resources (time and software), the work plan element was proposed to be deleted. To those ends, at the January 19, 2006 meeting in Conway, it was discussed and determined that the newly implemented LISTSERV and the existing web site were providing adequate information to members.
### General Public

Coastal Grande Mall - Dillards refused to give permission for permanent exhibits. Morse Landing Park construction has not been completed, so no displays can be installed. Permanent exhibits will be developed in Year 2. Graduate students in graphic arts are currently being considered for assisting in the creation of these exhibits.

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>All</td>
<td>Create and maintain permanent exhibits: Coastal Grande Mall and Morse Landing Park. Other possible venues include: Inlet Square Mall, Horry County Museum, Children’s Museum, Libraries, Convention Center, Visitor’s Centers, Huntington, Brookgreen. Continue to seek other venues.</td>
<td>Ongoing</td>
<td>N/A</td>
<td>All</td>
</tr>
</tbody>
</table>

Coastal Training Program staff serve as webmaster for the CWSEC site. Waccamaw Watershed Academy web site has been redesigned with link to CWSEC in addition to research information for students. There is simply too much information on the web site to list. The site can be accessed at [www.northinlet.sc.edu/training/stormwater_education/index.htm](http://www.northinlet.sc.edu/training/stormwater_education/index.htm). New postings are made on a monthly basis.
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<tbody>
<tr>
<td>All</td>
<td>Create and update brochure &amp; PPT presentation (NEMO style)</td>
<td>N/A</td>
<td>N/A</td>
<td>All</td>
</tr>
</tbody>
</table>

Flyer distributed about NEMO style workshops on 10/21/05; PowerPoint presentation developed 11/05; Developed CWSEC brochure in 12/05; Updated and redesigned CWSEC brochure in 5/06. In fact, updates and changes to these presentations is occurring on a regular basis. Each time a new workshop is conducted on behalf of another member SMS4, these materials are updated. All of the presentations are available for downloading off the web. Further, approximately 100 CWSEC brochures have been handed out. The brochures can also be obtained via the web.

| CTP/CCU | Create and maintain a clearinghouse for examples of locally-implemented stormwater practices. Check with OCRM and local stormwater managers for known implementations. | Ongoing | N/A | All |

This information is all available on the CWSEC website.
### Lead Provider | Activity | Location and Date Delivered | Number of Participants | Other Providers Involved
--- | --- | --- | --- | ---
CTP/SG | Create and maintain a slide clearinghouse of the good and the bad. Archived pix. Historical records. Internal to CWSEC providers and cooperators through online access or CD by request. | Incomplete | N/A | All

Although a great many slides have been taken and used for the different workshops, these have not been aggregated into a clearinghouse. This measure is incomplete.

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CCU/SG | News clipping archive. Searchable? CWSEC activity record. Record of stormwater issues in the community. Will require significant financial resources. Most likely the responsibility of education coordinator with guidance from SG public relations staff. | Incomplete | N/A | All

Joe Fersner was going to look into possible synergy with SC DHEC-OCRM on this measure. Dan Hitchcock has also explored using the same clipping service that SC Sea Grant Consortium uses, but refining the service for stormwater education-related topics. There are some newspaper clippings of Consortium activities on file, but not searchable and certainly not comprehensive.
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<th>Number of Participants</th>
<th>Other Providers Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCU</td>
<td>Develop a set of protocols for routine press releases; addressing who's responsible, media contacts, when to invite, etc.</td>
<td>June 2005</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Accomplished at CWSEC meeting in June 2005.

<table>
<thead>
<tr>
<th>Clemson</th>
<th>Develop and broadcast radio programming (i.e., Your Day) that addresses regional stormwater issues.</th>
<th>Nov 2005</th>
<th>50,000 (Statewide)</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Apr 2005</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When “Your Day” programming went on the road to Florence, SC to discuss the water quality impacts of the I-73 corridor, Cal Sawyer provided commentary and answered questions that related to the entire coastal region. When “Your Day” was on the road to Myrtle Beach, Gary Forrester answered questions related to the impacts of home landscaping on water quality. Sawyer is trying to bring the ETV road show down for an entire week of broadcasting from the coast in Year 2.

| Clemson      | Develop and broadcast radio and television Public Service Announcements. Statewide (and coastal) in nature. | Dec 2005 — Present | 22.5 M               | N/A                     |

Clemson has produced 10 different Public Service Announcements. Each one is specifically tailored to the coastal Waccamaw watershed. Topics range from general water quality to dealing with pet waste, to caring for your lawn and garden. Arbitron numbers can be somewhat misleading. The table on page 9 shows the stations on which the PSAs have run, and the average number of listeners at each time. Clearly 22.5 million different people have not heard the ads, in fact most folks are loyal to only 2 or 3 radio stations. The bottom line is that these messages are getting out there to the citizens and visitors along the Grand Strand. One example is given below:

**Public Service Announcement #2**

Did you know that you live in the middle of a watershed? The Waccamaw River watershed starts all the way up in North Carolina, goes through the north end of Horry County and finally meets the ocean around Georgetown. As water flows downhill and into our storm drains and ditches, it picks up pollutants that are carried into creeks and rivers untreated. Help keep our watershed clean and safe by properly disposing of trash, chemicals, and pet wastes. Remember... only rain should go in the storm drain! This message brought to you by Coastal Waccamaw Storm Water Education Consortium and the Clemson University Cooperative Extension Service.
### General Public

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### Table 2 — Summary of Regional Radio Advertising Placement and Audience

<table>
<thead>
<tr>
<th>STATION</th>
<th>DAYPART</th>
<th>LENGTH</th>
<th>SPOTS</th>
<th>NET REACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSYN</td>
<td>6A-7P</td>
<td>:60</td>
<td>92</td>
<td>20,300</td>
</tr>
<tr>
<td></td>
<td>6A-7P</td>
<td>:60</td>
<td>92</td>
<td>20,300</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL SPOTS</strong></td>
<td></td>
<td><strong>184</strong></td>
<td></td>
</tr>
<tr>
<td>WYAK</td>
<td>6A-7P</td>
<td>:60</td>
<td>92</td>
<td>21,000</td>
</tr>
<tr>
<td></td>
<td>6A-7P</td>
<td>:60</td>
<td>92</td>
<td>21,000</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL SPOTS</strong></td>
<td></td>
<td><strong>184</strong></td>
<td></td>
</tr>
<tr>
<td>WSEA</td>
<td>6A-7P</td>
<td>:60</td>
<td>92</td>
<td>11,000</td>
</tr>
<tr>
<td></td>
<td>6A-7P</td>
<td>:60</td>
<td>92</td>
<td>11,000</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL SPOTS</strong></td>
<td></td>
<td><strong>184</strong></td>
<td></td>
</tr>
<tr>
<td>WJXY/WXJY</td>
<td>6A-7P</td>
<td>:60</td>
<td>92</td>
<td>11,000</td>
</tr>
<tr>
<td></td>
<td>6A-7P</td>
<td>:60</td>
<td>92</td>
<td>11,000</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL SPOTS</strong></td>
<td></td>
<td><strong>184</strong></td>
<td></td>
</tr>
</tbody>
</table>

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"There are better ways to manage everyday activities, from how you maintain your garden to what you do at the beach and even where you wash your car."

Dan Hitchcock  
Coastal environmental quality specialist  
SC Sea Grant Extension

Created Coastal Water Ways. All issues reside on the Carolina Clear website. The Carolina Clear website has recently undergone a very significant change to the structure and format. All education materials, including digital audio and video, brochures, bill stuffers and all issues of Coastal Water Ways will reside on the site. In addition, several Clemson Extension gardening columns in the Georgetown Times and the Myrtle Beach Sun News have addressed important issues related to water quality and quantity, and the importance of water conservation. No formal mechanism has been created yet for evaluating this type of mass media however, so future efforts must focus on establishing metrics for determining message effectiveness.
Want to Know How to Protect Your Water Quality?

We’re going to help! This article is the first in a series of informational and educational tools for property owners concerned about water quality in coastal Georgetown and Horry Counties. The information is designed to help citizens understand ways to protect and preserve the quality of life and the water resources that we enjoy on the coast.

Many activities we undertake around our homes and apartments have an impact on water quality. In the coming weeks and months, we’ll be bringing you information and tips on such important topics as landscaping and gardening, household hazardous waste, caring for your boat and dock, managing your septic system, and even keeping your well water clean. You may be surprised at many of the things you’ll learn!

The informational series is being brought to you by several organizations who understand the importance of good water quality. The primary sponsor is the Coastal Waccamaw Stormwater Education Consortium. This organization was formed to maximize the efficiency of stormwater education efforts in the northeastern coastal region of South Carolina by using a regional or watershed approach. The CWSEC is made up of several organizations:

- City of Conway
- City of Myrtle Beach
- City of North Myrtle Beach
- City of Surfside Beach
- Georgetown County
- Horry County
- Clemson Cooperative Extension Service
- Coastal Carolina University
- NC-WB National Estuarine Research Reserve
- SC Sea Grant Extension Program
- Murrells Inlet 2007
- Waccamaw River Keeper

So we’d like to challenge you over the next few months to read the upcoming series of articles and make the necessary changes in your everyday activities that may impact water quality. Remember, there are many ways we can help protect our
There have been over 20 Master Gardener classes taught in both Georgetown and Horry counties. Several have been for continuing education opportunities and others have been to instruct new Master Gardeners. Over 90 man-days have been spent in this endeavor from 4 different agents in locations from Brookgreen Gardens to Loris. Impact data is due to Clemson on these classes from the agents in July, so this information will be supplied after being received and tabulated. In addition, there is a newly developed horticulture course called Low Impact Gardening. It is being taught as part of the Master Gardener series in Horry and Georgetown counties. To date, 10 classes have been taught.

Coast-A-Syst (CAS) is being combined with rain garden installation for two full day workshops. Through conversations with Clemson Extension environmental horticulture agents, it became apparent that the goals and format of CAS programming dovetailed favorably with those for a homeowner rain garden installation effort. See subsequent measures for more information.

This measure has been pushed to Year 2 programming.

A rain garden is scheduled to be installed at the Center for Marine and Wetland Studies in Conway, SC on Monday June 5, 2006. Also, a rain garden program with a demonstration installation will be conducted at the Town of Surfside Beach Civic Center (Town Hall) on Tuesday June 6, 2006. Native vegetation will be utilized where possible. Press has been invited and has indicated a willingness to attend and provide coverage. With proper signage, these bioretention system could serve as a prototype for future installations. Information will be available on the Consortium website following completion.
The Grand Strand Master Gardener Association, in cooperation with Clemson Extension Service, is actively sampling five (5) sites in Georgetown County for phytoplankton each week. The MG Association is a group of local Master Gardeners who teach the general public proper, environmentally-safe gardening techniques. This group is very concerned about water quality issues and members who become trained by NOAA staff, or local phyto hunters, use their knowledge to educate the public on the fact that our coastal waters are full of microscopic critters that can be affected by actions in our landscapes. In 2005, 2 previously undiscovered (in SC) species were confirmed through the work of Gary Forrester and his monitoring team. A training workshop at Coastal Carolina University took place October 27, 2005. A second workshop is scheduled for September 9, 2006.

The NI-WB Community Education program, collaborating with Coastal Training Program, conducted a joint DeBordieu/Prince George homeowners presentation. Twenty-two (22) individuals participated and the program received very positive feedback from those homeowners present.
First presentation on "Watershed Ecology - the Science Behind the News" - portions of this presentation have been used several times in high school presentations throughout spring ’06 (4 classes/ ~90 students)

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Activity</th>
<th>Location and Date Delivered</th>
<th>Number of Participants</th>
<th>Other Providers Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI-WB (Community Education)</td>
<td>Develop new public program on watersheds, water quality, and stormwater education.</td>
<td>February 9, 2006 Georgetown County</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>NI-WB (Community Education)</td>
<td>Participate with Keep Georgetown Beautiful (KGB) on Kaminiski House Gardening Day and provide gardening BMPs for event participants</td>
<td>March 23, 2005 Georgetown County</td>
<td>Approximately 200</td>
<td>N/A</td>
</tr>
<tr>
<td>NI-WB (Community Education)</td>
<td>Promoted and participated in semi-annual Sampit River Sweep</td>
<td>Nov 10, 2005 Georgetown County</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CCU</td>
<td>Displayed watershed and mapping information at various conferences, workshops and festivals</td>
<td>Horry County</td>
<td>Approximately 200</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Events included 2/4/06 Waccamaw River Conference; 3/9/06 Murrells Inlet Chowder Talk; 6/3/06 Waccamaw Riverkeeper Rendezvous.

The conference took place in St Petersburg, FL on May 14-17, 2006. A copy of the presentation is available on the website, as well as the submitted paper entitled *WE ALL LIVE DOWNSTREAM: A REGIONAL APPROACH TO STORMWATER EDUCATION FOR COASTAL COMMUNITIES*. Much of the narrative material from the presented paper was utilized to complete this Year 1 Report.
### K-12 & Higher Education

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</tr>
</thead>
<tbody>
<tr>
<td>MI 2007</td>
<td>Provide water quality education programs through class trips and visits to classrooms by retired teacher volunteers docent at Georgetown County Landfill's Environmental Education Center and in K-5 classrooms in Georgetown County and southern Horry County.</td>
<td>Ongoing Georgetown County</td>
<td>165</td>
<td>N/A</td>
</tr>
</tbody>
</table>

A series of presentations was made to the Waccamaw Elementary School, Grade 5 March 23-24, 2006.

| MI 2007 | Conduct class trips at Capt Dick's Marina. | N/A | N/A | N/A |

This activity was not undertaken during the 2005-2006 cycle. It will be deleted from future CWSEC Work Plans.

| Assist SC DHEC and Horry County with stormwater education training for K-12. Meredith Barkely. Environthon. | No Information Provided | No Information Provided | All |
| Explore interest in supporting a regional water quality merit badge program for Girl Scouts & Boy Scouts | No Information Provided | No Information Provided |    |
### Lead Provider | Activity | Location and Date Delivered | Number of Participants | Other Providers Involved
--- | --- | --- | --- | ---
CCU | Conduct High School Summer Camp for At Risk Students: Bluffton High School | Bluffton, SC | N/A | N/A

This measure was not completed during this education cycle. It may be considered in future planning.

### CCU | Provide operational support to Myrtle Beach Academy of Arts and Sciences Environmental Major | March 30, 2006 Myrtle Beach | N/A | N/A

This measure is in progress. Coastal Carolina University personnel attend the Academy’s biannual meetings. CCU staff will be working with the Academy in Year 2 by leading field trips and providing other educational resources as needed.

### CCU | Provide leadership for adoption and implementation of BSD in Horry County Schools and CCU’s campus | Dec 15, 2005 Horry County | N/A | Dan Abel, Campus Sustainability Initiative

### CCU | Support development of LEED certification of CCU’s proposed Arena | Ongoing Conway | N/A | Dan Abel, Campus Sustainability Initiative

### CCU | Development Stormwater Management Plan for CCU. Provide stormwater audit process to K-12 schools | Conway | N/A | N/A

Undergraduate students along with CCU staff will be working on Stormwater Management Plan in Year 2.
## K-12 & Higher Education

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<tr>
<td>CCU</td>
<td>Provide educational outreach for development of new Horry County schools in Carolina Forest</td>
<td>Dec 15, 2005 Horry County</td>
<td>N/A</td>
<td>Dan Abel, Campus Sustainability Initiative</td>
</tr>
<tr>
<td>CCU</td>
<td>Develop and support permanent wetland and BMP monitoring programs to be conducted by students for new schools in Carolina Forest</td>
<td>May 8, 2006 Horry County</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Developing relationship with teacher(s) in Carolina Forest schools; met with Horry Co. Schools Science Specialist to discuss potential collaborations.

| CCU           | Guide undergraduate students in creating and assessing a stormwater treatment wetlands at CCU’s campus. | Conway | N/A | Dan Abel, Campus Sustainability Initiative |

Permission was sought and granted to relocate plants from ditches around CCU arena construction site to stormwater ponds. Plants were relocated with help of students and various staff.

| NI-WB (K-12 Edu) | Provide classroom experiences focusing on water quality monitoring and stormwater education | March 14, 2005 August 8, 2005 April 6, 2006 | 78 (GHS), 80 (WHS); 75 | N/A |

| NI-WB (K-12 Edu) | Work with school committee of Keep Georgetown Beautiful to provide YMCA after-school programs on water quality | Georgetown County | No Report Provided | N/A |
## K-12 & Higher Education

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</thead>
<tbody>
<tr>
<td>NI-WB (K-12 Edu)</td>
<td>Provide field trip experiences focusing on water quality monitoring and stormwater education</td>
<td>March 28, 2005 to August 2006</td>
<td>25 (LCHS), 17 (Explorers)</td>
<td></td>
</tr>
<tr>
<td>CCU/Clemson</td>
<td>Conduct 4H2O Pontoon Classroom summer program based in Conway Marina. Future events can be based in ICW and downstream in Georgetown area.</td>
<td>Conway Horry County</td>
<td>15 per camp</td>
<td>N/A</td>
</tr>
</tbody>
</table>

A uniform curriculum is provided for the independent 4H2O - Pontoon Classroom programs. The local program team adapts and adds to the curriculum to suit local needs and expertise. Common learning experiences include: exploring the local watershed; water chemistry testing; microscopic identification of invertebrates and algae; making and using Secchi disks; dissolved oxygen and temperature monitoring (including drawing a DO/Temperature profile of a stratified lake); and fish identification.
SECOORA is designed, implemented, operated and improved to provide data, information and products on marine and estuarine systems deemed necessary to the users in a common manner and according to sound scientific practice. SECOORA will serve the needs of users with measurements and data transmission, data management and communications, and data analysis and modeling. SECOORA objectives include: 1. represent the interests of those that use, depend on, study and manage coastal environments and their resources in the southeast region; 2. become a legal entity that provides a fiscal agent with final responsibility for acceptance and expenditure of funds according to the rules of grantors of the funds, insurability, and the ability to enter into enforceable contracts; 3. represent a partnership or consortium of data providers and users from state and federal agencies, private industry, non-governmental institutions and academia; 4. provide a means by which the Regional Association and the public at large benefit from and contribute to the development and sustained operation of an integrated ocean observing system for the open ocean (to the EEZ boundary) and the region’s estuaries; and 5. ensure continued and routine flow of data and information and the evolution of SECOORA to adapt to the needs of the user groups and the timely incorporation of new technologies and understanding based on these needs.

Surveys mailed (2400). News article in Horry Independent (12/29/05). Baseline Assessment Report being prepared. Meeting with Conway City Council 12/27. USA and USSR scheduled for Winter 2005-2006. 4/4 - 4/7/06 USA and USSR surveys conducted. Stakeholders meetings with WQ and Drainage Commission on 5/4/06 and 5/24/06
Elected & Appointed Officials

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Activity</th>
<th>Location and Date Delivered</th>
<th>Number of Participants</th>
<th>Other Providers Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCU</td>
<td>Assist Horry County in adopting CWP recommendations for stormwater and building regulations</td>
<td>Horry County</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>SG/All</td>
<td>Deliver NEMO-based program for elected and appointed officials, focusing on NPS pollution and stormwater, management practices and incentives, and guidance for better site design and planning</td>
<td>Town of Surfside Beach = 21; Georgetown County = 17 Murrells Inlet ~50; Horry County = 20</td>
<td>Town of Surfside Beach = 21; Georgetown County = 17 Murrells Inlet ~50; Horry County = 20</td>
<td>N/A</td>
</tr>
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</table>

Additional funding acquired to complete CWP watershed review of county.

Even before beginning finishing its Year 1 activity plan, CWSEC attracted enough positive attention to be invited to deliver a presentation at SC DHEC’s Getting In Step Workshop, which showcased model efforts at stormwater education. During this first year of providing services, a major effort has been the delivery of customized stormwater education workshops to elected and appointed government officials and their staff. These workshops have been modeled after SC Sea Grant’s NEMO (Nonpoint Education for Municipal Officials) presentations. Topics covered during the workshops include combinations of the following: (1) basic watershed and non-point source pollution concepts; (2) an overview of the NPDES Phase II program; (3) the communities’ progress with their stormwater management plans and/or ordinances; (4) hands-on mapping activities; (5) stormwater management options at the regional, neighborhood and site scales featuring low impact development, better site design, buffers, and other stormwater best management practices (BMPs); and (6) the need for coordinating water quality monitoring on a watershed scale. Some seminars conclude with a consensus-building activity in which the participants prioritize steps for implementing their stormwater management plans. All workshops close with a written assessment providing constructive input from the participants for future programming. A customized web page linked to the CWSEC website, featuring the event agenda, presentations, and a suite of references and planning tools, is then created for the community. Overall, based on survey results, the audiences were very satisfied with the workshops, and greater than 90% of surveyed participants agreed that their knowledge level about stormwater was increased. Detailed statistical analyses of workshop evaluation results are available upon request.
A variation of this measure was accomplished by the SC Sea Grant Extension Program at CCU in Conway on April 20, 2006, and coordinated by April Turner. The “Meet your Land Use and Environmental Agency Officials” seminar was attended by local elected and appointed municipal and county officials and staff, as well as by some citizens.

The CTP has also been able to offer technical assistance with the developing Georgetown County Stormwater Program. While serving as co-chair of the Georgetown County Stormwater Advisory Board, Jeff has had the opportunity to deliver a myriad of reference materials to other advisory board members, the contracted engineers, county staff and elected and appointed officials. Further, the co-chair position has created an opportunity for the CTP to reach other primary and secondary audiences with important watershed and stormwater concepts. Jeff has also had the opportunity to contribute significant content and language to the emerging stormwater ordinance and BMP manual.

Attended meetings and submitted comments. Chapter is in draft form.

Attended meetings and integrated with KLW plan.
### Elected and Appointed Officials

#### Year I Annual Report

**Coastal Wacawcamaw Stormwater Education Consortium**

<table>
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<tr>
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<tbody>
<tr>
<td>CCU</td>
<td>Facilitate submission and execution of OCRM's Assistance to Coastal Communities grants (applications submitted by Surfside and Georgetown in 2005)</td>
<td>Surfside and Georgetown</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Nothing to report for this measure.

| CCU           | Assist in the development of a riparian and wetland Buffer Ordinance for Horry County | Horry County       | N/A                    | N/A                     |

Additional funding acquired to complete CWP watershed review of county.

| CTP           | Conduct a Workshop to showcase NOAA's Coastal Alternatives analysis | Dec 8, 2005 NI-WB NERR | N/A                    | N/A                     |

Presentations and reference tools on-line at http://northinlet.sc.edu/training/training_events.htm

| CTP           | Conduct a Workshop to showcase North Charleston's Noisette Project | Dec 8, 2005 NI-WB NERR | N/A                    | N/A                     |

The CTP recruited the design team behind the Noisette redevelopment project in North Charleston was featured as a case study at a workshop style training event entitled: *Coastal Development Alternatives: Innovative Case Studies from the Low Country* in December of 2005. For the second case study, a team from the NOAA Coastal Services Center presented their interactive on-line model called ‘Alternatives for Coastal Development: One Site, Three Scenarios, which was enables quantitative comparison of assorted economic, social, and environmental criteria for different modes of coastal development.
Pervious Concrete: Installation, Efficacy, and Economics (August 17, 2005 - 80 participants) was another installment in the CTP training series showcasing innovative, water-quality based stormwater Best Management Practices. Coastal Carolina University’s Waccamaw Watershed Academy, was a partner on this training. As with all CTP events, the event agenda with hotlinks to uneditable forms of each of the presentations have been posted in the ‘Training Events’ section of the NI-WB CTP website: http://northinlet.sc.edu/training/

A Pervious Concrete Reference Tools Page, also available through the NI-WB CTP site, offers assorted web references and technical and scientific reports and publications that are intended to help practitioners apply what they learned at the training event.

Among the positive outcomes to result from planning and implementing this event are up to 3 potential local pervious concrete demonstration projects that are under consideration. Not only do these projects yield important monitoring data on the efficacy of this technology, but they serve as critical teaching tools and help to improve local water quality. The technical assistance that the CTP provided with the outreach components of pervious concrete-related grant proposals ultimately led to a collaboration between a USC researcher and Susan Libes (Director of the Waccamaw Watershed Academy) that has may yield the pervious concrete research/demonstration sites at Coastal Carolina University.

On June 7th, the CTP hosted a workshop-style training event entitled Low Impact Development in Practice: Case studies in Quality Growth in partnership with the Waccamaw Watershed Academy at Coastal Carolina University, SC Sea Grant Extension, and Clemson Extension Service (73 participants). This training event featured multiple case studies, including a detailed look at Haymount—an inspiring new community under construction on the Rappahannock River in Virginia and integrated broad concepts in watershed-sensitive planning with site-specific building strategies for managing stormwater runoff. This training also highlighted rainwater capture as a strategy for simultaneously managing stormwater runoff, conserving water resources, and optimizing building performance.
### Elected & Appointed Officials

**Lead Provider**  | **Activity** | **Location and Date Delivered** | **Number of Participants** | **Other Providers Involved**
---|---|---|---|---
SG/Clemson  | Conduct a hands-on workshop covering the installation of rain gardens and rain barrels. | June 6, 2006 Surfside Beach | 25 | CTP, CCU MI 2007

During this one-day workshop, local extension specialists provided information about how homeowners can manage rainfall runoff on their property. They also learned valuable yet simple tips about how to minimize resources needed for home garden and/or landscape. The workshop included a hands-on demonstration and installation of a *rain garden* (a landscape feature that is not only attractive as a garden but also functional for treating polluted runoff). The rain garden was installed at the Town of Surfside Beach’s Civic Center (Town Hall). The Coastal Training Program has taken the lead on the rain barrel activity, which is described under the Professionals:Contractors/Engineers section.

**CTP**  | Assist Georgetown County in completing their code and ordinance review | Georgetown County | N/A | N/A

This measure will carry over to Year 2.

**CCU/Clemson**  | Conduct 4H2O Pontoon Classroom summer program based in Conway Marina. Future events can be based in ICW and downstream in Georgetown area. | Horry County | N/A | N/A

The 4H2O Pontoon Classroom curriculum and schedule was discussed in the previous section. Placement of this measure here in the Elected and Appointed Officials section may have been a mistake.

**Clemson**  | Conduct a Workshop on Proper Disposal of Household Wastes. Consider coordinating with Horry County SWA to schedule a Landfill Waste Disposal Day. | Incomplete | N/A | N/A

This measure will be incomplete and carried over to Year 2.
<table>
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<tbody>
<tr>
<td>Clemson</td>
<td>Continue to conduct training for Clear Water Contractor and Certified Erosion Prevention and Sediment Control Inspector courses.</td>
<td>N/A</td>
<td>N/A</td>
<td>SG</td>
</tr>
</tbody>
</table>

There were no CWC or CEPSCI courses conducted in Georgetown or Horry counties this cycle. There were, however, nine (9) CEPSCI courses taught in Charleston. There are currently 172 CEPSCI certified inspectors in Georgetown and Horry counties. In the coming year we need to discuss as a Consortium, a good way to approach the target audience of contractors. We have the curriculum, notebooks and equipment to conduct numerous courses, we need to fill the seats.

<table>
<thead>
<tr>
<th>CTP</th>
<th>Conduct a hands-on workshop covering the installation of rain gardens and rain barrels.</th>
<th>June 7, 2006 Litchfield, SC</th>
<th>TBD</th>
<th>N/A</th>
</tr>
</thead>
</table>

CTP has taken the lead on rainwater harvesting and *rain barrel* demonstrations, with CCU likely installing rain barrels at the Center for Marine and Wetland Studies. The June 7 CTP workshop was entitled “Low Impact Development in Practice: Case Studies in Quality Growth. Presentations and reference tools are available on-line at http://northinlet.sc.edu/training/training_events.htm

<table>
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<tr>
<th>CTP</th>
<th>Conduct a workshop showcasing North Charleston's Noisette Project AND Conduct workshop showcasing NOAA Coastal Alternatives analysis..</th>
<th>Dec 8, 2005 Litchfield, SC</th>
<th>72</th>
<th>CCU and NOAA CSC</th>
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Presentations and reference tools on-line at http://northinlet.sc.edu/training/training_events.htm
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<tr>
<td>SG/Clemson</td>
<td>Investigate the installation of rain garden demonstration projects in area schools, commercial facilities, or residential settings.</td>
<td>June 6, 2006 Surfside</td>
<td>27</td>
<td>CCU, CTP and MI 2007</td>
</tr>
</tbody>
</table>

During this one-day workshop, local extension specialists provided information about how homeowners can manage rainfall runoff on their property. They learned valuable yet simple tips about how to minimize resources needed for your home garden and/or landscape. The workshop included a hands-on demonstration and installation of a rain garden (a landscape feature that is not only attractive as a garden but also functional for treating polluted runoff). The rain garden was installed at the Town of Surfside Beach’s Civic Center (Town Hall).

“Population growth, residential and industrial development and resulting changes to the landscape have led to stormwater quality and quantity concerns in South Carolina”

Cal Sawyer
Water Quality Coordinator
Clemson University Extension Service
During the two years that CWSEC has been in existence, several lessons have been learned: (1) Assessment and evaluation is difficult but important work. Assessment is a required component of the NPDES Phase II program, so CWSEC has agreed to provide each SMS4 with an annual assessment report that can be submitted to SC DHEC. This report will contain an itemized accounting of the target audience impacted, the degree of impact, when and where the activity was held and the nature of the activity. Most of the service providers have had some formal training in assessment. The assessment results are also used internally for self-assessment and improvement; (2) Involvement with other governmental agencies is important, especially where those agencies have mission overlap. In the case of stormwater education, many agencies, such as Natural Resources Conservation Service and state forestry commissions are realigning their management goals to address the increasing importance of stormwater-related issues; (3) These issues are best framed in a watershed context requiring communities to work together on stormwater management; (4) In order for presentations to be customized for the specific communities, the service providers really need to know a lot about these communities. This is best achieved by having the service providers serve as technical advisors, such as on the municipality’s stormwater advisory board; (5) Due to an increasing demand for services, the Consortium has grown to realize the need of a designated staff person to coordinate and facilitate the Consortium’s activities; and (6) It is necessary to allow enough time during the biannual Consortium meetings for open-ended discussions so that the stormwater managers can identify emerging needs and concerns.

CWSEC is working and interacting with a wide range of audiences in the Grand Strand area of South Carolina. The core education service providers that constitute CWSEC hope that their system for a collaborative regional approach to stormwater and watershed education will prove to be a useful model for communities across the southeastern US and beyond. After two years of hard work, CWSEC is helping citizens understand stormwater issues while preserving the quality of their water resources in the northeastern coastal area of South Carolina and helping local communities meet their NPDES regulatory requirements through a regional education approach.
Coastal Waccamaw Stormwater Education Consortium Workshops

1. Town of Surfside Beach Council Chambers, Surfside Beach, SC, Nov. 3, 2005
3. Horry County Public Services Building, Conway, SC, April 19, 2006

The goals of these workshops were:

1. deliver science-based information regarding water quality issues in coastal SC,
2. educate elected and appointed officials and local municipal/county staff about the links between land use and water quality within a watershed, including the impacts of impervious surfaces, and
3. provide planning and development techniques and stormwater management strategies for consideration to protect water quality, based primarily on SC Nonpoint Education for Municipal Officials (NEMO) principles, but also on Low Impact Development (LID) and Center for Watershed Protection (CWP) principles.

Focal principles included locally specific elements of natural resource-based planning strategies, better site design, and larger scale best management practices (BMPs) for controlling polluted runoff for each community. For the counties, the landscape varies from highly urban to rural with a typical shallow water table. Also, the transition of forested and agricultural lands to residentially developed areas is notably prevalent at the county scale. The Town of Surfside Beach, on the other hand, is primarily urbanized with a transient seasonal population.

Figure 1. Sample slides from Stormwater Education Workshop presentations.
Typical Agenda

The agendas varied for the three locations depending on local issues, needs, and requests. A sample agenda from the Georgetown County workshop follows.

Introduction: The Importance of Today’s Workshop and Its Goal

Part I: Overview of NPDES Phase II Program and Georgetown’s Progress

- Basics of Phase II Stormwater Program for Small MS-4s
  - Six minimum measures
  - Consequences of noncompliance
  - Current legal status
- Georgetown County’s Progress
- Monitoring

Part II: Mapping Activity and Review of Watershed and Nonpoint Source Pollution Concepts

- Hands-on mapping activity
  - Watershed concept
  - Identify various land uses and their relation to causes of nonpoint source pollution
- Hydrological cycle – surface and groundwater
- Overview of various land uses in the county
- Role of impervious cover
  - Relationship between imperviousness and water quality impairments
- Types of pollutants and the problems they cause


- Importance of buffers

Part IV: Specific BMPs (25 minutes – Dan Hitchcock, SC Sea Grant Extension Program)

- Georgetown specific
- Quasi-technical

Part V: What Next?

- Prioritize activities
- Workshop Evaluation - Jeff
Attendence and Evaluation Results

Total attendance was approximately 58 local elected and appointed officials, and stormwater/public works/planning staff (21 at Surfside Beach, 17 at Georgetown County, and 20 at Horry County). Figures 3 through 5 show the breakdown of participants by representative group or agency. Each workshop was evaluated by participants. An overall response rate of 60.3% will help the education providers improve on workshop topical, format, presentation, and overall quality. Figures 6 through 8 give these results on a scale of 1 (disappointing) to 5 (wonderful). Audience information about knowledge improvement regarding water quality and mechanisms for protecting it were evaluated in the post-workshop survey. Figures 9 through 11 provide those results for each location, respectively.

![Figure 3. Participation breakdown by representation at Surfside Beach, total evaluation respondents equals 11, total participants equals 21 (52.4%).]
Figure 4. Participation breakdown by representation at Georgetown County, total evaluation respondents equals 14, total participants equals 17 (82.4%).

Figure 5. Participation breakdown by representation at Horry County, total evaluation respondents equals 10, total participants equals 20 (50%).
Figure 6. Workshop quality ratings for the Town of Surfside Beach.

Figure 7. Workshop quality ratings for the Georgetown County.
Horry County Ratings
(1 = disappointing; 5 = wonderful)

Figure 8. Workshop quality ratings for the Horry County.

Figure 9. Participant knowledge level and usefulness data from the Town of Surfside Beach workshop evaluation.
Figure 10. Participant knowledge level and usefulness data from the Georgetown County workshop evaluation.

Figure 11. Participant knowledge level and usefulness data from the Horry County workshop evaluation.
Gallery Walk Results – Town of Surfside Beach

The following responses are the results of the gallery walk activity at Surfside Beach, where workshop participants answered each question that was posted on a wall, and then each participant voted on the top response per question. The ranked responses to each question follow:

What does the Town of Surfside Beach need to do to get its Stormwater Management Plan implemented?

(7) Citizen involvement and public awareness
(4) Finalize the Stormwater Management Plan with approval from DHEC
(3) Stay the course (it is being implemented)
  (1) Maintain focus (on quality not just quantity) and flexibility
(3) Designate staff to champion/shepherd (i.e. stormwater engineer or staff engineer/planner or shared staffer between communities)
(3) Council awareness and support (based on understanding)
(1) Cooperation and support from county
(0) Awareness of business community that tourism industry is threatened
(0) 3 stakeholders: Oceanside Village, County and Surfside Beach
(0) Getting contracts (i.e. use resources/money to make progress)

What are the highest priority stormwater issues that should be addressed by the Stormwater Management Plan?

(7) Bacteria
(4) Community education
(4) Shallowness and silting of lakes
(3) Watershed relations to Horry County
(3) Flooding
(2) Sewer system check
(1) Short and long-term plan is needed

What are the implementation activities that should be undertaken first as part of the Town of Surfside Beach’s Stormwater Management Plan?

(8) Funding/staffing
(6) Self-analysis of sources of Nonpoint Source Pollution
  Water quality
  Age of sewer lines
  Water lines
(3) Education for buy-in of public and Council
  (1) Lead by example
  (2) Make a plan and timeline
What are the biggest challenges to finalizing and implementing Town of Surfside Beach’s Stormwater Management Plan?

- Education of public
- Education of council
- Money
- Public concern
- Science/Research/Data/Results
- A vision into comprehensive plan
- Accountability
- Knowledge of “as is” and problems
- Citizen involvement and awareness
- Coordinating interests
- Time table – sooner rather than later
- Limited selection of practices

Notable Outcomes

- The Town of Surfside Beach is incorporating pond management strategies learned in stormwater education workshops, including vegetated buffers and maintenance activities, into its stormwater management plan.
- Georgetown County is considering techniques learned in stormwater education workshops as they develop and adopt their county-wide stormwater ordinance.
- Impervious surfaces are being recognized for their conveyance of stormwater flow and impedance of infiltration, both of which impact water quantity and quality.
- Interest in specific techniques has encouraged the future delivery of more targeted workshops (e.g. rain garden demonstration in Surfside Beach, rainwater harvesting workshop for developers).