

Southern Region Housing Density 1970



Housing Units per Km²

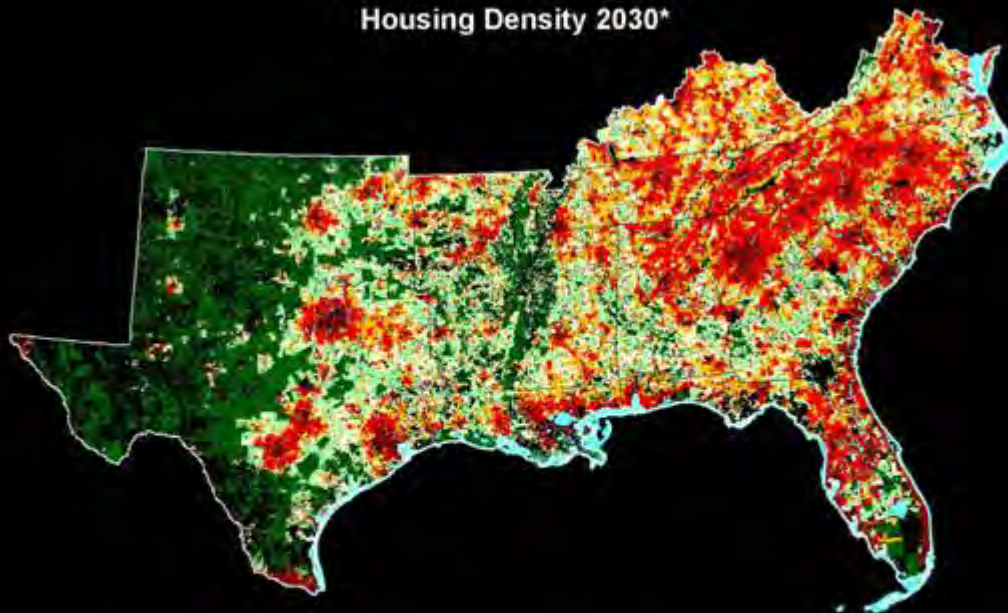


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University of Wisconsin-Madison

BUILDING SUSTAINABLE COMMUNITIES FOR THE 21ST CENTURY

August 12-14, 2008 · Doubletree Guest Suites · Charleston, SC

Southern Region Housing Density 2030*



Housing Units per Km²



*Linear projection of 1990s growth

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Thanks to:

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Southeast Watershed Forum

Southeast Watershed Assistance Network
and
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Thanks to:

Concurrent Session Moderators

Wednesday, August 13th

Alec Brebner, BCD Council of Governments
Hansje Gold-Krueck, NOAA
Christine Olsenius, Southeast Watershed Forum
Margaret VanderWilt, NOAA
Nancy Vinson, SC Coastal Conservation League
Ann Weaver, NOAA

Thursday, August 14th

Tashya Allen, NOAA
Brooke Chakides, Pearl Systems Government Services
James Ford, Southeast Watershed Forum
Jane Fowler, Southeast Watershed Forum
Ronnie Haynes, US Fish & Wildlife Service
Chrissa Stroh, NOAA

Breakout Session Facilitators & Note Takers

Facilitators

Susan Crow, Place Matters
Jane Fowler, Southeast Watershed Forum
Joel Haden, Tennessee Valley Authority
Melissa Ladd, NOAA
Shannon O'Quinn, Tennessee Valley Authority
Heidi Recksiek, NOAA

Note Takers

Tashya Allen, NOAA
Brooke Chakides, Pearl Systems Government Services
Lauren Long, NOAA
Jodie Sprayberry, NOAA
Chrissa Stroh, NOAA

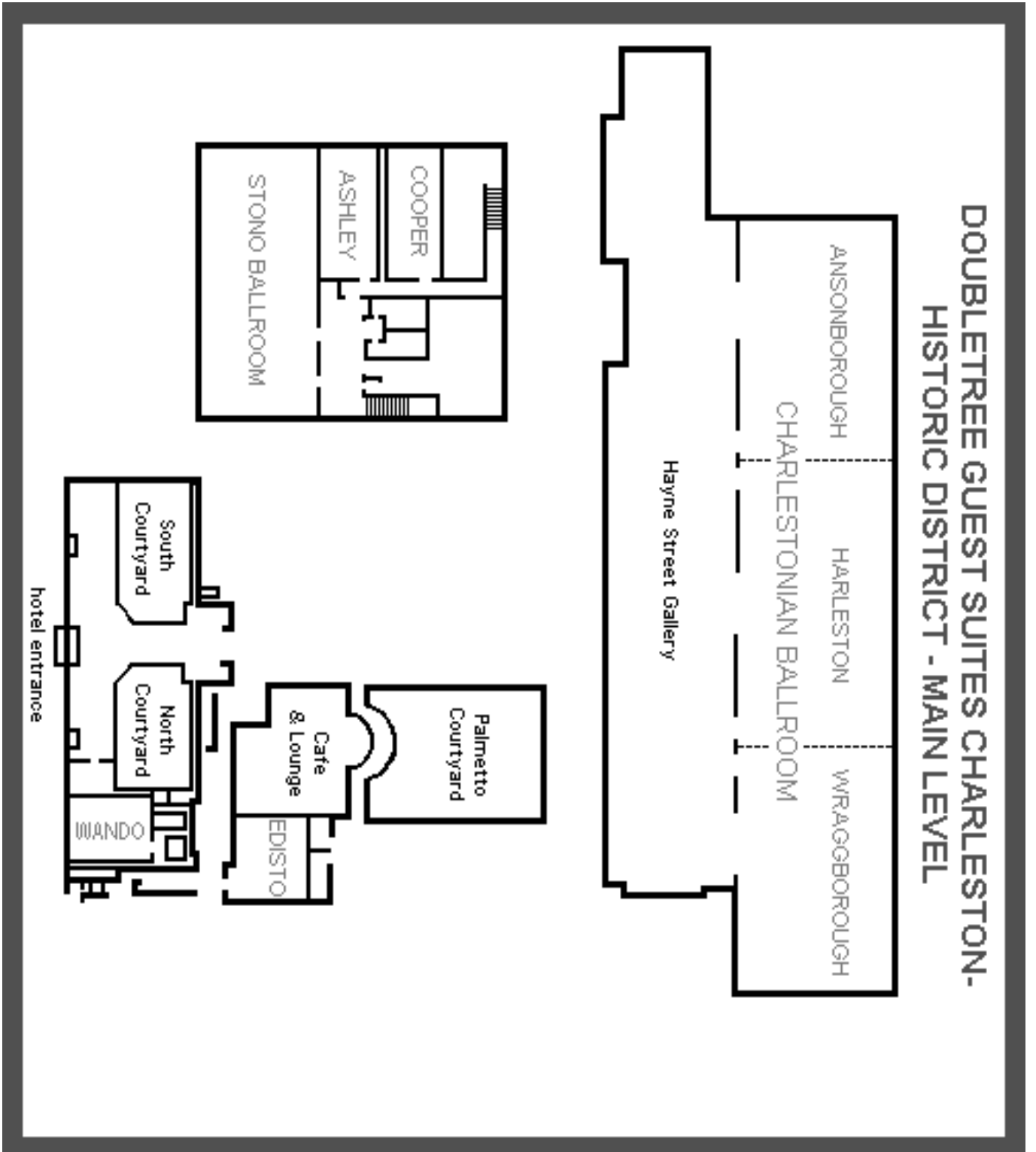
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Conference attendance is eligible for 3 Continuing Education Credits from the SC Planning & Education Advisory Committee.

Please check at the registration desk for more information.

Meeting Room Map



Schedule at a Glance

Tuesday, August 12

| | | |
|---------------------|---|----------------------|
| 9:00 a.m.—4:30 p.m. | Registration Desk Open | |
| 1:00 p.m.—5:00 p.m. | Tours 1 and 2 | Hayne Street Gallery |
| 1:00 p.m.—5:00 p.m. | Workshop 1: <i>Exploring the Link Between Development Form and Watershed Protection</i> | Ashley |
| | Workshop 2: <i>Developing Conservation-based Land Use Plans for Your Community</i> | Cooper |
| 4:00 p.m. | Exhibitor Set-Up | Ansonborough |

Wednesday, August 13

| | | |
|-----------------------|--|--|
| 7:30 a.m.—4:30 p.m. | Registration Desk Open | Lobby |
| 7:30 a.m.—8:00 a.m. | Breakfast | Ansonborough & Palmetto Courtyard |
| 8:30 a.m.—10:00 a.m. | Plenary Session & Keynote Speakers | Harleston/Wraggborough |
| 10:00 a.m.—10:30 a.m. | Break & Book Signing | Ansonborough |
| 10:30 a.m.—Noon | Concurrent Sessions: Session A Session B | Harleston Wraggborough |
| Noon—1:20 p.m. | Luncheon and Luncheon Address | Stono Ballroom |
| 1:30 p.m.—2:45 p.m. | Concurrent Sessions: Session A Session B | Harleston Wraggborough |
| 2:45 p.m.—3:00 p.m. | Break | Ansonborough |
| 3:00 p.m.—4:00 p.m. | Breakout Discussions Inland—A Inland—B BCD—A BCD—B Coastal—A Coastal—B | Ashley Wraggborough Harleston Harleston Stono Ballroom Stono Ballroom |

Schedule at a Glance

wednesday, August 13 (Continued)

| | | |
|-------------------|---|--------------------------------------|
| 4:10p.m.—5:20p.m. | Concurrent Sessions Session A Session B | Harleston Wraggborough |
| 5:30p.m.—7:30p.m. | Welcome Reception | Ansonborough & Palmetto Courtyard |

thursday, August 14

| | | |
|---------------------|---|--------------------------------------|
| 7:30a.m.—8:00a.m. | Breakfast | Ansonborough & Palmetto Courtyard |
| 8:00a.m.—1:00p.m. | Registration Desk Open | Lobby |
| 8:15a.m.—9:45a.m. | Plenary Session & Keynote Speakers | Harleston/Wraggborough |
| 9:45a.m.—10:00a.m. | Break | Ansonborough |
| 10:00a.m.—11:15a.m. | Concurrent Sessions Session A Session B | Harleston Wraggborough |
| 11:20a.m.—12:00p.m. | Concurrent Sessions Session A Session B | Harleston Wraggborough |
| 12:00p.m.—1:00 p.m. | Luncheon and Luncheon Presentations | Stono Ballroom |
| 1:10 p.m.—2:10 p.m. | Concurrent Sessions Session A Session B | Harleston Wraggborough |
| 2:15 p.m.—3:15 p.m. | Concurrent Sessions Session A Session B | Harleston Wraggborough |
| 3:00 p.m.—3:30 p.m. | Break—Evaluations & Prize Drawing | Ansonborough |
| 3:30 p.m.—4:30 p.m. | Concurrent Sessions Session A Session B | Harleston Wraggborough |
| 4:30 p.m. | Conference Adjourns | |

Southeast Watershed Forum Background

The Southeast Watershed Forum is a non-advocacy, nonprofit organization dedicated to building the capacity of organizations and communities to better protect their land and water resources. To accomplish this mission, the Forum provides education, training and opportunities for state and regional dialogue. The Forum was created in 1998 in response to a stated need for a regional clearinghouse on watershed information, success stories and hands-on resources. The Forum is served by a nine-member Board of Directors from nine southeastern states. Its main program office is located in Nashville, Tennessee.

Over the past 10 years, the Forum has provided regional leadership and guidance in watershed protection and has served as a model for watershed outreach and partnering across political boundaries. It received the first regional EPA Targeted Watershed Grant for Capacity Building.

Southeast Watershed Forum Programs Include:

Community Quality Growth Training

Training is designed to help local city/county officials save money and meet regulatory requirements by implementing land use practices that will better protect land and water resources and community quality of life in the face of growth and development pressures.

Watershed Training & Capacity-Building

The Forum offers a range of community facilitation and training services in conjunction with its regional partners on such topics as land use planning, stormwater management, watershed planning and protection, floodplain management and financing community programs. Over the past nine years, the Forum has facilitated training on TMDLs, watershed planning and protection, floodplain management, regional planning, Nonpoint Education for Municipal Officials, fundraising, financing community water programs, and organizational development.

Southeast Watershed Assistance Network (www.watershed-assistance.net)

The Southeast Watershed Assistance Network (SWAN) is a central, online source of watershed contacts, studies, success stories and technical tools for use by local communities, planners and watershed advocates.

Regional On-line Mapping Service

In fall of 2007, the Forum will release a new on-line mapping service which will give organizations and local communities access to GIS-based resource information for their county, watershed and state. The service will allow people to choose multiple layers of data to assist in land use planning for resource protection.

State & Regional Watershed Roundtables

The Roundtable provides an important opportunity for diverse stakeholders within states and among the nine southeastern states to meet in facilitated sessions, address issues that cut across jurisdictional boundaries and develop cooperative programs for local watershed protection.

Southeast Watershed Forum Special Reports

Special issue reports are published annually such as *The Economic Value of Community Forests*, *Return of the Natives: A Community Guide for Restoration of Fish & Aquatic Species*, and *From Open Spaces to Wild Places: the Economic Value of Habitat Protection to Your Community*.

Southeast Watershed Roundtable History

Roundtables are programs that bring together disparate watershed stakeholders to foster dialogue, networking, and education.

In 1998, the Southeast Watershed Forum piloted one of the first multi-stakeholder “roundtables” to determine what was working and not working in watershed protection at the state and local level and to discuss how barriers to effective management could be overcome. Funded by EPA and the Tennessee Valley Authority, the first Roundtable was part of an effort to see how local issues and concerns could be more adequately communicated to State and Federal agencies. The success of this program led to nine annual Southeast Roundtables, helped shape national and regional watershed programs, **and has led to the development of five state-based and four basin-level Roundtables in the Southeast.**

Here is how the Roundtable serves attending organizations and agencies:

- 75% Gives me a chance to network with other organizations and agencies.
- 68% Gives my organization/agency new ideas for implementing watershed programs.
- 66% Provides innovative programs that can be replicated in my city/watershed.
- 53% Gives me a better sense of local watershed needs/concerns/issues.
- 53% Helps clarify state and national programs.

Roundtable Chronology :

- 1998 Building a Regional Roundtable - Chattanooga, TN
- 1999 Watershed Barriers & Ways to Overcome Them, Knoxville, TN
- 2000 The Economic Value of Watershed Protection - Birmingham, AL
- 2001 Taking Action: The Link Between Land Use & Water - Atlanta, GA
- 2002 Regional Planning for Watershed Protection – St. Petersburg, FL
- 2003 Establishing Regional Water Priorities – Biloxi, MS
- 2004 Growth, Development & the Future of SE Water – Nashville, TN
- 2005 Watershed Strategies for a New Era – Bowling Green, KY
- 2006 Watershed Management Makes Good Financial Cents – Asheville, NC
- 2007 Sustaining Our Water Infrastructure Through Watershed-Based Approaches – Braselton, GA
- 2008 Building Sustainable Communities for the 21st Century—Charleston, SC

Detailed Agenda

Tuesday, August 12

| | | |
|-------------------|---|----------------------|
| 9:00 am — 4:30 pm | Registration Desk Open | |
| 1:00 pm — 5:00 pm | Tours 1 and 2 | Hayne Street Gallery |
| 1:00 pm — 5:00 pm | Workshop 1: <i>Exploring the Link Between Development Form and Watershed Protection</i> | Ashley |
| | Workshop 2: <i>Developing Conservation-based Land Use Plans for Your Community</i> | Cooper |
| 4:00 pm | Exhibitor Set-Up | Ansonborough |

Wednesday, August 13

| | | |
|--------------------|---|-----------------------------------|
| 7:30 am — 4:30 pm | Registration Desk Open | Lobby |
| 7:30 am — 8:00 am | Breakfast | Ansonborough & Palmetto Courtyard |
| 8:30 am — 10:00 am | Plenary Session & Keynote Speakers | Harleston/Wraggborough |
| | Introduction: Christine Olsenius, Executive Director, Southeast Watershed Forum | |
| | Welcome: The Honorable Joseph Riley, Mayor of Charleston and Chair BCD COG | |
| | Setting the Theme: Margaret Davidson, Director NOAA Coastal Services Center | |
| | Keynote Speaker: Dr. Howard Frumkin, Center for Disease Control | |
| 10:00am — 10:30am | Break and Book Signing | Ansonborough |
| 10:30pm — 12:00pm | Concurrent Sessions: | |
| Session A | Panel: Fusing Smart Growth and Water Quality Jane Fowler, Southeast Watershed Forum Joel Haden, Tennessee Valley Authority Russ Clegg, AICP, City of Greensboro Sonny Emmert, GA Dept. Natural Resources | Harleston |
| Session B | Panel: Smart Growth Development Case Studies and New Urbanism. David Tuch, Equinox Environmental Elias Deeb, The Noisette Company | Wraggborough |
| 12:00pm — 1:20pm | Lunch | Stono Ballroom |
| | Luncheon Address: “Governor’s Action Plan for Healthy & Resilient Coasts” Gloria Car, Associate Director, EPA Gulf of Mexico Program | |

Detailed Agenda

thursday, August 14

| | | |
|------------------------|--|-----------------------------------|
| 7:30am—8:00am | Breakfast | Ansonborough & Palmetto Courtyard |
| 8:00am—1:00pm | Registration Desk Open | Lobby |
| 8:15am—9:45am | Plenary Session: Preparing Business for Climate Change Impacts of Climate Change on the Southeast Steven McNulty, US Forest Service Southern Global Change Program Energy, Water Resources and Climate Change Bryant Kinney, Vice President for Regulatory and Government Affairs, Duke Energy Carolinas Carbon Credits, Water Supply, and the Energy Challenge Anda Ray, TVA Vice President of Environmental Stewardship and Policy | Harleston/ Wraggborough |
| 9:45am—10:00am | Break | Ansonborough |
| 10:00am—11:15am | Concurrent Session | |
| Session A | Panel: Using GIS Tools for Building Sustainable Communities Dave Eslinger, Hansje Gold-Krueck, Lauren Long & Jody Sprayberry NOAA Coastal Services Center Chrissa Stroh, Perot Systems Government Services | Harleston |
| Session B | Savannah River Preserve: Cooperative Land Protection Matt Nespeca & Noel Thorn, The Nature Conservancy North Carolina's Green Infrastructure Planning Kim Douglass, NCDENR Natural Heritage Program Sustainable Planning Using Land Suitability Maps William Allen, The Conservation Fund Jeffrey Brown, Geographic Information and Analysis | Wraggborough |
| 11:20am—12:00pm | Concurrent Sessions | |
| Session A | Why Developers Go Green John Knott, President of Noisette Company | Harleston |
| Session B | Minimizing development impacts on wildlife habitats Jeff Marcus, Jacquelyn Wallace, & Kiersten Cook NC Wildlife Resources Commission | Wraggborough |
| 12:00pm—1:00pm | Lunch Luncheon Address: "Preparing Communities for Climate Change" Captain Dan Kipnis, Member of Miami Dade County Climate Change Advisory Task Force. | Stono Ballroom |

Detailed Agenda

thursday, August 14 (Continued)

1:10pm—2:00pm Concurrent Sessions

Session A **Planning for Sustainable Drinking Water Supplies** Harleston
Debra Gutenson, U.S. EPA

Land Conservation for Drinking Water Protection
Jay Frick, NC Dept. Natural Resources

Session B **GIS Resource for Habitat Planning** Wraggborough
*Kevin Nunnery, PhD, Biohabitats, Inc.

The Effects of Land Use Change on Coastal Ecosystems
Guy DiDonato, Hollings Marine Laboratory, National Centers for Coastal Ocean Science

2:15pm—3:15pm Concurrent Sessions

Session A **Local Officials Curriculum and Building Outside the Box** Harleston
Gwen Griffith and Vena Jones, Cumberland River Compact.

Session B **Stormwater Mitigation Banking** Wraggborough
Heather Nix, Upstate Forever

Sustainable Revenue Sources
Jeff Hughes, Environmental Finance Center

3:00pm—3:30pm **Break—Turn in Evaluations / Prize Drawing—Free Weekend at Hotel** Ansonborough

3:30pm—4:30pm Concurrent Sessions

Session A **Preserving Community Character: Murrels Inlet, SC.** Harleston
Nicole Saladin, North Inlet-Winyah Bay National Estuarine Research Reserve
Susan Sledz, Murrels Inlet

Monitoring the Impact of Coastal Development
Daniel Hitchcock, Clemson University

Session B **Post-Katrina Sustainable Development** Wraggborough
Melissa Pringle & Jeff Allen, Eco-Systems, Inc.

Impacts of Land Use after Urban Development.
John C. Hayes, Clemson University

4:30pm Conference Adjourns

***Program note: Kevin Nunnery was unable to attend. Chrissa Stroh with Perot Systems Government Services spoke in his place on “Participatory GIS Methods in Coastal Planning.”**

Workshops & Field Trips

All workshops will be from 1-5 p.m. in the rooms listed in the description.

Workshop Fee \$35—If you are not pre-registered for a workshop, you may sign up at the registration desk in the lobby as long as space is available.

Workshop #1 Exploring the Link Between Development Form and Watershed Protection

As we begin the process of rewriting 50 years of zoning and development regulations, the inevitable conflicts between the developer and the community will surface: Density and congestion, housing and preservation, trees and pavement. How does a community decide on appropriate development form, and then codify it? Furthermore, regulations can only do so much. How do you encourage quality and creativity, while promoting affordability and efficiency?



In this hands-on workshop, participants will be challenged to accommodate development in a village layout, so that other areas may be conserved. The challenge is to make the village livable and compact; then participants will identify the elements that make it so, while acknowledging the relationship between exceptional form and its benefits, such as conserving greenspace and improving water quality.

Christina Corley, Southface Energy Institute

Workshop #2 Developing Conservation-based Land Use Plans for Your Community

Conservation planning invites communities to shift from thinking first about where development should occur to thinking first about what natural resources should be preserved, and then where development should be located.

In this way communities can preserve natural resources that reduce runoff and stormwater flooding; protect drinking water, high quality rivers and streams, and wildlife; enhance recreation and tourism opportunities; reduce the cost of government services; and maintain quality of life. This workshop will involve participants in a resource mapping exercise to shape their own conservation plan to identify areas for acquisition, habitat and watershed protection and long term comprehensive land use planning. The workshop will demonstrate:



- How land conservation planning can help communities achieve multiple environmental, economic, regulatory, and quality of life objectives.
- How to develop a land conservation plan that protects your community's sustainable growth, and
- A set of land use practices and strategies that will help you implement the plan.

Christine Olsenius, Southeast Watershed Forum
Lucas Ridley, University of Tennessee-Chattanooga

Workshops & Field Trips

All field trips depart at 1 p.m. from the Hayne Street Gallery at the far end of the Doubletree Guest Suites Hotel and will return at approximately 5:00pm.

Field Trip Fee \$35—If you are not pre-registered for a field trip, you may sign up at the registration desk in the lobby as long as space is available.

Field Trip #1

Oak Terrace Preserve



Oak Terrace Preserve a 55-acre sustainable redevelopment project located in the Park Circle area of North Charleston. The infill project is owned by The City of North Charleston and managed by The Noisette Company, LLC. At completion the project will consist of approximately 300 single-family homes and 74 town homes. The project is sustainable in design and implementation through Low Impact Development (LID) stormwater techniques, an extensive tree preservation program, green home building standards verified by Earthcraft House, and Planned Development District (PDD) zoning that incorporates a dense traditional neighborhood design and its proximate location to existing services and infrastructure.

Tour orientation will begin at the offices of the Noisette Company at 10 Storehouse Row at the Navy Yard. The Noisette Company spent 3.2 million dollars to renovate historic 10 Storehouse Row, a unique 40,000 s.f. warehouse that now attracts such tenants as artists, design firms and the American College of the Building Arts. The building has been a catalyst for positive change in the Navy Yard and in the City of North Charleston.

Field Trip #2

Ernest F. Hollings ACE Basin National Wildlife Refuge



The Ernest F. Hollings Refuge is part of the ACE Basin Project, a joint venture in which the U.S. Fish and Wildlife Service, South Carolina Department of Natural Resources, The Nature Conservancy, and Ducks Unlimited are working with private landowners to protect and enhance a 350,000 acre area. The area represents one of the largest undeveloped estuaries on the East Coast containing tidal marshes, freshwater wetlands, bottomland hardwoods, beaches and barrier islands. In winter months over 30,000 waterfowl use this Refuge and endangered wood storks, wading birds, shorebirds, raptors and songbirds are present in the summer.

An orientation session with Refuge Manager Mark Purcell will begin in the 1828 Plantation House which serves as Refuge Headquarters. It is one of only three plantation homes in the basin to survive the Civil War. After orientation, participants will be able to explore the Refuge at their own pace.

Plenary Session & Keynote Speakers

Wednesday, August 13

Introduction

Christine Olsenius
Executive Director
Southeast Watershed Forum
535 Powell Drive
Annapolis, MD 21401
410-849-2975 / co@southeastwaterforum.org

As Executive Director of the Southeast Watershed Forum, Christine Olsenius is responsible for developing a center for education, training and regional dialogue that serves 9 states.

Olsenius has worked in water resource management for 29 years. She has developed regional water management initiatives, and coordinated national and regional water reports, educational campaigns, and conferences. She has worked on national water policy committees and worked four years on a federal inter-agency watershed initiative. In 1993, Ms. Olsenius served as consultant to *National Geographic Magazine* on their "Special Issue on Water."

Plenary Session & Keynote Speakers

Wednesday, August 13

Welcome



The Honorable Joseph Riley
Mayor of Charleston &
Chair of BCD Council of Governments
80 Broad Street
Charleston, SC 29401
Phone 843-577-6970
Fax 843-720-3827
rileyj@ci.charleston.sc.us

First elected Mayor in December 1975, Mayor Riley is serving an unprecedented eighth term. Under his leadership, Charleston has increased its commitment to racial harmony and progress, achieved a substantial decrease in crime, experienced a remarkable revitalization of its historic downtown business district, seen the creation and growth of Spoleto Festival U.S. A., built the beautiful Waterfront Park, developed nationally-acclaimed affordable housing, and experienced unprecedented growth in Charleston's size and population. Mayor Riley has led a city government with an impressive record of innovation in public safety, housing, arts and culture, children's issues, the creation of park and other public spaces, and economic revitalization and development. The City of Charleston is recognized as one of the most livable and progressive cities in the United States.

Through his lifetime of experience in Charleston, Mayor Riley has become a leading expert on urban design and livability issues and is a frequent speaker across the country on these topics. He was a founder of the Mayors' Institute for City Design (MICD) and has provided critical urban design support to mayors across America. Mayor Riley received the 1994 Thomas Jefferson Award from the American Institute of Architects for Public Architecture for "his exceptional leadership and 'Jeffersonian' vision in redefining the promise and, ultimately the future, of our nation and its cities." In 1997, he received the Seaside Prize from the Seaside Institute for exemplary leadership and contributions to high-quality urban design throughout America. The American Society of Landscape Architects named him an Honorary Member for his leadership and vision.

Joseph P. Riley, Jr. was born in Charleston in 1943. He graduated from Bishop England High School, The Citadel (1964) and the University of South Carolina School of Law (1967). In 1968, Mayor Riley was elected to the South Carolina House of Representatives, where he served for six years. He and his wife Charlotte have two sons, Joe and Bratton.

Plenary Session & Keynote Speakers

Wednesday, August 13

Setting the Theme



Margaret Davidson
Director
NOAA Coastal Services Center
2234 South Hobson Avenue
Charleston, SC 29405-2413
843-740-1200

The director of the NOAA Coastal Services Center is no stranger to the coast or its many challenges.

Before joining the National Oceanic and Atmospheric Administration, Margaret A. Davidson was executive director of the South Carolina Sea Grant Consortium from 1983 to 1995. Prior to that, she served as special counsel and assistant attorney general for the Louisiana Department of Justice.

An active participant in coastal resource management issues since 1978, Davidson earned her juris doctorate (J.D. degree) in natural resources law from Louisiana State University. She later earned a master's degree in marine policy and resource economics from the University of Rhode Island.

Davidson holds a faculty appointment at the University of Charleston and serves on the adjunct faculties of Clemson University and the University of South Carolina.

She has served on numerous local, state, and federal committees and has provided leadership for national professional societies. She has focused her professional work on environmentally sustainable aquaculture, mitigation of coastal hazards, and impacts of climate variability on coastal resources. Davidson served as the acting assistant administrator for NOAA's National Ocean Service from 2000 through 2002.

Plenary Session & Keynote Speakers

Wednesday, August 13

Keynote Speaker



Dr. Howard Frumkin
Director
Centers for Disease Control:
Center for Environmental Health /
Agency for Toxic Substances and Disease Registry

Howard Frumkin is Director of the National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) at the U.S. Centers for Disease Control and Prevention. NCEH/ATSDR works to maintain and improve the health of the American people by promoting a healthy environment and by preventing premature death and avoidable illness and disability caused by toxic substances and other environmental hazards.

Dr. Frumkin is an internist, environmental and occupational medicine specialist, and epidemiologist. Before joining the CDC in September, 2005, he was Professor and Chair of the Department of Environmental and Occupational Health at Emory University's Rollins School of Public Health and Professor of Medicine at Emory Medical School. He founded and directed Emory's Environmental and Occupational Medicine Consultation Clinic and the Southeast Pediatric Environmental Health Specialty Unit.

Dr. Frumkin's research interests include public health aspects of urban sprawl and the built environment; air pollution; metal and PCB toxicity; climate change; health benefits of contact with nature; and environmental and occupational health policy, especially regarding minority workers and communities, and those in developing nations. He is the author or co-author of over 160 scientific journal articles and chapters, and his books include *Urban Sprawl and Public Health*, *Emerging Illness and Society*, *Environmental Health: From Global to Local*, *Safe and Healthy School Environments*, and *Green Healthcare Institutions: Health, Environment, Economics*.

Dr. Frumkin received his A.B. from Brown University, his M.D. from the University of Pennsylvania, his M.P.H. and Dr.P.H. from Harvard, his Internal Medicine training at the Hospital of the University of Pennsylvania and Cambridge Hospital, and his Occupational Medicine training at Harvard. He is Board-certified in both Internal Medicine and Occupational Medicine, and is a Fellow of the American College of Physicians, the American College of Occupational and Environmental Medicine, and Collegium Ramazzini.

Plenary Session & Keynote Speakers

Wednesday, August 13

Luncheon Address

“Governor’s Action Plan for Healthy & Resilient Coasts”

Gloria Car

Associate Director

U.S. Environmental Protection Agency’s Gulf of Mexico Program

Mail Code: EPA/GMPO

Stennis Space Center, MS 39529-6000

228-688-3726

car.gloria@epa.gov

Gloria Car has served as Associate Director for Administration for the U.S. Environmental Protection Agency’s Gulf of Mexico Program Office, located at Stennis Space Center near Bay St. Louis, Mississippi, since 1995. The Gulf of Mexico Program is a Gulf-wide organization established to identify key environmental issues, while working at the regional, State, and local levels to define and recommend solutions. The Program brings together diverse interests under a set of common environmental objectives and a defined process to achieve those objectives through voluntary actions of its individual partners.

Prior to coming to the Environmental Protection Agency in 1992, Ms. Car served in several capacities at the Department of Defense with the Naval Oceanographic Office, the Naval Oceanography Command Facility and the Naval Research Laboratory where she was Acting Head of the Basic Research Management Office and Special Programs Coordinator.

As Associate Director, Gloria serves as the Designated Federal Officer for the Gulf Program's Federal Advisory Committee Act chartered committees and on numerous committees and workgroups at the Headquarters level. She manages the Gulf Program's financial and administrative programs as well as spearheading innovations in dealing with the Government Performance Results Act and Excellence in Government in guiding the Program's grants and contracts.

Ms. Car is a native of North Carolina and received a B.A. from the University of North Carolina in Greensboro and an M.S. from the University of Southern Mississippi. She has two daughters and lives in Bay St. Louis, Mississippi, with her husband Martial.

Plenary Session & Keynote Speakers

Thursday, August 14

**Morning Plenary Speaker
“Impacts of Climate Change on the Southeast”**

**Steven McNulty, Ph.D.
Research Ecologist
US Forest Service Southern Global Change Program
USDA Forest Service
920 Main Campus Dr.
Venture Center II, Suite 300
Raleigh, NC 27606
steve_mcnulty@ncsu.edu
phone: (919) 515-9489**

Steve McNulty is an ecologist and team leader of EFETAC’s Southern Global Change Program. His current research includes regional to continental scale forest modeling incorporating forest hydrology, productivity, resource economics, and wildlife and forest diversity, with emphasis given to interactions and response of forests to global climate change and other environmental stresses such as ozone, nitrogen deposition, and atmospheric CO₂. Among his other research interests is the influence of forest management practices on forest hydrology, productivity, and spatially explicit soil erosion. Steve received his B.S. and M.S. degrees in forestry from the University of Wisconsin-Madison in 1985 and 1987, respectively, and his Ph.D. in natural resources from the University of New Hampshire-Durham in 1991.

Steve McNulty has served as the US Forest Service Southern Global Change Program Manager on the North Carolina State University campus in Raleigh North Carolina, since 1996. Prior to joining the Southern Global Change Program, he spent five years as a research ecologist at the Coweeta Hydrologic Laboratory. He has B.S., and M.S. degrees in Natural Resources from the University of Wisconsin, and a Ph.D. in Natural Resources from the University of New Hampshire. Dr. McNulty is a landscape ecologist, with an area of focus being regional to continental scale environmental stress impacts on forest ecosystems. He served as a US Congressional Fellow in the 106th Congress, and he was the federal chair of the National Assessment of Climate Change Impacts on US Forests. Dr. McNulty is currently the US chair of the United States China Carbon Consortium, and he has authored or co-authored over 100 papers in the area of environmental stress impacts on forest ecosystems.

Plenary Session & Keynote Speakers

Thursday, August 14

Morning Plenary Speaker
“Energy, Water Resources and Climate Change”



Bryant Kinney
Vice President for Regulatory
and Government Affairs
Duke Energy Carolinas
713-627-5961
jbkinney@duke-energy.com

Bryant Kinney is responsible for management of the Energy Services group’s public affairs activities associated with domestic and international development, media relations, media communications planning and activities, internal communications and crisis communications planning and management.

Kinney joined Duke Power Company in Charlotte, N.C., in May 1988 as a community relations representative at the Energy Explorium, the company's energy information center for McGuire Nuclear Station on Lake Norman near Cornelius, N.C. He was promoted to communications specialist in the power group communications section of corporate communications in the General Office in Charlotte in February 1990, named communications coordinator in March 1990, director of issues management in 1992, manager of customer and strategic communications in 1996 and director of media relations with the formation of Duke Energy in 1997. He was promoted to director, external relations, in 1998.

Prior to joining Duke Power, Kinney was the director of emergency management services for Cherokee County, N.C., from October 1983 to April 1986 and a fixed nuclear facility planner for the North Carolina Division of Emergency Management in Lincolnton, N.C., from May 1986 to May 1988.

Kinney is a graduate of Western Carolina University with a bachelor of science degree in health sciences. He is married to the former Brenda Cox of Hayesville, N.C., and they have two daughters. They reside in Lincolnton, N.C.

Plenary Session & Keynote Speakers

Thursday, August 14

**Morning Plenary Speaker
“Energy to Build Sustainable Communities”**



Anda Ray
**Vice President of Environmental
Stewardship and Policy**
Tennessee Valley Authority
400W. Summit Hill Dr.
Knoxville, TN 37902-1499
865-632-2101

Anda Ray is the Vice President of Environmental Stewardship and Policy with the Tennessee Valley Authority. She is new to the position though not new to TVA with almost 25 years with the agency. In this position, Anda directs TVA’s environmental activities that support TVA’s long-term success by addressing corporate environmental risks, increasing environmental benefits and enhancing the value of environmental stewardship to TVA and the public. Activities conducted by this organization include planning and managing 293,000 acres of TVA land and 11,000 miles of shoreline and providing environmental and realty services to organizations across TVA in support of power generation, energy transmission, and economic development. Over all responsibility includes TVA’s Environmental Policy-level strategy, including a strategy for renewables generation and environmental stakeholder relations.

Most recently Anda served as Vice President of Enterprise Performance and Analysis, where she led the development of TVA’s Strategic Plan. In prior positions at TVA, Anda served as the Director of TVA’s Public Power Institute, which focused on new energy technologies, including the first wind farm in the Southeast U.S. and the initiation of the Green Power Switch program. She has worked in TVA’s Nuclear and Fossil organizations managing several large projects at our generating facilities. Anda co-authored national publications on various technical subjects including the “United States Roadmap for Biomass Technologies” as a member of the National Biomass Advisory Committee which was chaired by the Secretaries of Energy and Agriculture and appeared with Casper Weinberger, former U.S. Secretary of Defense, on World Business Review to discuss instrument and control systems.

Anda has served on several Boards of Directors including an energy services company; a solid oxide fuel cell manufacturer; an energy storage developer and an Editorial Board for journal on applied research and public policy. Anda earned a Master’s Degree in Solid State Physics at Emory University in Atlanta and a Bachelor’s Degree in Nuclear Physics from Auburn University and is an avid scuba diver.

Plenary Session & Keynote Speakers

Thursday, August 14

**Luncheon Address
“Preparing Communities for Climate Change”**



**Captain Dan Kipnis
Miami Dade County
Climate Change Advisory Task Force
305-672-3807
kipnisd@atlanticbb.net**

Captain Dan Kipnis, member of the Miami Dade County Climate Change Advisory Task Force and Chairman of the Economic, Social and Health Committee will deliver a short Powerpoint presentation on the initial recommendations from this important Task Force. The Task Force’s recommendations to the County Commission reflect the concern shown by its different committees regarding the complexity and gravity of impending climate changes on south Florida. Many other communities, especially costal locations, share the same issues and concerns and may benefit from the insights presented in this presentation. Captain Kipnis presents global warming issues relating to our oceans and near shore waters for the National Wildlife Federation and is a board member for the Florida Wildlife Federation. Additionally, Kipnis has served on the Biscayne Bay Management Committee, City of Miami Waterfront Board and served as a Commissioner on the State of Florida Marine Fisheries Commission.

Concurrent Session Speakers

Wednesday, August 13 10:30Am—12:00pm session A

Jane Fowler
Southeast Watershed Forum
Knoxville, TN 37919
865-450-5188
jf@southeastwaterforum.org

Joel Haden
Tennessee Valley Authority
400 W Summit Hill Drive,
WT11A-K
Knoxville, TN 37902
865-632-2132
jmhaden@tva.gov

Russ Clegg, AICP
Department of Housing &
Community Development
300 West Washington Street
Melvin Municipal Office Bldg.,
Room 315
Greensboro, NC
336-373-2149
russ.clegg@greensboro-nc.gov

Abstract

What is Quality Growth? A leader from a community that won EPA's prestigious National Award for Smart Growth Achievement draws on her experience to provide answers to this question. With this practical grounding to build on, members of the Quality Growth initiative team describe a program of training and technical assistance that SEWF, EPA, TVA and the State of Tennessee have piloted and will begin delivering in the fall. Presenters describe their experience piloting the training with practitioners in Tennessee, and with community leaders in Valley, Alabama. The program includes a new worksheet that local government practitioners can use to determine how well their development rules are promoting Quality Growth. It was built on existing best practice worksheets with the help of a diverse group of national experts. To close the session and further introduce the worksheet, presenters will engage participants in exploring issues they have or will face as they implement both smart growth and water quality best practices in their community.

Sonny Emmert
Georgia Department of Natural Resources
Coastal Management Program
912-262-3048
sonny_emmert@dnr.state.ga.us

The Green Growth Guidelines Program was developed to demonstrate how low impact development (LID) strategies can result in significant positive impacts on the environment while providing superior outcomes both socially and economically. Green Growth Guidelines outline the environmental, social, and economic benefits from use of LID strategies when compared to today's conventional development approach. The guide's main objectives are to: demonstrate how site fingerprinting and sensitive land planning can identify and protect natural resources; provide developers with instructions on how to build with minimal impact to the environment; compare low impact and conventional residential subdivision designs to show economic and environmental benefits of LID; demonstrate alternative stormwater drainage solutions that protect the quality of receiving waterbodies; introduce various soft engineering techniques used to protect and stabilize coastal stream banks from erosion.

The overall goal of the manual is to demonstrate how a thorough understanding of a site can facilitate designing within the context of the landform, thereby reducing impacts on the environment. This approach provides measurable economic benefits by decreasing initial infrastructure needs and costs, and by providing long term cost benefits to homeowners through energy efficient design.

The Guidelines serve as a working document to inform communities about better site design and LID practices. State, regional, and local programs are advocating these principals, and several projects throughout coastal Georgia are utilizing the Guidelines including Barbour Pointe, Indigo Harbor, and Liberty Ship Park. The projects can also serve as demonstration sites for future development.

Concurrent Session Speakers

Wednesday, August 13

10:30Am—12:00pm

session b

Elias Deeb

Project Manager

The Noisette Company, LLC

(843) 554-2270

edeeb@noisettesc.com

Abstract: Case Study - Oak Terrace Preserve

Oak Terrace Preserve (OTP) is a 55-acre sustainable redevelopment project located in the Park Circle area of North Charleston. The infill project is owned by The City of North Charleston and managed by The Noisette Company, LLC. At completion the project will consist of approximately 300 single-family homes and 74 town homes. The project is sustainable in design and implementation through Low Impact Development (LID) stormwater techniques, an extensive tree preservation program, green home building standards verified by Earthcraft House, Planned Development District (PDD) zoning that incorporates a dense traditional neighborhood design and its proximate location to existing services and infrastructure.

Uniquely the Noisette Company, Davis & Floyd, and University of South Carolina researchers have partnered to capture the technical and non-technical strengths and obstacles of the implementation of LID practices (e.g. bioretention swales, pervious surfaces, rain gardens, and pocket parks) in OTP. Through this research a technical manual will be produced which will provide a comprehensive case study of OTP including: LID design criteria, performance and effectiveness, economic cost comparison, regulatory, engineering, and construction obstacles, and maintenance requirements.

Through this panel discussion we will use Oak Terrace Preserve as a case study to provide the perspectives of the local government, developer, engineer, homeowners, and science community in the implementation of LID practices along the Southeast coast. This discussion will include the partnership between the developer and local government, overview of LID design and installation, discussion of economic constraints, lessons learned in the construction and installation of the LID practices, homeowner perceptions, and future needs for LID implementation along the Southeast coast.

Concurrent Session Speakers

Wednesday, August 13

10:30Am—12:00pm

session B

David Tuch

Vice President – Landscape Architect & Land Planner

Equinox Environmental Consultation & Design, Inc.

37 Haywood Street

Asheville, NC 28801

David@Equinoxenvironmental.com

David holds degrees in Horticulture, Landscape Architecture, and Conservation Ecology & Sustainable Development. His educational background combined with over **ten years** of experience provides him with a unique understanding of the importance of creating design solutions that balance land and water conservation with human use of the landscape. Prior to joining Equinox in 2000, David worked in Charlotte, North Carolina, on greenway designs and park master plans. He also lived and worked in Portland, Oregon, in a context of progressive ecological design and planning. David feels that a more sustainable pattern of land development is essential in balancing growth and the protection of our region's high quality of life. David is a partner with Equinox Environmental and helps fulfill his firm's mission of "resources conservation & sustainable development" by working with a staff of biologists, botanists, ecologists, water scientists, environmental planners, and designers. David's focus on Conservation Subdivision Design, Low Impact Development, and the integration of environmentally sensitive design within Mixed-Use developments has led to numerous speaking engagements on the topic at seminars and conferences throughout the state. As well, he has written several publications on conservation and sustainable residential development. David's work also includes stormwater BMP design, greenway & park planning, native plant restoration, and residential sustainable design projects.

Abstract: New Urbanism Development and Green Infrastructure

A case study will be presented for a mixed-use development that combines new urbanism principles, green infrastructure, and workforce housing. The Rivercane development located in Fletcher, NC features a team of environmental design experts and several partners from both the non-profit, public, and private sector. The site is 37.56 acres and is planned with a mix of uses for up to 403 units. Rivercane is located next to an industrial park with hundreds of existing jobs within close proximity to the development. In addition, the site is located along a major greenway corridor and within ¼ mile of a park and a ½ mile from a proposed downtown redevelopment area called the "Heart of Fletcher", which will be connected via the greenway. This mixed-use development is seen as a catalyst for the Town of Fletcher to reinvigorate the industrial business in the area and help encourage and support existing and future green industry in the area.

The project will feature roughly 1,600 solar panels which will provide renewable energy to power chillers and supply heating and hot water. The design for the development is based on Low Impact Development (LID) standards which include the use of water quality treatment areas integrated into the planting strips adjacent to the streets in a functional and aesthetic manner based on Portland Oregon's "Green Streets" concept. In addition, bio-swales, bio-retention areas, porous paving, constructed wetlands, and riparian buffers are design elements which will filter and treat stormwater runoff throughout the Rivercane development. The homes will be certified under the North Carolina Healthy Built Homes program administered through the Western North Carolina Green Building Council (<http://www.wncgbc.org/healthybuilt/>).

Concurrent Session Speakers

Wednesday, August 13 1:30pm—2:45pm session A

Christopher K. DeScherer
Senior Attorney
Southern Environmental Law Center
38 Broad Street, Suite 200
Charleston, SC 29401
P.O. Box 609
Charleston, SC 29402
843-720-5270
cdescherer@selcsc.org

Abstract: Transportation: Getting to Sustainable Communities

Building sustainable communities requires more sustainable transportation policies and better linking transportation and land use policies. The dominant transportation approaches of the past 50 years have provided incredible mobility, but they have come at a tremendous cost to the environment and they are not sustainable. There are increasing efforts at the national, state, and regional level to reduce the adverse impacts of transportation projects and to promote a more balanced approach to transportation. Although there are numerous obstacles, there has been significant progress in beginning to fashion a new transportation paradigm.

This presentation would provide an overview of the impacts of current transportation approaches in the Southeast. It would then explore some of the most promising changes – and potential changes – to federal and state policies, including steps to better link transportation and land use planning, use context sensitive solutions, limit stormwater runoff, modify street standards to reduce the amount of impervious surfaces, and create a more balanced approach to transportation. Examples will be cited of state and local policy and project changes throughout the Southeast.

Concurrent Session Speakers

Wednesday, August 13

1:30pm—2:45pm

session A

Susan Fox

NOAA Coastal Services Center

Charleston, SC 29405

susan.fox@noaa.gov

Waterfront communities have historically been, and will remain, desirable places to live. A 2005 report released by the National Oceanic Atmospheric Administration estimated that coastal counties cover less than 17 percent of the land area in the United States, but are home to 53 percent of the population. Within 10 years, that population is expected to grow by 12 million people—or by 3,600 people per day—reaching a total population of 165 million by 2015.

This degree of development activity poses unique opportunities—and challenges—to coastal communities and their ecosystems. The issue facing these communities becomes one of balance: how to maximize the opportunities to a community and, at the same time, meet the often significant challenges to social, environmental, and regulatory systems posed by waterfront development.

One tool used to balance these issues is the ten smart growth principles. Developed in 1996 by the Smart Growth Network, the principles are based on the characteristics and experiences in existing communities that are often thought of as thriving, diverse, and successful. These principles help guide growth and development in communities that have a vision of their future and an understanding of the values they want to sustain. Communities use smart growth techniques to improve development's environmental, economic, social, public health, and fiscal effects.

The principles, however, do not directly address the unique challenges and opportunities faced by coastal and waterfront communities. To help fill that gap, an EPA-NOAA collaborative team drafted the waterfront and coastal smart growth elements. These elements are intended to distill the waterfront-related aspects of the smart growth principles to help create context sensitive development approaches to help communities address their unique waterfront characteristics. The audience for the waterfront and coastal smart growth elements are stakeholders involved in the planning and development process: local officials, town planners, architects, developers, and citizen groups. EPA and NOAA are developing a publication that will provide an overview of the elements, as well as case studies, policies, and tools.

Like the smart growth principles, these elements are intended for communities to consider incorporating into new development or as retrofits to existing development. Coastal and waterfront communities across the U.S. have found they achieve better economic, environmental, community, and public health outcomes by incorporating the elements. The waterfront and coastal smart growth elements provide guidance for communities to build upon their natural assets to help create great places for residents and visitors alike.

Concurrent Session Speakers

Wednesday, August 13

1:30pm—2:45pm

session A

Susan R. Crow

PlaceMatters-Packard Fellow

PlaceMatters

1536 Wynkoop Street, Suite 307

Denver, CO 80202

T 303.964.0903

F 303.265.9632

susan@placematters.org

www.placematters.org

Abstract: Creating Resilient Communities: Incorporating Ecosystem-based Management in Regional Land Use and Transportation Plans for Berkeley, Charleston and Dorchester Counties, South Carolina

The South Carolina tri-county region is subject to all of the recognized factors causing marine and coastal ecosystem decline, including increasing human population growth and unsustainable land development patterns. The Creating Resilient Communities (CRC) initiative was developed in partnership with private land development and conservation organizations, local government, and the regional planning authority. The initiative was designed to assess multiple planning and management objectives: natural hazards risks and mitigation opportunities (including potential sea level rise), community vulnerability, biodiversity conservation, and alternative future land development patterns. In coordination with current regional land use planning, CRC is reaching out to existing citizens' advisory committees and other stakeholder groups to identify local and regional planning and management issues and disseminate materials on best environmental practices. The initiative will generate a regional GIS database and apply state-of-the-art planning methods and tools. These include the NOAA Coastal Service Center's Community Vulnerable Assessment Tool (CVAT) and The Nature Conservancy's Carolinian Ecoregional Assessment. CommunityViz and NatureServe Vista are being used to create and visualize alternative future scenarios and analyze associated impacts. CRC emphasizes regional capacity building by providing the GIS database, technology, and training that will continue to support planning, resource management, and civic engagement beyond the funded initiative. CRC may serve as a model for other coastal communities dealing with similar natural hazards, mitigation opportunities and community development issues. This presentation will describe the process, partnerships, stakeholder outreach, and lessons learned from the David and Lucile Packard Foundation funded initiative that will continue through March, 2009.

Concurrent Session Speakers

Wednesday, August 13

1:30pm—2:45pm

session B

David Tuch

Vice President – Landscape Architect & Land Planner

Equinox Environmental Consultation & Design, Inc.

37 Haywood Street

Asheville, NC 28801

David@Equinoxenvironmental.com

David holds degrees in Horticulture, Landscape Architecture, and Conservation Ecology & Sustainable Development. His educational background combined with over **ten years** of experience provides him with a unique understanding of the importance of creating design solutions that balance land and water conservation with human use of the landscape. Prior to joining Equinox in 2000, David worked in Charlotte, North Carolina, on greenway designs and park master plans. He also lived and worked in Portland, Oregon, in a context of progressive ecological design and planning. David feels that a more sustainable pattern of land development is essential in balancing growth and the protection of our region's high quality of life. David is a partner with Equinox Environmental and helps fulfill his firm's mission of "resources conservation & sustainable development" by working with a staff of biologists, botanists, ecologists, water scientists, environmental planners, and designers. David's focus on Conservation Subdivision Design, Low Impact Development, and the integration of environmentally sensitive design within Mixed-Use developments has led to numerous speaking engagements on the topic at seminars and conferences throughout the state. As well, he has written several publications on conservation and sustainable residential development. David's work also includes stormwater BMP design, greenway & park planning, native plant restoration, and residential sustainable design projects.

Abstract: Conservation based Residential Development: Protecting resources within a residential development

Over the past 10 years Equinox has been pursuing resource conservation and sustainable development in the western North Carolina region. David Tuch has been focusing on preservation, conservation, and ecological design that address the development pressures on farmland, forestland, and natural & cultural resources. David has led design teams of multidisciplinary professionals and will convey how these partnerships can contribute to better solutions.

Two case studies will be presented, one of which utilizes principles of conservation ecology to protect plant and animal biodiversity, wetlands, riparian corridors, forests, and rare species. Located in Buncombe County, in the mountains of North Carolina, *Drovers Road Preserve* is an award winning project serving as a model for sustainable development in the region. Based on the McHargian layering process a detailed inventory was performed to identify the lands to be protected through a conservation easement and lands suitable for homesite development. The design of Drovers Road Preserve includes: innovative stormwater management practices & LID techniques, buffers of conservation areas, appropriate road design and layout to minimize construction impacts, enhancement/restoration of habitat, and the reuse of materials resulting from construction activities.

The second case study will illustrate preservation and design tools used to maintain farmland and the farmland character of the landscape. The Cellars at Betty's Creek will showcase an example of how historic farmland can be used for organic vegetable gardens and vineyards in conjunction with a conservation easement and large scale habitat protection. A farmland preservation project that focuses on creating a development pattern of farmland clusters reflective of the agrarian landscape will also be shared. Outcomes and lessons learned from both case studies will be discussed.

Concurrent Session Speakers

Wednesday, August 13

1:30pm—2:45pm

session B

Alyssondra Campaigne

I'On Group

159 Civitas Street

Mt. Pleasant, SC 29464

843.971.1662

Fax 843.971.1664

acampaigne@iongroup.com

Alyssondra Campaigne is Vice President for Strategy and Marketing at the I'On Group, a new urbanist land use planning and development firm in Mount Pleasant, SC. Alys is responsible for developing and overseeing branding and marketing initiatives for the company and its portfolio of award-winning projects, which currently include I'On, Mixson, and Morris Square.

Her charge also includes developing partnerships to advance strong urban redevelopment initiatives, sustainable building practices, sound transportation alternatives, and active, engaged civic life. Before joining the I'On Group, Alys was a Senior Fellow and led outreach strategy for the Center for American Progress, a major, national, multi-issue think tank based in Washington, DC. Previously she was the Legislative Director for the Natural Resources Defense Council (NRDC), a national, non-profit organization of scientists, lawyers and environmental specialists dedicated to protecting public health and the environment. She was a Legislative Aide to Senator Joe Lieberman handling issues pending before the Environment and Public Works Committee. Alys also worked on the House Government Reform and Oversight Committee for Ranking Member Congressman Henry A. Waxman. Throughout her time on Capitol Hill Alys was actively engaged in policy debates on energy, environment, health, transportation and trade. Alys has also worked with the National Audubon Society and the Nathan Cummings Foundation and holds degrees with honors from Wesleyan University and New York University.

Abstract: Case Study – Mixson Community

Mixson is a sustainable, walkable, mixed use, new urban neighborhood currently under construction in the Park Circle area of North Charleston. The development is a compact and centrally-located infill project of 950 homes set on 44 acres. It is the second largest LEED for Homes project in the country, and every home will be an Energy Star home.

Buildings and transportation consume 75% of the nation's energy. Strong urban development offers one of the biggest opportunities for addressing climate change. Centrally locating Mixson in an urban infill location close to jobs and shops significantly reduces transportation energy needs. Efficient home sizes and floorplans minimize energy consumed for heating and cooling. Concentrating development in existing urban areas also reduces pressure to build on sensitive wildlife habitat and wetlands. Traditional lawns, with their maintenance and runoff from fertilizer, are replaced by shared public parks and plazas, protecting water quality while improving opportunities for social interaction.

Finally, Mixson is helping to create resilient communities on physical and social dimensions. Mixson homes are constructed of aerated autoclaved concrete that is extremely resistant to hurricanes, fire, mold, and wind. Mixson is also contributing toward the social and economic revitalization of a transitional neighborhood. The Mixson Civic Trust, a new not-for-profit neighborhood organization, engages neighbors and the broader community in cultural and educational events including support of area artists and a struggling local school.

Concurrent Session Speakers

Wednesday, August 13

4:10pm—5:20pm

session

Patrick Beggs
North Carolina
Cooperative Extension
WECO / Watershed Education
for Communities & Officials
Box 8109
Raleigh NC 27695-8109
919.515.4525
patrick_beggs@ncsu.edu

Liz Upchurch
Tennessee Valley Authority
400 W Summit Hill Drive,
WT11A-K
Knoxville, TN 37902
865-632-8305
efupchurch@tva.gov

Joe Krewer
Georgia Dept of
Community Affairs
60 Executive Park South, NE
Atlanta, GA 30329
404-679-3124
Email: jkrewer@dca.state.ga.us

Abstract: Growth Readiness Process, Outcomes and Lessons Learned in the Southeast

The Southeast is poised to see an unprecedented level of growth over the next 20 years with an estimated 43 million additional people and projected 6.7 million additional new homes in the region. To address these realities, the Growth Readiness Program model of diverse stakeholders coming together to learn about local issues, evaluate growth patterns and develop consensus-based recommendations for change has been utilized in several Southeast communities. Based on the Center for Watershed Protection's Better Site Design Manual, the Growth Readiness model educates and empowers communities, inviting many interests to weigh in on the future of local development. This panel will provide an introduction to the Growth Readiness model, presenting program outcomes and lessons learned from communities in Georgia, North Carolina, Tennessee and Virginia.

Christy Perrin
Program Manager
Watershed Education for Communities and Officials
Dept. Agricultural and Resource Economics
NC State University
Campus Box 8109, Raleigh, NC 27695
(919) 515-4542
Christy_perrin@ncsu.edu

Since 2000 Christy Perrin has managed Watershed Education for Communities and Officials (WECO), a community outreach program at North Carolina State University that involves the public in environmental decision-making. She collaborates with communities across the state of North Carolina, helping civic groups, local governments, and state organizations effectively involve others in protecting and restoring natural resources. She earned her Master's in Public Administration with an environmental policy focus from NCSU (98'), and has extensive training and experience in community mediation and group facilitation. Recently she has been working with communities in North Carolina to help them evaluate their codes and policies for encouraging lower impact forms of development and better protection of water quality, and she serves as co-PI on the team that is writing the NC LID Manual. She is interested in finding ways to leverage ecological restoration resources to enhance community development goals, and to build citizens' capacity for collaboration and civic engagement.

Concurrent Session Speakers

Wednesday, August 13

4:10pm—5:20pm

session B

Christopher K. DeScherer
Senior Attorney
Southern Environmental Law Center
38 Broad Street, Suite 200
Charleston, SC 29401
P.O. Box 609
Charleston, SC 29402
843-720-5270
cdescherer@selcsc.org

Abstract: Smart Growth in the Southeast: Trends, Challenges, and Opportunities

The Southeast is the most rapidly growing part of the country, and it will continue to face enormous growth and development pressures transforming the region. From the loss of farmland and natural areas to increased competition for water resources, from choked highways to polluted waterways and skyrocketing energy costs, our transportation and development patterns and policies are taking a heavy toll. On top of these problems, transportation and development are leading sources of greenhouse gases that threaten even more serious and long-lasting damage.

Public concern over these impacts has risen sharply, and communities throughout the region are struggling to capture the benefits of economic development while avoiding the mounting fiscal, environmental, health, and social costs of sprawling, automobile-dependent development. There has been an explosion of initiatives at the state and local level that seek to promote more sensible growth and more sustainable transportation, offering a promising approach to growth challenges.

This presentation would provide an overview of growth trends shaping the Southeast. It would then explore some of the key impacts of these trends, with a particular focus on water resource impacts. Finally, it would highlight promising efforts underway in the region to advance more sensible growth, including efforts to revitalize communities, promote greener buildings, preserve habitat and farmland, and provide a broader range of transportation choices.

Concurrent Session Speakers

Wednesday, August 13

4:10pm—5:20pm

session B

Shirley Trier, M.S.

Senior Urban Forester

Davey Resource Group

3948 3rd St. South, #377

Jacksonville Beach, FL 32250

Phone: (904) 803-0557

Fax: (904) 285-1875

strier@davey.com

www.davey.com

Shirley Trier is a senior urban forester and project manager for the Davey Resource Group. In this role, Shirley works with municipalities, contractors, and communities developing and implementing urban forestry projects and programs.

Prior to joining Davey, Ms. Trier worked for the State of Florida Division of Forestry as an urban forestry grant administrator. While with the Division of Forestry, she helped cities and towns throughout north Florida mitigate hurricane damage through proactive urban forestry planning and project implementation. Ms. Trier has several years of experience managing parks and natural areas in south Florida with duties ranging from day to day facility and grounds management to the development of park operations manuals, and natural resource and emergency management plans. Shirley is a Certified Arborist and Municipal Specialist through the International Society of Arboriculture. Shirley is a member of the Executive Committee of Greenscape of Jacksonville and the Jacksonville Arboretum and Gardens.

Abstract: Trees Count

Cut it down. Plow it under. And plant new! Removing existing trees from development or redevelopment sites and planting new trees to mitigate that loss is usually perceived to be easier and cheaper. Although local ordinances and mitigation regulations can be satisfied by planting new trees, this practice creates symmetrical, unnatural streetscapes in our communities that likely cannot be sustained in the future. What are we really losing by this practice? In an age where every drop of green in our infrastructure is needed to balance growth and promote sustainability, the role and value of trees are often underestimated. Trees are essential components of our built and natural environments. They provide quantifiable ecological benefits that improve the sustainability of our communities. Strategically planted and preserved trees can lessen the impacts of environmental change and buffer growth by capturing stormwater runoff, sequestering carbon dioxide, reducing energy costs, and generally making our communities more walkable and livable.

Quantifying, understanding, and using available and beneficial tree resources to reduce heat island effects and the impacts of droughts and storms and to save energy will build more resilient communities and enhance green infrastructure. Integrating existing and new tree resources with community planning is an innovative means to combat growth, drought, and threats from climate change.

This presentation will discuss methods available to determine the ecosystem benefits trees are providing and how to maximize their role in planning sustainable communities.

Concurrent Session Speakers

Wednesday, August 13

4:10pm—5:20pm

session B

Lindsay Fairchilds
SCDNR
Land, Water, and Conservation
2730 Savannah Highway
Charleston, SC 29414
Cell: 843.834.3254
FairchildsL@dnr.sc.gov

April Turner
Coastal Communities Specialist
S.C. Sea Grant Extension Program
287 Meeting St.
Charleston, SC 29401

Lindsay Fairchilds is the Coastal Region Coordinator for SC DNR's Land and Water Division. Lindsay works with the Conservation Districts and Scenic Rivers programs on community-led conservation efforts in the Lowcountry. Lindsay has a BS in Geography from Salisbury University and an MS in Environmental Studies from the College of Charleston.

Lindsay has worked with DNR on areas related to conservation education, outreach, technical and citizen's assistance, and partnership efforts since 2005. Prior to that, she worked with the US Forest Service and the College of Charleston, publishing "A History and Legacy of Fire in South Carolina." Lindsay also worked as a consultant for the Department of Energy's Office of Industrial Technology.

Lindsay lives downtown Charleston with her son, Charlie Dean, and Labrador retriever, Miyka.

April Turner has worked for the SC Sea Grant Extension Program in Charleston, SC, as the coastal communities specialist since June of 2000. The S.C. Sea Grant Extension Program is a joint outreach program of the S.C. Sea Grant Consortium, the Clemson University Extension Service, and other Consortium member institutions. As the Coastal Communities Specialist, April is responsible for designing, developing, and implementing outreach education programs to help communities find a sustainable balance between necessary economic growth and natural resource conservation. As part of the Coastal Communities Program, April educates citizens and public officials about land use and associated impacts on natural resources, by providing science-based information and tools to enhance their ability to address the pressures of coastal growth.

Currently, she is involved in a variety of community projects, such as coordinating the South Carolina water quality program, Nonpoint Education for Municipal Officials (NEMO); providing assistance with open space planning and land-use comprehensive planning for communities within the eight coastal county region; and managing a small grants program for coastal municipalities, developed for the purpose of engaging local governments in the development and implementation of land management policies and practices to foster sustainable land use planning and resource management.

Prior to joining SCSG staff, April worked at the SC Department of Health and Environmental Control (SC DHEC) Office of Ocean and Coastal Resource Management (OCRM) as a planner for the Charleston Harbor Project Special Area Management Plan and for the OCRM Planning Division. She received her BA in Geography from the University of Colorado and a Master of Parks, Recreation, and Tourism Management from Clemson University. She enjoys snow boarding, kayaking, and living at the beach with her Old English sheepdogs, Cayce, Willa, and Beckett.

Concurrent Session Speakers

Wednesday, August 13

4:10pm—5:20pm

session B

Abstract: Jasper County Natural Resources Conservation Plan: Preparing for growth

Jasper County, like many South Carolina coastal communities, is growing at a rapid pace. Growth in this 24,000-resident rural county is projected to increase by 160,000 new residents accompanied by development of 30,000 acres in the next ten years. Local community interests are concerned with the effects of such growth on their way of life and existing land and water resources. In response to community needs, the S.C. Sea Grant Consortium, in conjunction with the Jasper Soil and Water Conservation District, USDA-Natural Resources Conservation Service, and S.C. Department of Natural Resources, began a countywide, conservation planning effort in August 2004. The planning effort included: assessing the natural resources and conservation needs; setting community conservation goals; developing a countywide conservation plan; and integrating the plan into the comprehensive growth plan. Coordinated by an all-volunteer committee, development of the Plan involved 100 stakeholders through workshops and focus groups. In 2006 the Plan was submitted to the County for review, and with overwhelming support from the community, County Council incorporated it into the Natural Resource Element of the Comprehensive Land Use Plan in 2007. The Plan was then printed and distributed to all Jasper County municipalities and project stakeholders. The Plan serves as a guidebook for county residents, a tool for natural resource educators and planners, and an inventory of biological data and innovative solutions for protecting the region's ecosystems and species. This project is presently serving as a model for two South Carolina communities that have requested assistance with similar projects.

Concurrent Session Speakers

Thursday, August 14

10:00Am—11:15am

session A

Dave Eslinger

Oceanographer
Coastal Conservation Specialist
NOAA Coastal Services Center
2234 S. Hobson Avenue, Charleston, SC 29405
843-740-1270
dave.eslinger@noaa.gov

Hansje Gold-Krueck

Human Dimensions Specialist
I.M. Systems Group, Inc.
NOAA Coastal Services Center
2234 S. Hobson Avenue, Charleston, SC 29405
843-740-1337
hansje.gold-krueck@noaa.gov

Jodie Sprayberry

Spatial Analyst
Perot Systems Government Services
NOAA Coastal Services Center
2234 S. Hobson Avenue, Charleston, SC 29405
843-740-1168
jodie.sprayberry@noaa.gov

Dr. Dave Eslinger's interests lie in developing useful tools and methods to help managers better address their issues through the relevant, reasonable, and realistic application of remote sensing data and numerical models. He began traveling this path after receiving a Ph.D. from Florida State University in coupled biological and numerical models, followed by a post-doctoral position as a National Research Council Research Associate with NASA's Godard Space Flight Project, where he worked on the SeaWiFS ocean color sensor project prior to its launch. After leaving NASA, he was an Assistant Professor of Biological Oceanography at the Institute of Alaska Fairbanks for several years. In Alaska, Dave was first exposed to the challenges of getting modeling data into a management-useful form when he worked on projects related to assessing the impacts of the Exxon Valdez oil spill on Pacific herring and pink salmon. Although noteworthy science results were achieved, it was difficult to get the science translated into meaningful information that the Alaska fisheries managers could effectively use.

Hansje Gold-Krueck is a human dimensions specialist and a senior member of the technical staff with IMSG at the National Oceanic and Atmospheric Administration's Coastal Services Center. During her six years at the Center, she has worked on multiple projects, including several that employ various visualization software solutions to assist coastal communities.

Lauren Long

Coastal Conservation Specialist
I.M. Systems Group, Inc.
NOAA Coastal Services Center
2234 S. Hobson Avenue, Charleston, SC 29405
(843) 740-1149
lauren.long@noaa.gov

Chrissa Stroh

Coastal Conservation Specialist
Environmental Scientist
Perot Systems Government Services.
NOAA Coastal Services Center
2234 S. Hobson Avenue, Charleston, SC 29405
843-740-1219
chrissa.stroh@noaa.gov

Concurrent Session Speakers

Thursday, August 14 10:00Am—11:15am session A

Lauren Long graduated from Coastal Carolina University with a bachelors degree in Marine Biology and from the College of Charleston with a Masters degree in Environmental Studies. She has previously worked in environmental education and marine conservation planning and is currently employed as a Coastal Conservation Specialist at the NOAA Coastal Services Center in Charleston, SC.

Chrissa Stroh earned degrees from the University of Dayton and the College of Charleston. She has worked as a teacher, researcher and environmental consultant and is now employed as a contractor at the NOAA Coastal Services Center where she works to apply geospatial technologies to coastal management issues.

Jodie Sprayberry graduated with a degree in Geology from the College of Charleston. She is currently employed as a contractor at the National Oceanic and Atmospheric Administration's Coastal Services Center as a spatial analyst. Over the past five years, Jodie has worked on various hazards and resilience related projects, including projects that help communities build education and awareness of their potential risks to help them become more resilient to hazards.

Abstract: Tools for Building Sustainable Communities

CSC is interested in hosting a "tool shed" (the name will probably change in the near future) to showcase and demonstrate several tools designed to help communities better understand their resilience and mechanisms for adaptive management, related to weather and climate events. The "tool shed" would enable audience interaction and participation. Participants will be able to ask questions and see how the tools can benefit and apply to their community. In addition, CSC would like to present an overview of the "tool shed" near the beginning of the conference so the participants would be aware of and understand the purpose of the "tool shed".

Resilience represents the ability to "bounce back" after hazardous events, which include storms, flooding, tsunamis, mud slides, and other events. Stronger, better-informed, and better-prepared coastal communities have increased physical, social, economic, and environmental capacities to rebound from weather and climate impacts. The NOAA Coastal Services Center is facilitating partnerships and developing tools to help communities better understand their particular vulnerabilities and what can be done to make the collective community better able to withstand hazard-caused destruction and disruption.

These tools are being designed to help communities define key resilience factors, identify critical linkages, and enable community-based adaptive management techniques. They are being developed and distributed through partnerships between federal agencies, non-profit organizations, research institutions, and a wide range of coastal end users who are seeking tools to help them in community planning and hazard-mitigation planning, disaster preparedness and response initiatives, and long-term recovery and restoration efforts.

Tools developed through this effort also support enhancing ecosystem resilience by promoting, for example, restoration and protection of lands that are particularly hazard prone or have a high hazard-protection value (e.g., wetlands can reduce the impacts of storm surge).

Concurrent Session Speakers

Thursday, August 14

10:00Am—11:15am

session B

Matt Nespeca

Field Representative

ACE Basin and Savannah River Projects

South Carolina Chapter

The Nature Conservancy

mnespeca@tnc.org

843-833-5250

Noel Thorn

Special Projects Manager

South Carolina Chapter

The Nature Conservancy

Abstract: The Savannah River Preserve: Protecting Forests, Wildlife and a Way of Life

The Lower Savannah River Basin represents an extremely diverse landscape of rivers, floodplain forest, upland forest, grassland and farmland. The Savannah River Preserve is a targeted 700,000 acre landscape within the Lower Savannah River Basin (and the South Lowcountry Focus Area of South Carolina), with the majority of land being held in family ownership and other private entities. Within the Savannah River Preserve, a unique and highly leveraged bargain sale easement strategy is being utilized to meet the needs of family forest owners and other private landowners, while protecting the landscape from unwanted fragmentation and changing land uses. The Savannah River Preserve represents a landowner-driven conservation strategy, and is a model for future landscape-level protection initiatives in South Carolina and beyond. The South Carolina Conservation Bank has been the first major funding source that has embraced the mission of the Savannah River Preserve, and other creative funding sources are currently being sought. Also, a conservation partnership is forming in Georgia which could lead to a comprehensive strategy that includes both sides of the river. The program is being led by strong private landowner leadership. Partner organizations involved in the Savannah River Preserve include South Carolina DNR, US Fish and Wildlife, The Nature Conservancy, Ducks Unlimited, and the Lowcountry Open Land Trust. Through highly leveraged bargain sale easements and donated easements, over 35,000 acres have been protected through the Savannah River Preserve program in 2006 and 2007, with partner and landowner enthusiasm for the continuing protection effort and future success.

Concurrent Session Speakers

Thursday, August 14

10:00Am—11:15am

session B

Kim Douglass
919-715-7807
kim.douglass@ncmail.net

Kim Douglass is an undergraduate from Lynchburg College, in Physical Education & Recreation and has her Masters in Landscape Architecture from VA Tech with a focus on large scale land planning and outdoor recreation planning.

Kim has worked for the last 12 years in the planning field for NC local, county, and state governments, as well as for a non-profit. Currently, she works for NCDENR, Natural Heritage Program, as the Conservation Planner. She and her colleagues are developing a strategic conservation planning tool that identifies, evaluates and prioritizes significant natural resources on a statewide scale. www.onencnaturally.org

Abstract: The One NC Naturally, Conservation Planning Tool: Utilizing the Green Infrastructure Approach to plan proactively for growth

North Carolina is experiencing intense growth pressure and the trend is expected to continue for at least the next 25 years. The spatial characteristics of that growth are having a significant impact on our state's natural resources and our ability to undertake effective conservation and preservation activities. Though the state has a very respectable conservation budget, decisions about acquisitions and preservation efforts are often made with little understanding of how each effort fits into a larger picture. Utilizing a "Green Infrastructure" approach, the state of NC has undertaken a statewide conservation planning initiative with the goal of identifying, evaluating, and prioritizing an interconnected network of essential ecosystems including biodiversity/wildlife habitat (including NC SWAP), recreational lands, working lands, and coastal habitat characteristics. This emerging tool will help us make better informed funding decisions, establish effective partnerships, and facilitate more effective conservation outcomes.

The presentation will consist of a PowerPoint presentation and brochure, to include specific information about the type of data the NC planning process is compiling, the challenges we are facing, a timeline for availability of applications, and benefits for planning for growth in an environmentally sensitive way. The session will conclude with a discussion about user group feasibility and access to the data used in the maps, Q &A, and an interactive demonstration of the GIS planning tool.

Concurrent Session Speakers

Thursday, August 14

10:00Am—11:15am

session B

Will Allen
Director of Strategic Conservation
410 Market Street, Suite 360
Chapel Hill, NC 27516
919-967-2223 ext 124
wallen@conservationfund.org

Jeffrey Brown
Project Manager
NC Center for Geographic
Information and Analysis
20322 Mail Service Center
Raleigh, NC 27699-0322
919-715-0712

With the Fund since 1994, Will is responsible for managing and delivering the Fund's projects involving green infrastructure planning, rapid open space assessments, compatible land use planning, and other strategic conservation planning efforts. Will is the co-editor of the *Journal of Conservation Planning*, a member of the American Planning Association and a founding member of the Society for Conservation GIS. Will received his Bachelor of Arts in Urban Studies from Stanford University in 1993 and his Master of Regional Planning from the University of North Carolina at Chapel Hill in 1995.

Jeff Brown has been a project manager and GIS analyst with CGIA since 1996. Recent projects include regional land suitability models for Sustainable Sandhills, BRAC Regional Task Force, the Conservation Fund, and the Tar River Land Conservancy. He has a Master's in City and Regional Planning from Harvard University and a B.A. in Economics from Trinity College.

Abstract: Developing and Using Land Suitability Maps to Highlight Best Uses and Competing Values in Sustainability Planning: Results in Two Regions of North Carolina

Two regions of North Carolina, each with significant military mission activities, have developed land suitability models and maps in support of collaborative planning processes for sustainable futures. Three planning efforts in the Sandhills region collaborated on development of suitability maps and models that present six suitability types and a synthesis that highlights areas of best and competing land use potential. The Strategic Lands Inventory, a project of the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) leveraged techniques and lessons learned in the Sandhills to engage stakeholders in 13 counties in southeastern NC and produce comparable perspectives on suitability for industrial, commercial, and residential development, natural areas, working forests, and farmland. The GIS datasets and models that produce the maps are packaged for stakeholders, particularly local planners, to apply to local and regional sustainability planning. The panelists will highlight how extensive partnerships, investments in geospatial data, and highly focused collaborative map creation have framed sustainability opportunities and issues.

Concurrent Session Speakers

Thursday, August 14

11:20Am—12:00pm

session A

John Knott

President

Noisette Company

1360 Truxtun Ave, Bldg 7

North Charleston, SC 29405

843-302-2100

President and co-founder of the Noisette Company, LLC, John Knott leads the Noisette Project development team, which is collaborating in a public-private partnership with the City of North Charleston to restore 3,000 acres of the city's historic urban core. Knott has 38 years of experience in the urban redevelopment, historic preservation and community rehabilitation fields. He is an internationally recognized leader in the redevelopment of cities, and has served as an advisor to municipalities throughout the United States and Canada, in addition to cities in China and Russia.

Mr. Knott is a third generation builder and developer, with extensive experience in the holistic development of planned communities, sustainable development, Green Buildings, commercial offices, hotels, and renovation and restoration of historic properties and urban revitalization. He also specializes in ecologically sound and efficient energy design, and ranks among the nation's leading advocates of development that preserves, protects and enhances the natural environment.

As the Noisette Company's visionary, Knott guides the Company's master planning process with the local community in North Charleston, emphasizing the balance between business and residential uses with the restoration of the region's ecosystem. Recently, John served as CEO and Managing Director of the 1,206-acre Dewees Island, community near Charleston, South Carolina, an oceanfront island retreat dedicated to environmental preservation and recognized as one of the leading eco-friendly residential developments in the world. In 2001, Dewees won the Urban Land Institute's prestigious Award for Excellence.

A few of his many appointments include Eisenhower Foundation and the Heinz Center Design Committee, both in Washington, DC; Chairman of the ULI South Carolina District Council; Chairman for Charleston County's 1/2 Cent Sales Tax Transportation Advisory Board; and Board Member of Melaver, Inc., a southeast green development company headquartered in Savannah, Georgia.

Natives of Baltimore, Maryland, John and his wife Diane have lived in Charleston for the past 15 years. The Knotts have three children, and five grandchildren.

Concurrent Session Speakers

Thursday, August 14 11:20Am—12:00pm session b

Jeff Marcus
Piedmont Wildlife
Diversity Supervisor
NC Wildlife
Resources Commission
902 Poplar Street
Aberdeen, NC 28315
910-281-4388
jfmarcus@alltel.net

Jacquelyn Wallace
Urban Wildlife Biologist
NC Wildlife
Resources Commission
102 Rainbow Drive
Carrboro, NC 27510
919-360-9680
jacquelynwallace@earthlink.net

Kiersten Cook
Piedmont Land Conservation
Biologist
NC Wildlife
Resources Commission
Po Box 314, Star NC 27356
910-638-4887
kacy.cook@earthlink.net

Jeff has worked for the NC Wildlife Resources Commission for 7 years and currently supervises the Wildlife Diversity staff for the Piedmont region in NC. Jeff is involved in land acquisition and wildlife surveys and helped to initiate several land use planning projects. He has a B.A. in Psychology from the University of Rochester and an M.S. in Wildlife Biology from North Carolina State University.

Jacquelyn Wallace is the Urban Wildlife Biologist with the North Carolina Wildlife Resources Commission. As Urban Wildlife Biologist, she works with local governments and conservation partners in the rapidly urbanizing Triangle Region to proactively minimize the impacts of land development on species and habitats of conservation concern. She has a B.S. in Biology from the University of the South-Sewanee and a Masters degree in Natural Resources from North Carolina State University.

Kacy Cook is the Piedmont Land Conservation Biologist with the North Carolina Wildlife Resources Commission. She works cooperatively with local governments and private landowners to provide wildlife habitat conservation recommendations and works with the Greater Uwharrie Conservation Partnership to focus projects on conservation priorities in the south-central piedmont of NC. Kacy is interested in connecting wildlife science to local land use policies and she has a B.S. in Wildlife Biology from Humboldt State University and an M.S. in Forestry and Natural Resources, with a focus in Wildlife Ecology and Management, from the University of Georgia.

Abstract: North Carolina's approach to minimizing negative impacts of development on wildlife habitats

North Carolina is one of the fastest growing states in the nation, with a projected population increase of 50% within the next 25 years. Farm and forest land is being converted to development at a rate of 383 acres per day, causing loss, degradation, and fragmentation of wildlife habitats. NC's Wildlife Action Plan identifies poorly planned development as one of the greatest threats to wildlife. We will provide an overview of several programs that the NC Wildlife Resources Commission (NCWRC) has initiated to attempt to address this problem, including:

- review regulatory permits for direct impacts to protected wildlife resources
- participate in regional planning efforts such as Sustainable Sandhills and the Greater Uwharries Conservation Partnership
- model future growth and sprawl patterns to help communicate the need for land use planning to local governments and citizens
- produced a guidance memorandum on the cumulative and secondary impacts of development on wildlife resources to help guide planning and regulatory efforts
- developed an information packet and training session titled "Swimming with the Current" which educates communities about low impact development techniques and helps them to navigate the regulatory process developed a "Green Growth Toolbox" which provides planners with the tools necessary to incorporate biological information into the planning process

NCWRC has initiated an Urban Wildlife project and a Piedmont Land Conservation project with full-time biologists dedicated to working with local governments on land use planning. We will provide insights into the challenges and opportunities encountered working in both rural and developed landscapes

Concurrent Session Speakers

Thursday, August 14 1:10Pm—2:10pm session A

Debra Gutenson
Team Leader, US EPA
Office of Ground Water and Drinking Water
202-564-3882
gutenson.debra@epa.gov

Debra Gutenson, Team Leader, US EPA, Office of Ground Water and Drinking Water. Debra has over 28 years experience with EPA, having worked in all major program offices. She has been in the Office of Ground Water and Drinking Water for the last 9 years. She is currently serving as Team Lead for the Implementation Team, which strives to foster sustained regulatory and voluntary actions to protect current and future sources of drinking water at the federal, state and local levels. She has also served as project officer for several grants advancing innovative work in source water protection, including current grants working in pilot states to align source water protection, clean water and land use policies, requirements and tools at the state level.

Abstract: Planning for Sustainable Community Drinking Water Supplies

Highlight several initiatives to support source water protection at the local level. Emphasis will be on presenting innovative examples of how states and locals are using smart growth strategies to protect sources of drinking water. Initiatives include:

- **Source Water Collaborative** (SWC), first formed in February 2006, has now grown to a group of 18 national organizations and three federal agencies including EPA. The SWC launched the "Your Water. Your Decision." campaign in late February, to help local decision-makers take advantage of opportunities to protect sources of drinking water, understand the costs involved, and consider ways to pay for it.

As part of this initiative, the SWC has developed a guide for community leaders and a toolkit for using the guide. The "Your Water. Your Decision." guide is intended as a quick source of key information on local options for protecting drinking water, including development, stewardship, and budgeting. Using the theme, "how you govern can determine what you drink," the guide was developed as a tool to enable local officials to take action within their communities and partner with neighboring communities. Results from two states' pilot use of the toolkit will be presented.

- **Enabling Source Water Protection: Aligning State Land Use and Water Protection.** 3 year grant awarded to Trust for Public Land (partnering with River Network and ASDWA) and Smart Growth Leadership Institute) that will lead to 7 statewide initiatives to align source water protection, clean water and land use policies, requirements, and tools at the state level (OH, VT and NH are the first 3 states) in order to foster source water protection at the local level. Examples of strategic opportunities identified in the first pilot states will be presented.
- **SMART About Water** (Strategic Management and Available Resources and Technology), a training and technical assistance program for source water and wellhead protection for small and rural community water systems, from a grant to the National Environmental Services Center (NESC) at West Virginia University (WVU) and the Rural Community Assistance Partnership (RCAP). The primary emphasis will be on wastewater contamination, the largest potential contamination threat to drinking water sources for very small water systems.

Concurrent Session Speakers

Thursday, August 14 1:10Pm—2:10pm session A

Jay Frick
Source Water Protection Program Coordinator
NC Department of Environment and Natural Resources
1634 Mail Service Center
Raleigh, NC 27699-1634
919-715-0827
jay.frick@ncmail.net

Jay Frick is the Source Water Protection Program Coordinator for the NC Department of Environment and Natural Resources. His primary responsibility includes developing strategies to protect public drinking water sources. He has recently created a low-interest loan program for land conservation and an ArcIMS mapping tool to help prioritize resources used for source water protection activities. Other objectives currently include building active partnerships with other NC agencies, establishing a public education campaign, and initiating local source water protection plans.

Abstract: Assisting Land Conservation to Encourage Drinking Water Protection

Protection of public drinking water at the local level is often a complex issue. The process requires cooperation among diverse groups as competing ideas are evaluated and prioritized. A popular protection strategy includes land conservation, especially in areas experiencing rapid population growth or spikes in developmental pressure. Such projects attract wide public appeal when linked to drinking water protection.

Purchasing land for conservation is expensive and requires serious financial commitment. NC DENR has initiated a low-interest loan program to assist communities with land conservation objectives. Our program was created as an incentive to stimulate comprehensive source water protection planning, which is required for loan eligibility. Loan evaluation is based upon criteria derived from our SWAP results. Response has been positive. We have received support from the Conservation Trust for NC, an organization that coordinates the efforts of 23 individual land conservancies. In general, land conservancies appear willing to promote source water protection planning to access the loan program.

This presentation highlights a case study in Lincoln County, NC. It details a cooperative effort among NC DENR, Catawba Lands Conservancy, Catawba Riverkeepers Foundation, NC Parks and Recreation Department, and Lincoln County government to protect a 116-acre tract from development. Multiple benefits are emerging from this interaction: Intensive protection planning is underway for the county's drinking water source; 5,600 linear feet of sensitive stream zones will be protected with riparian buffers; a passive park is planned to enhance public recreation; and educational opportunities have been identified for local school system involvement.

Concurrent Session Speakers

Thursday, August 14 1:10Pm—2:10pm session B

Program Note: Kevin Nunnery was unable to attend. Chrissa Stroh presented in his place on “Participatory GIS Methods in Coastal Planning.” Her bio information is available on pg. 39 of this program.

Kevin Nunnery
Biohabitats, Inc
8218 Creedmoor Road, Suite 200
Raleigh, NC 27613
919-518-0311 (office)
919-518-0313 (fax)
kunnery@biohabitats.com

Dr. Nunnery is an ecologist with over 15 years of experience in both research and applied ecology. Areas of expertise include the characterization, assessment, restoration and monitoring of wetland and stream ecosystems and development-impacted watersheds, ecological assessments of green infrastructure for master planning purposes, development of specialized techniques to evaluate ecological assets, and sustainable approaches to development design. Recent projects have included college campus and municipal ecological assessments and evaluations, stream restoration design, construction oversight, and monitoring, wetland restoration design, construction oversight and monitoring, wetland and stream delineation, wetland and stream permitting, watershed nutrient loading assessment, watershed habitat assessment, watershed sampling field protocol and watershed improvement recommendations.

Abstract: Case Studies in Ecologically Sustainable Development - Open Space Analysis Methods For Identifying Important Landscape Ecology and Environmental Features For Integration in the Design Process

Demand for more ecologically sustainable development, along with growing development pressure, point to the need for methodologies that can be applied to balance development pressures with preservation and restoration of valuable environmental resources. This presentation explores methods developed by Biohabitats, Inc. to identify important landscape ecology and environmental features, map their locations, analyze the inter-relationships and generate recommendations for areas more suited for greenspace preservation and restoration and areas more suited for development. A brief discussion of the GIS application and field methods is included, but the focus is on the concepts applied to the overall structure of the method. The data that is generated from the process, and how it can be applied to the planning and design process by planners, developers, architects and engineers will be explored.

These methods can be used to inform master planning for most development scenarios. Examples of methodologies developed for varying spatial scales and investigative intensities will be presented as case-studies of projects in new and re-development contexts. The case study projects vary in site size from several hundred acres to approximately 70 square miles. Summaries of how the methods were applied to university campus planning, municipal open-space initiatives and residential development will be included. Lessons learned and identification of areas for additional research will be discussed.

Concurrent Session Speakers

Thursday, August 14 1:10Pm—2:10pm session B

Guy DiDonato, PhD
Estuarine Ecologist
Hollings Marine Laboratory/JHT
331 Fort Johnson Road
Charleston, SC 29412
guy.didonato@noaa.gov
(p) 843.762.8932

Since 2004, Guy DiDonato has been an Estuarine Ecologist for the National Centers for Coastal Ocean Science's Hollings Marine Laboratory in Charleston, SC. In that position, he has studied the impacts of coastal development activities on tidal creeks and small tidal rivers of the southeastern US and Gulf of Mexico. Before that, he conducted research in freshwater habitats, ranging from northern temperate lakes to tropical streams, and other marine habitats, as varied as subtropical estuaries and coral reefs.

Abstract: Tidal creeks as sentinel habitats: a conceptual model for describing the effects of land use change on coastal ecosystems

Meandering shallow tidal creeks are a dominant feature of Southeastern coastal areas. They provide nursery grounds for many fish and crustaceans, serve as buffers from storms, and offer aesthetic and recreational opportunities. The watersheds of these creeks are also preferred sites for development activities that support the residential and commercial needs of a growing coastal population. Research in tidal creeks and their watersheds has resulted in a conceptual model relating the attributes of coastal development to the physical, ecological, and human dimensions of these ecosystems. For example, development often leads to rapid changes in the amount of impervious cover in tidal creek watersheds, changing the way the watershed responds to rainfall. Frequent flooding events causing at best inconvenience or even potential health effects are one consequence of hydrological alterations. Furthermore, creek ecosystems services and living resources change with increased nonpoint source pollutants, resulting in changes in important ecological and commercial species. The interplay of the physical, ecological, and human dimensions of coastal ecosystems can be captured in a Quality of Place index of attributes that quantifies the human-perceived value of these places. A major outcome of tidal creeks research is the identification of these habitats as sentinels for detecting the impacts of human activities on coastal ecosystems and, as such, platforms to integrate the economic and environmental aspects of coastal development. More generally, the sentinel habitat framework provides an approach that could be used to develop conceptual models for research and decision making in other US coastal regions.

Concurrent Session Speakers

Thursday, August 14

2:15Pm—3:15pm session A

Vena Jones
Director
Local Officials Community Water Curriculum
Cumberland River Compact
P.O. Box 41721,
Nashville, TN 37204
venaj@cumberlandrivercompact.org
615-227-3959

Gwen Griffith
Director, Building Outside the Box (BOB)
Cumberland River Compact
P.O. Box 41721
Nashville, TN 37204
avegwen@aol.com
615-353-0272

Abstract: Two-Tiered Approach to Sustainable Communities

The Cumberland River Compact (Compact) has taken a unique approach to developing programs to help create sustainable communities. The Compact designed and launched two programs, Building Outside the Box, (BOB) and the Local Officials Community Water Curriculum (LOC). These programs work in tandem to educate all individuals involved with the development of our communities on multiple levels. BOB focuses on builders, design professionals, and their development practices. The LOC program works with local governments to provide targeted educational models to elected officials, municipal employees, and development professionals. This two-tiered, wholistic approach allows the Compact to focus on encouraging the body of community leaders in an area to move toward a more sustainable future.

The BOB program has employed education, model demonstration sites, and web-based outreach to launch extensive green building projects in middle Tennessee. BOB has catalyzed the construction of over 100 EarthCraft House or LEED for Homes certified units and was acknowledged with the 2006 TN Governor's Award for Excellence in Building Green.

The LOC program has targeted stormwater Phase II communities to change perceptions and remove obstacles concerning sustainable development. LOC has worked with municipal and county officials to change codes and ordinances and development professionals to encourage utilization of green infrastructure. The LOC program received an award for Excellence in Water and Wastewater by the Greater Nashville Regional Council.

In a one-hour panel presentation we will cover this integrated approach; the methods used; sources of funding; the lessons learned for effective means to encourage positive change; and successful outcomes in terms of both on-the-ground green building projects and systemic change in municipal government and corporate methods of operations.

Concurrent Session Speakers

Thursday, August 14 2:15pm—3:15pm session B

Heather Nix
Urban Rivers Project Manager
Upstate Forever
PO Box 2308
Greenville, SC 29602
864.250.0500
hnix@upstateforever.org

Heather Bergerud Nix is Upstate Forever's Urban Rivers Project Manager. Before joining Upstate Forever in 2007, Heather worked as a Project Manager for an environmental consulting firm doing wetland delineations, industrial facility compliance inspections, and assisting in the implementation of a Phase I MS4 NPDES permit.

Abstract: *Stormwater Mitigation Banking: Putting Theory Into Practice*

This presentation covers “stormwater mitigation banking,” a novel approach to helping local governments address untreated stormwater discharges in older urbanized areas. It is premised on the fact that many local governments in rapidly developing regions are hard-pressed to fund their NPDES permit obligations to manage the impacts of current development, let alone address untreated discharges in older urbanized areas. Stormwater mitigation banking provides a mechanism for fixing the problems caused by old development that is funded by the process of new development. The country's first stormwater mitigation bank is in the early stages of development, and as currently planned, will have two components. The first is a low-impact development scoring system that will assign points to a development based both on the likely water quantity and quality benefits of its post-construction stormwater management system and on its stormwater management performance during construction.

The second component is the stormwater mitigation bank. It will allow developers who score high enough using the low-impact development scoring system to buy credits from the county-run mitigation bank that will grant them a waiver from detention requirements. The number of credits purchased will depend on the score received (e.g., the higher the score, the fewer credits needed). The funds generated would then fund retrofit projects in legacy sites. The premise is that foregoing the final portion of detention in a LID site will more than be outweighed in environmental and economic benefits by treating the first flush in older developments.

Concurrent Session Speakers

Thursday, August 14 2:15Pm—3:15pm session B

Jeff Hughes
Environmental Finance Center
School of Government
The University of North Carolina at Chapel Hill
Campus Box 3330, Knapp-Sanders Building
Chapel Hill, NC 27599-3330
T: 919.843.4956
www.efc.unc.edu

Jeff Hughes is the director of the Environmental Finance Center within the University of North Carolina School Of Government, whose mission is to enhance the ability of governments to provide environmental programs and services. It is one of nine EPA-supported outreach centers across the United States. His experience includes direct water utility management, research, consulting, advising foreign governments on environmental finance issues, financial analysis, and university and professional continuing education instruction. He currently teaches over a dozen professional education courses and workshops serving utility directors, finance directors, local government managers, and elected officials. In addition, he is responsible for the utility finance sessions offered at the National Water and Wastewater Leadership Center's executive education program. He is the author of numerous reports and articles on environmental finance subjects. Hughes works with a range of state and national organizations that focus on water issues. He holds a seat on the North Carolina Water Treatment Facility Operators Certification Board and serves as an expert witness to the EPA Environmental Financial Advisory Board. Hughes received a Master of Science degree in environmental engineering from the UNC School of Public Health and a Bachelor of Science degree in engineering from the Duke University.

Abstract: Searching for the Golden Egg: Sustainable Revenue Source for Watershed Protection in the Mills River Watershed

This case study presentation will outline the process of identifying and evaluating sustainable revenue sources that will be used for protecting and maintaining the Mills River Watershed. The Mills River Partnership has been very successful at designing and implementing watershed protection efforts throughout the watershed, but in the past these successes have been supported primarily through one-time grants. Realizing the importance of a sustainable revenue source, local governments and community groups solicited the assistance of a multidisciplinary technical assistance team funded as part of a USEPA Targeted Watershed Capacity Development Grant. The team helped identify, evaluate, and explain potential revenue options. Led by the UNC Environmental Finance Center (EFC), the team is working closely with staff from Region 4 of the Environmental Protection Agency, the City of Asheville, the City of Henderson, Henderson County and the Mills River Partnership to quantify watershed needs and to identify potential revenue options. As part of the planning and evaluation effort, the EFC created a series of financial plans, models and policy tools that quantified watershed protection needs over time and demonstrated quantitatively and graphically the financial and environmental impacts of different revenue options. The presentation will include a demonstration of the tools and describe the process in which they will be used to educate key decision makers across the watershed.

Concurrent Session Speakers

Thursday, August 14

3:30pm—4:30pm session A

Nicole Saladin
Coastal Training Program Coordinator
North Inlet-Winyah Bay
National Estuarine Research Reserve
PO Box 1630, Georgetown, SC 29442
843-546-6219 ext 241
nicole@belle.baruch.sc.edu

Susan Sledz
Executive Director
Murrells Inlet 2007
PO Box 1357
Murrells Inlet, SC 29576
843-357-2007
info@murrellsinletsc.com

Abstract: Murrells Inlet 2007 and Beyond: Community Revitalization Looks to the Future and Sees Green

Murrells Inlet 2007 is a non-profit community revitalization group dedicated to the preservation of Murrells Inlet, SC and its fishing traditions. Among the group's many commitments to preserving community character and natural resources is a dedication to community sustainability, environmental education, and low impact development practices as it restores and enhances recreational and outdoor opportunities for residents and visitors. Through the implementation of a Special Area Management Plan (SAMP), such efforts include the installment of pervious pavers, pet waste stations, pervious concrete bike path, oyster shell recycling, litter campaigns, and ecotourism signage in recreational areas to educate the public about the salt marsh. A rigorous volunteer water quality monitoring program engages citizens in collecting data on land-based sources of water pollution, and educates them about stormwater issues. Future park and roadway beautification efforts will feature low impact landscaping and design, including xeriscaping, native vegetation, environmentally safe fertilization and pest control practices, stormwater treatment features such as swales and rain gardens, and other low impact practices that mitigate the footprint of the MI community on the health of the inlet's water and natural resources. MI2007 engages businesses, residents, and visitors, as well as partners widely with local government, DNR, DHEC, other local resource management organizations, and the private sector. Their successful collaboration on the protection of the inlet through these green revitalization practices, and the high visibility of these projects to tourists and local decision makers serve as great opportunities to promote sustainable development practices along South Carolina's highly developed Grand Strand.

Concurrent Session Speakers

Thursday, August 14 3:30pm—4:30pm session A

Dan Hitchcock, Ph.D., P.E.

Assistant Professor

Agricultural and Biological Engineering Department

Baruch Institute of Coastal Ecology and Forest Science

Clemson University

Dr. Dan Hitchcock is an Assistant Professor (75% research, 25% extension) in the Biosystems Engineering program in the Agricultural and Biological Engineering Department at Clemson University since June 2006. He is stationed at the Belle W. Baruch Institute of Coastal Ecology and Forest Science, a coastal research facility near Georgetown, SC. Dan's primary research interests relate to coastal hydrology, water quality, and land use change, especially in areas where shallow water tables are present. He is specifically interested in designing and creating effective natural treatment systems, including constructed wetlands, bioretention, and vegetative buffer strategies, as well as other innovative phytoremediation techniques, for stormwater management and water quality improvement in coastal landscapes.

He received his Ph.D. in Biological and Agricultural Engineering from the University of Georgia in 2001. He received a B.S. in Zoology with a minor in Botany from the University of Tennessee, Knoxville in 1993 and an M.S. in Environmental Health at the University of Georgia in 1996. Dan is also an adjunct faculty member of the Master of Environmental Studies (MES) program at the College of Charleston and an affiliate member of the Faculty of Engineering at the University of Georgia. He is also a Professional Engineer, Category A, in the state of South Carolina. Dr. Hitchcock enjoys such water-related activities as kayaking and fishing, and he also enjoys backpacking, mountain bike-riding, traveling, playing guitar, reading, and photography.

Abstract: Responding to Coastal Development in South Carolina through Research and Outreach Programs

Land use change to support population growth is occurring at a tremendous rate in coastal South Carolina. The Program of Integrated Study for Coastal Environmental Sustainability (PISCES) is a Clemson research group dedicated to investigating development, its potential impacts, and promising solutions. Research efforts are underway to investigate the effectiveness of innovative design strategies for maintaining hydrological and ecological conditions at the development tract scale within coastal watersheds. For example, low impact development (LID) alternatives are being explored as either a substitute for or an enhancement to retention ponds, the current common stormwater management practice. Major challenges relate to coastal hydrology, which is dictated by low gradient relief and shallow water tables. This presentation will discuss programs focused on investigations of alternative management strategies and demonstrations to engage coastal stakeholders in sustainable development. A local case study will be discussed - Bannockburn Plantation - where a real-time remote data acquisition network for hydrological and ecological measurements is being installed. This site offers the unique ability to study forested wetland and upland landscapes while monitoring changes before, during, and after development for the long term. Education thrusts include information delivery directed toward community associations, local officials, public works and planning staffs, and other professional decision-makers. By integrating research and education, these programs provide (1) ideas for developing or modifying sustainable development policy, (2) opportunities to explore alternative management strategies, and (3) demonstrations to engage communities about how to make a difference in preserving environmental quality in the face of coastal development.

Concurrent Session Speakers

Thursday, August 14 3:30pm—4:30pm session B

Melissa Pringle, Ph.D.

Eco-Systems, Inc.

6360 I-55 North, Suite 330

Jackson, Mississippi 39211

melissa.pringle@eco-systemsinc.com

Abstract: Sustainable Developments in Coastal Mississippi after Hurricane Katrina

In response to the housing shortage resulting from Hurricane Katrina's destruction of more than a third of the dwellings in coastal Mississippi coupled with the desire to retain the coast's character and protect coastal resources, developers are providing solutions in the form of sustainable, conservation-minded communities.

Two sustainable developments are located in Harrison County. The Reserve at Carr Bridge is a 176-acre single-family residential development designed with a network of pedestrian and bicycle trails. A Tidelands Grant is being pursued to support an "Eco-Walk," and LEED certification is being considered. River Hills is an 800-acre mixed-use development containing 400 acres of wetlands. Of the 400 acres, 80 acres will be placed in mitigation with the remaining 320 acres being placed in conservation easements. A third development is Graystone at Saracennia. It is a 476-acre mixed-use development in Jackson County designed around known environmental constraints to impact less than 6 acres of the total 219 jurisdictional wetlands on site. The remaining 213 acres of wetlands will be placed in conservation easements.

These three developments implement smart growth elements, conservation design principles and low impact concepts and were designed to fit into the natural setting by taking advantage of the natural site features such as topography, conservation areas, and natural waterbodies. These developments were engineered not only to meet the housing demands by yielding more than 2,800 residential units, but were designed to conserve the coastal resources of Mississippi. These unique developments represent the balance between economic development and environmental protection in coastal Mississippi.

Concurrent Session Speakers

Thursday, August 14 3:30pm—4:30pm session B

John C. Hayes, Ph.D., P.E.
Professor of Biosystems Engineering
Clemson University
229 McAdams Hall
Clemson, SC 29634-0312
Ph: 864-656-4042
jhayes@clemson.edu
Fax: 864-656-0338

John C. Hayes is a Professor of Biosystems Engineering at Clemson University. He has also served as Associate Dean for Environmental Conservation and Department Chair of Agricultural and Biological Engineering at Clemson University. He was formerly an Assistant Professor at Mississippi State University and a Research Specialist at the University of Kentucky. He holds a Ph.D. (1979) from the University of Kentucky, M.S. (1976) and B.S. (1974) from Clemson University. He is a member of ASABE, EWRI, SWCS, and is a professional engineer. He is a co-author of *Hydrology and Sedimentology of Small Catchments* and numerous journal articles, proceedings papers and book chapters. Dr. Hayes led the development and implementation of Clemson's award winning certification program for erosion prevention and sediment control inspectors and the certification program for stormwater plan reviewers. He also co-developed the S.C. Design Aids and other techniques that are widely used for design of erosion and sediment controls. He is co-developer of the IDEAL model used to estimate pollutant loadings from BMPs and other water quality models. He is principal investigator for the Changing Land Use and Environment (CLUE) project sponsored by USDA-NRCS.

Abstract: Impacts of Changing Land Use during and after Urban Development

Data collected by the Changing Land Use and the Environment (CLUE) program at Clemson University and funded by USDA-NRCS over the last six years indicate that rapidly developing watersheds produce substantial impacts to exported water quantity and quality as they undergo urbanization. Data include base flows and storm flows up to major storms caused by hurricanes in developed, developing, and undeveloped subwatersheds and include extensive analyses of flow, nutrient, metals, and bacterial indicators. Additional data were collected dealing with stream channel morphology, macroinvertebrates, and land use. In addition to data collected, two models, IDEAL and SEDIMOT III were used to further illustrate impacts of changing land use on the environment during and after urban development for selected watersheds within Greenville County, SC, USA. Comparisons using SEDIMOT focused on flow and sediment related aspects during construction. IDEAL was used to look at loadings to downstream water bodies after development has been completed. Basic concepts of each model are described to provide a better understanding of the approach.

Results from each model reinforce data show that it is not realistic to expect current stormwater and sediment control practices to prevent environmental degradation within urbanized areas even if practices are designed, installed, and maintained to meet regulatory requirements. Results from IDEAL are also useful in demonstrating to decision-makers the importance of placement on effectiveness of management practices, particularly as we seek low impact development. A variety of management practices are demonstrated that demonstrate additional "What if ...?" scenarios.

Roundtable Ground Rules

Everyone is encouraged to participate.

Stay focused on the task at hand.

Every idea as merit and should be respected.

One person speaks at a time.

Please do not interrupt others.

Please do not monopolize the floor.

Be creative! We are here to share ideas.

We are seeking an open and honest dialogue.

Facilitators are neutral and will guide the process.

**This meeting is not designed to solve technical issues,
but to address ways to create partnerships.**



The Southeast Watershed Forum is a nonprofit organization dedicated to building the capacity of communities and organizations to better protect their land and water resources. The Forum serves as a regional center for watershed education, training and regional dialogue.

For additional information visit:

www.southeastwaterforum.org or www.watershed-assistance.net

The Southeast Watershed Forum

One Vantage Way, Suite D-105
Nashville, TN 37228
Phone: 615-627-1310

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