
USGS
science for a changing world
Eric Strom
Director
March 16
2012
South Carolina
Water Science Center

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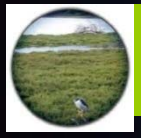
Realignment

Water

Climate and Land-Use Change

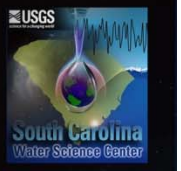
Natural Hazards



Ecosystems

Energy and Minerals, and Environmental Health

Core Science Systems



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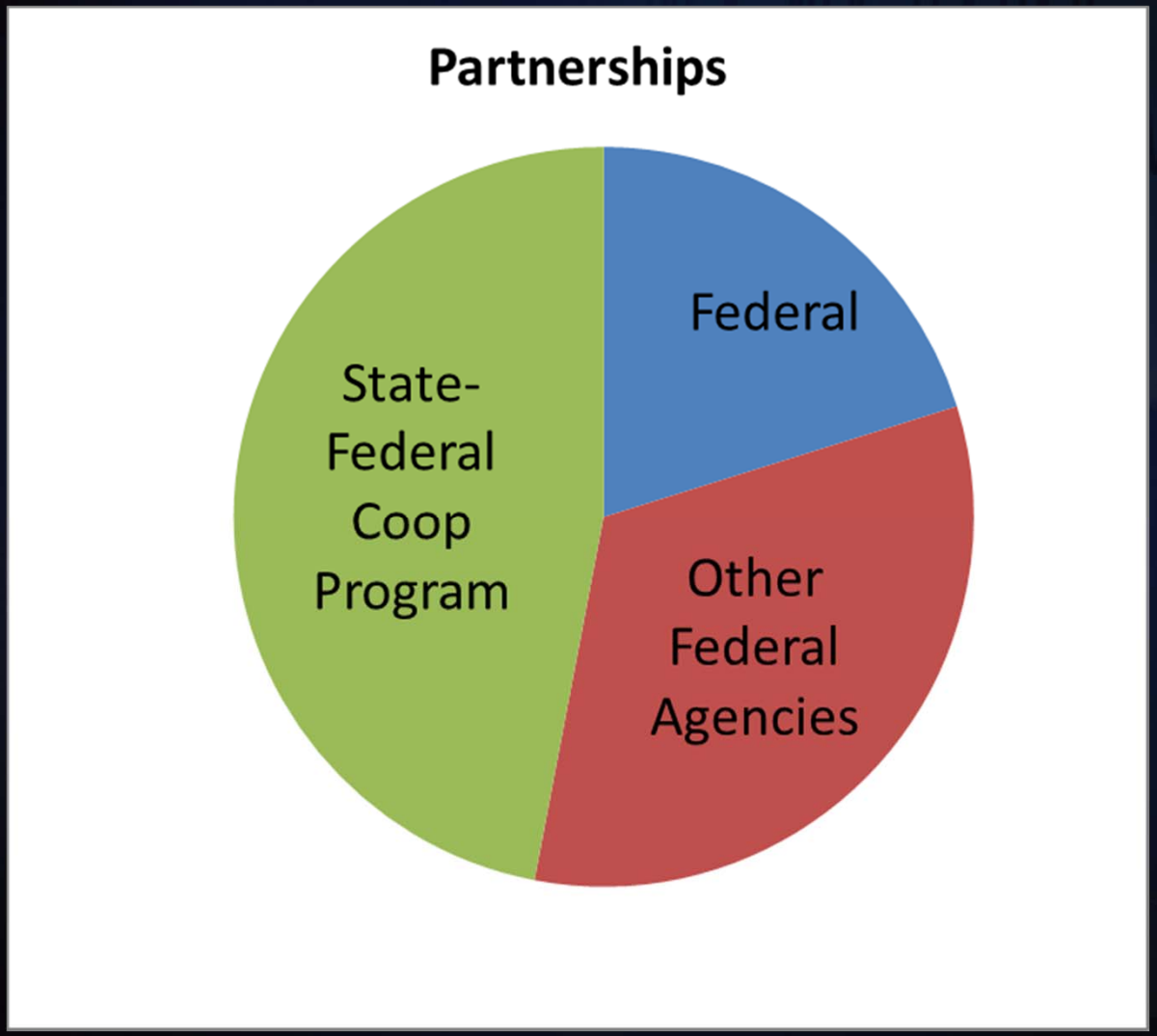

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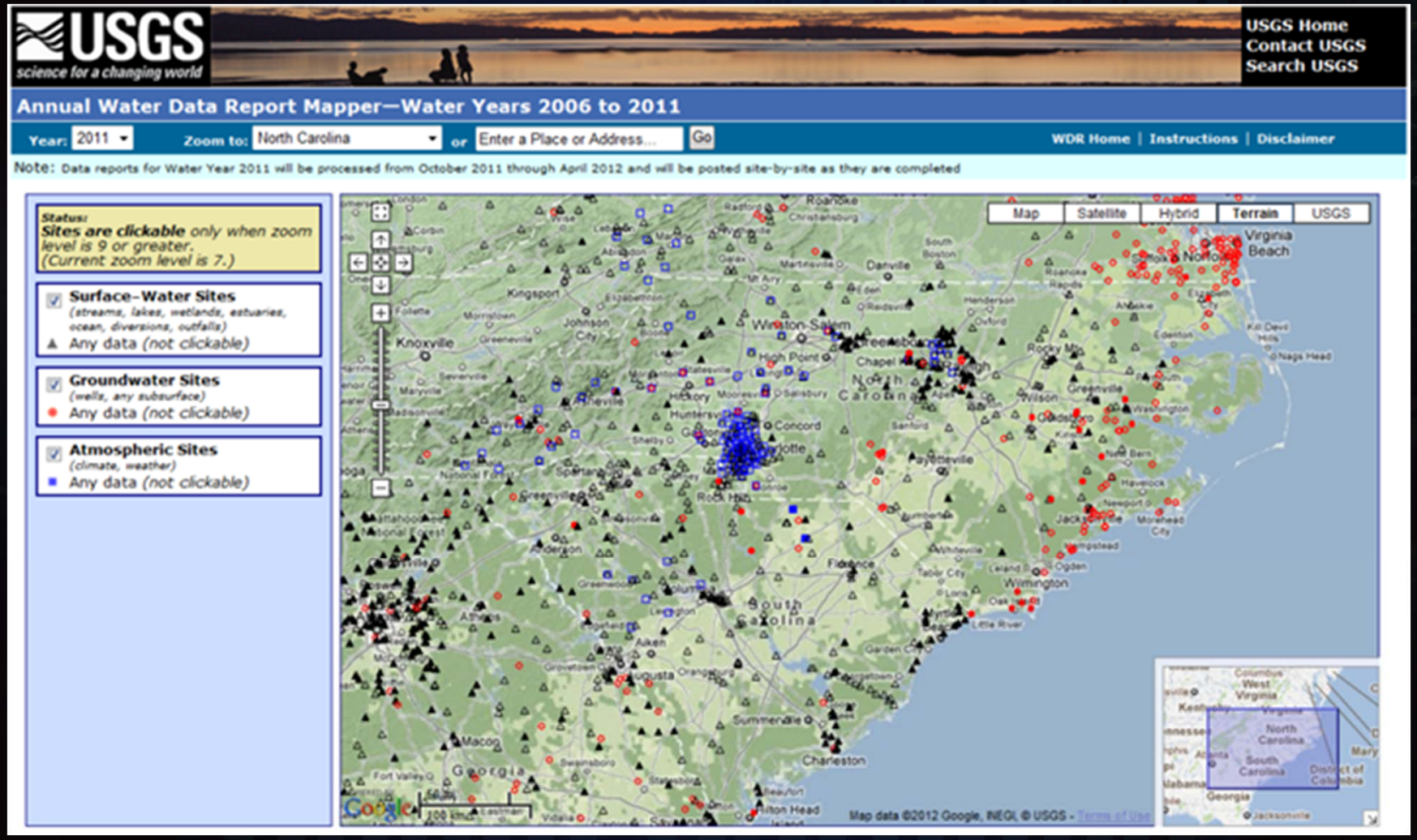

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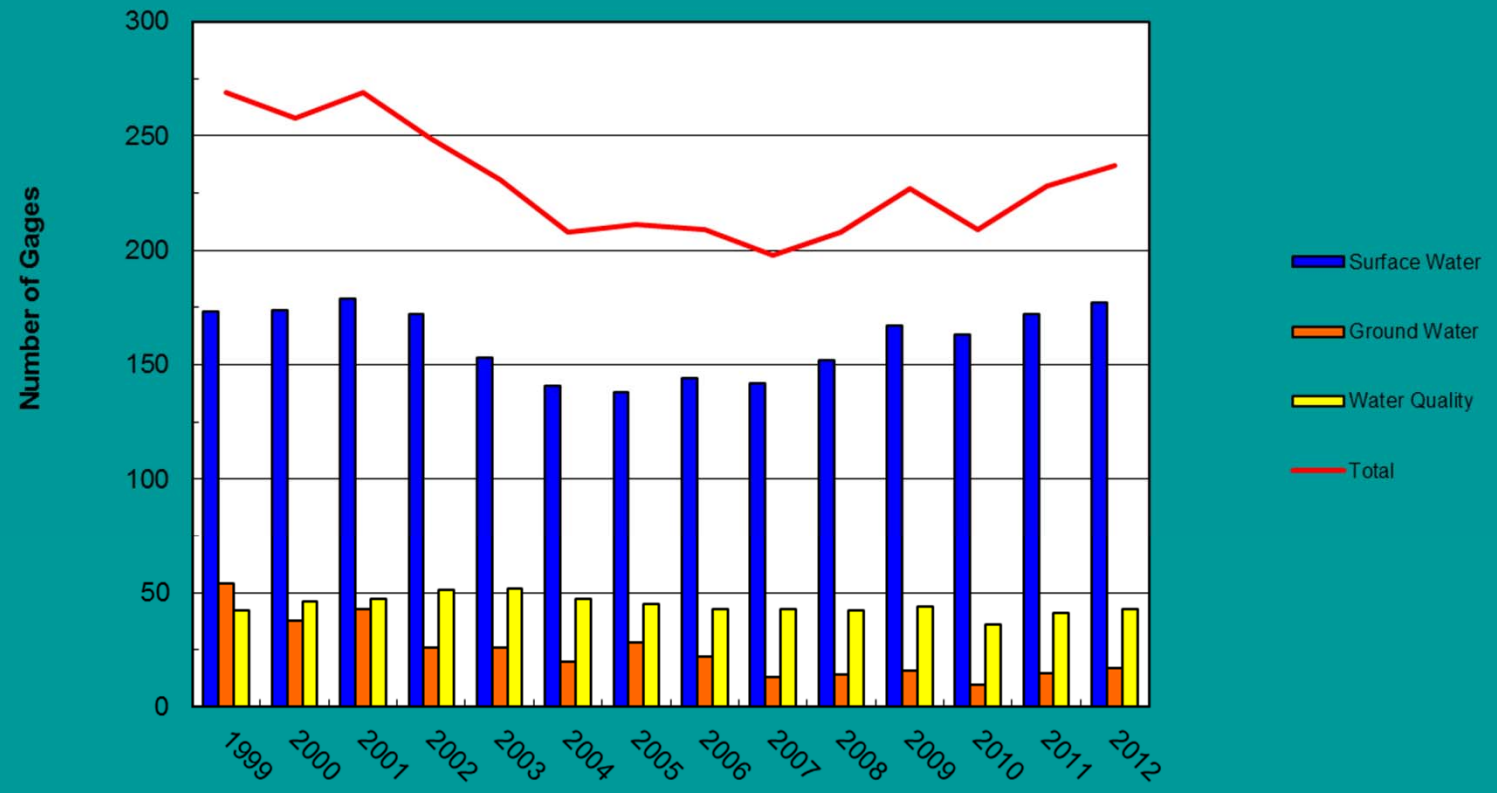

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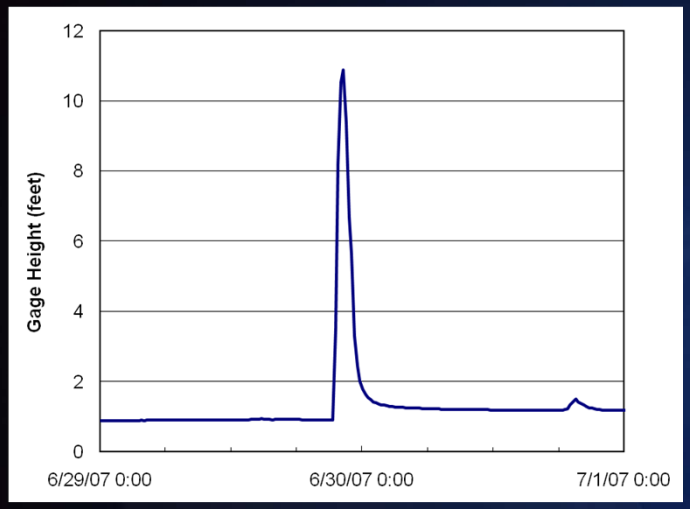
Rocky Branch at Whaley Street at Columbia, SC



COLUMBIA
SOUTH CAROLINA

NATIONAL WEATHER SERVICE

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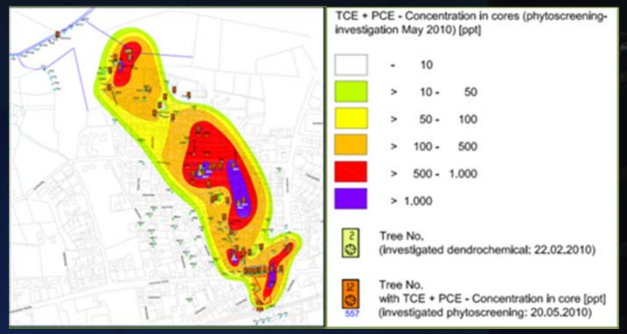
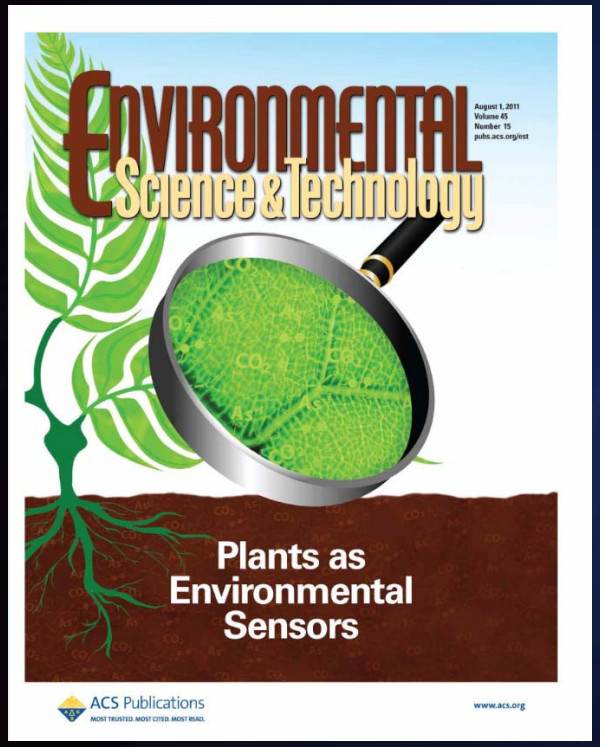
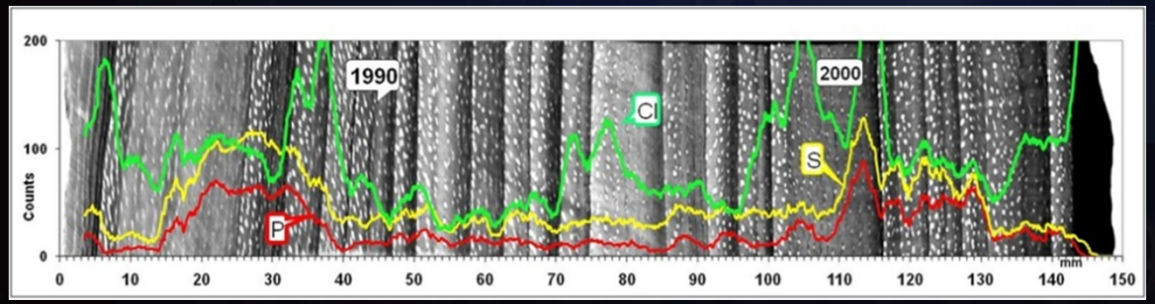
Dendroforensics







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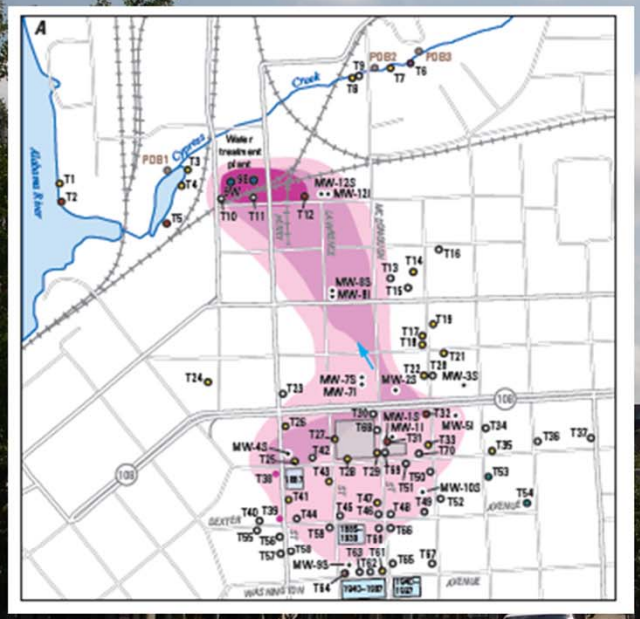
Technical Assistance to EPA on “cold case” National Priorities List/Superfund Sites



Capital City Plume Site, Montgomery, AL

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Chesterfield County, SC - Groundwater Availability and Vulnerability Assessment

Our Partners:

- USDA – Rural revitalization
- SCDNR – well logging
- SCDHEC – water levels
- Alligator Rural Water & Sewer
- USFWS
- SCFC

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Fort Gordon

U.S. DEPARTMENT OF DEFENSE

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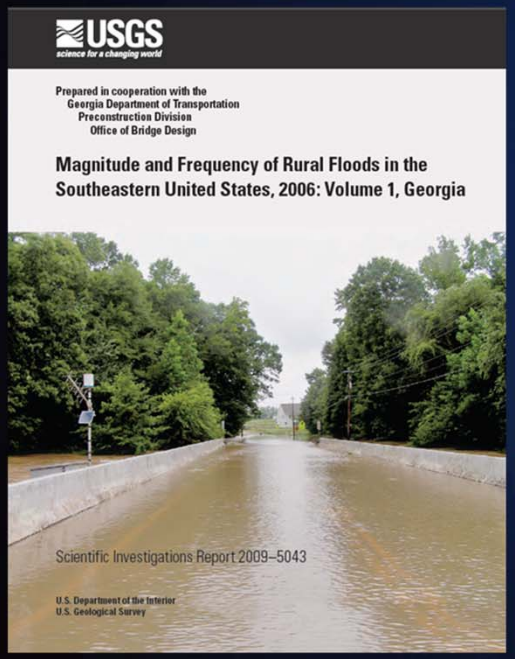
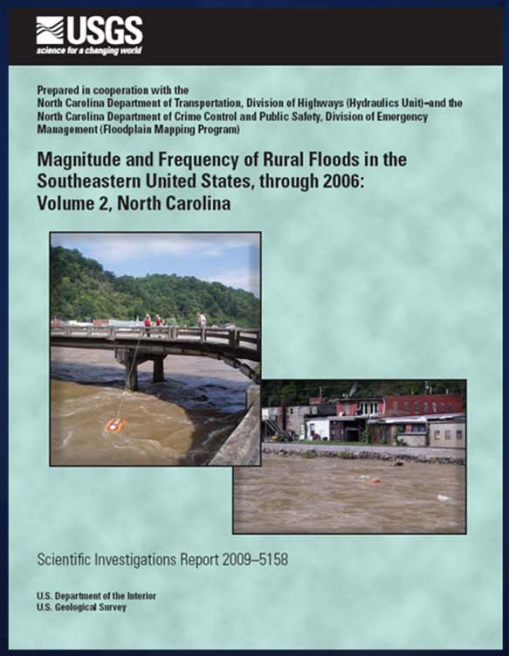
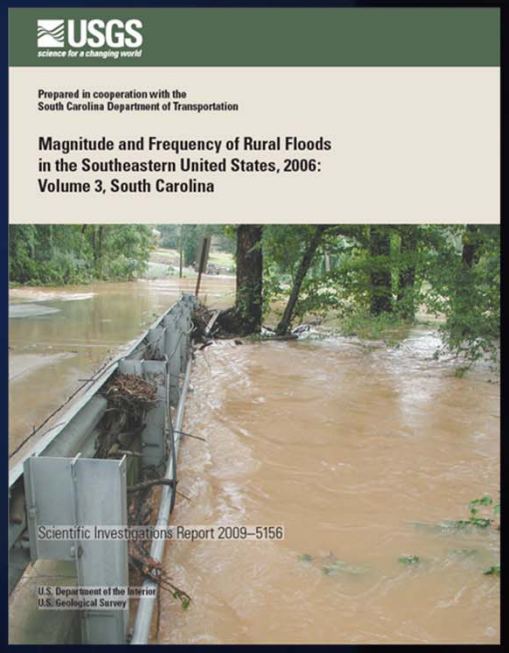
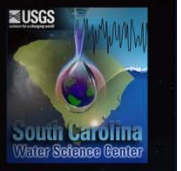
Magnitude and Frequency of Floods in Rural Basins of Georgia, South Carolina, and North Carolina: A Multi-State Approach









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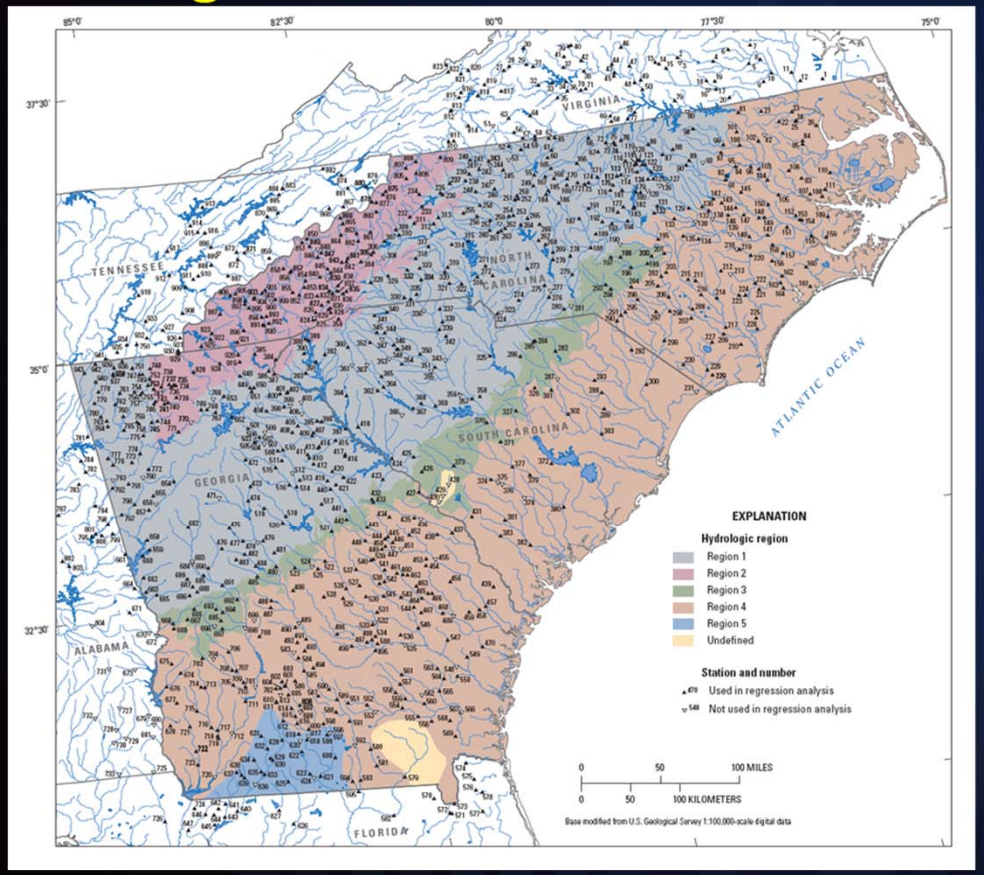
Benefits of Large Regional Flood-Frequency Investigation



- Consistent hydrologic regions
- Larger data set which tends to improve the statistical analysis
- Consistency in basin characteristics included in the analysis
- Flood-frequency equations applicable across State boundaries

SCDOT
South Carolina
Department of Transportation

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Computation of Annual Low-Flow Statistics at Continuous-Record Gaging Stations

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Prepared in cooperation with the South Carolina Department of Health and Environmental Control

Low-Flow Frequency and Flow Duration of Selected South Carolina Streams in the Pee Dee River Basin through March 2007

Open-File Report 2009–1171

U.S. Department of the Interior
U.S. Geological Survey

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Prepared in cooperation with the South Carolina Department of Health and Environmental Control

Low-Flow Frequency and Flow Duration of Selected South Carolina Streams in the Broad River Basin through March 2008

Open-File Report 2010–1305

U.S. Department of the Interior
U.S. Geological Survey

DHEC
PROMOTE PROTECT PROSPER

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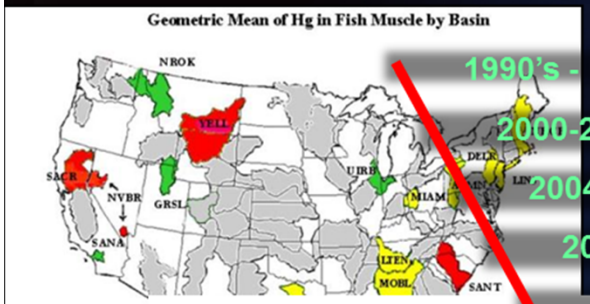
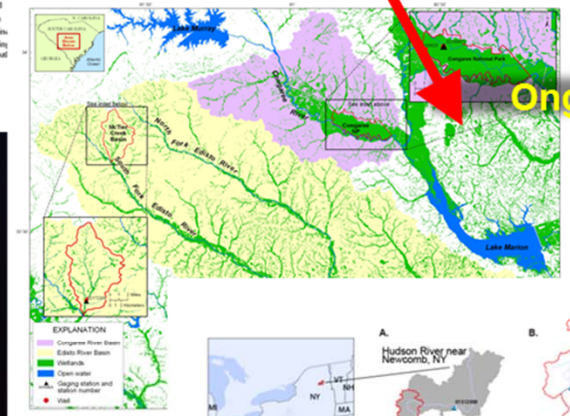
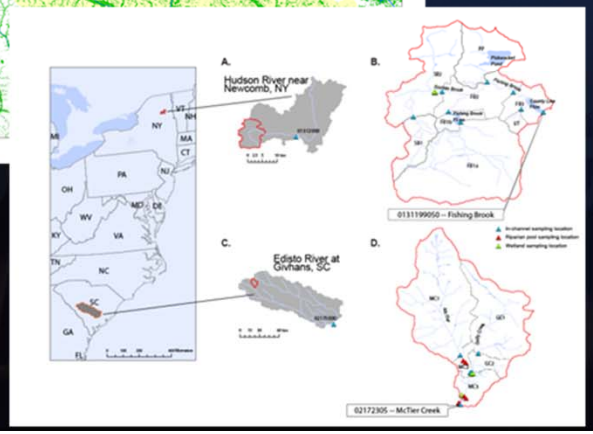
Mercury in the Environment







1990's - Krabbenhoft/Brumbaugh National Study Highlights SC

2000-2003 –SC DHEC/USGS Research Discussions

2004 – SC DHEC/Toxics Funding

2005 – USGS-NPS QW Partnership #1 – CONG (start)

2006 – NAWQA HGTT 2nd Round - Recon

2007 – USGS-NPS QW Partnership #1 – CONG (end)

2007 – USGS-NPS QW Partnership #2 – CONG (start)

2007 – NAWQA HGTT 2nd Round – Intense Phase (start)

2009 – USGS-NPS QW Partnership #2 – CONG (end)

Ongoing – NAWQA HGTT 2nd Round – Publication Phase

South Carolina Hg

Bradley et al. SIR 2009-5021

Coastal Plain Hg

Bradley et al. ES&T (2010, 44:9285-9290)

SC & NY Hg

Bradley et al. ES&T 2011, 45:2048-2055

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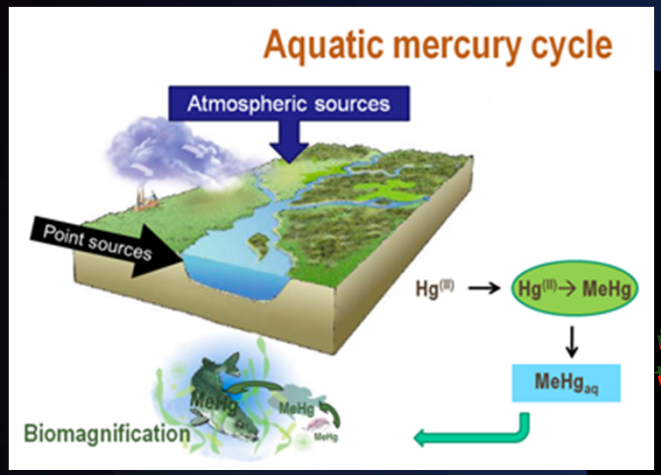

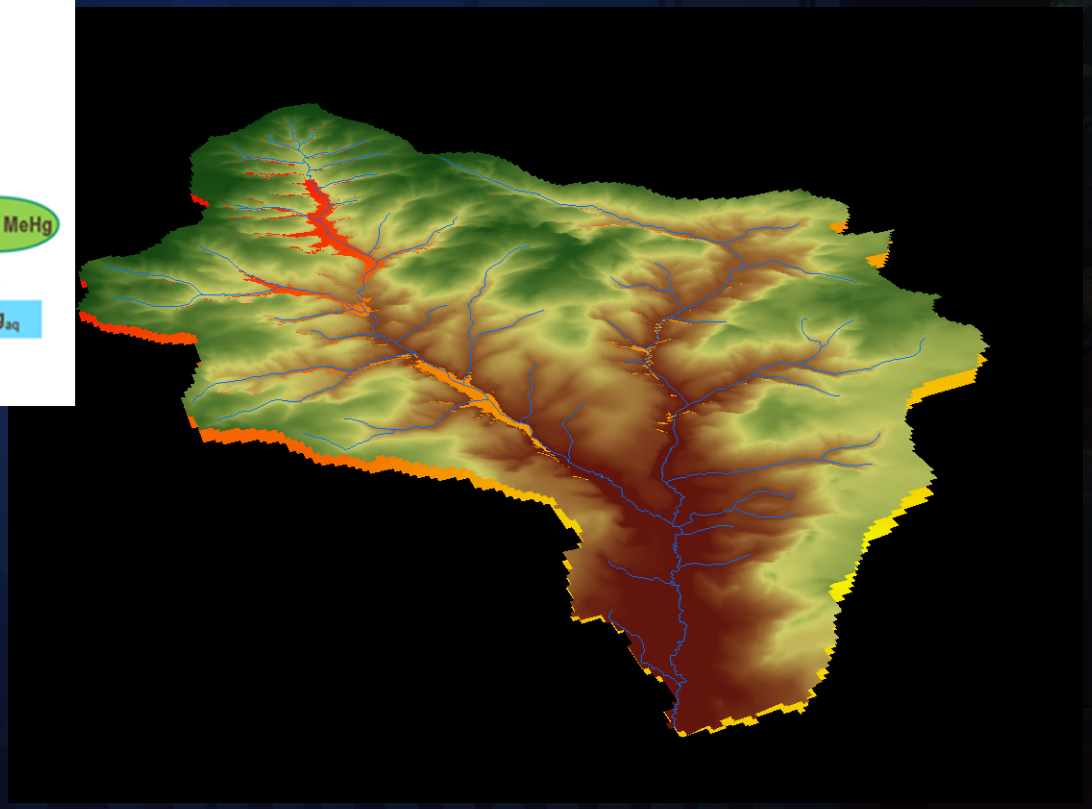

Modeling the mass balance of mercury in a watershed

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CEC in the Environment

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USGS Toxics Program CEC Research

Managing EDC Impacts

I. No environmental release.
II. Environmentally benign.
III. Impacts subject to responsible management:
   I. Improved treatment prior to release
   II. Assimilative capacity of r
   III. Discontinued use.

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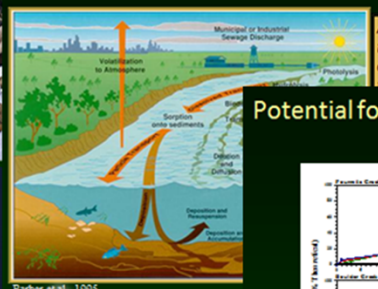
Ecosystem EDC Assimilative Capacity



Barber et al., 1995

As a contaminant is transported through the environment, it is subject to a variety of processes:

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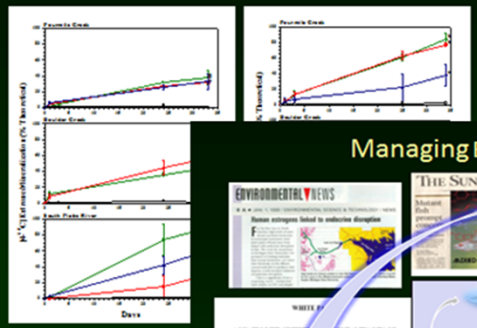
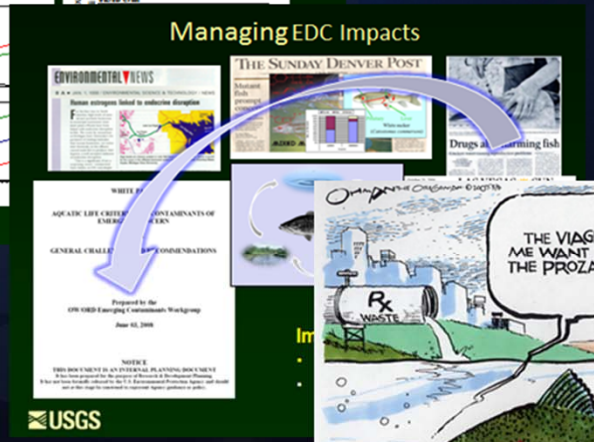
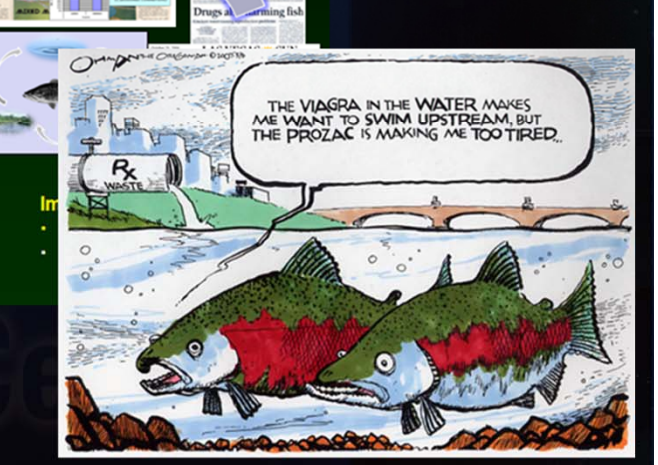
Potential for Estrone/Testosterone Biodegradation

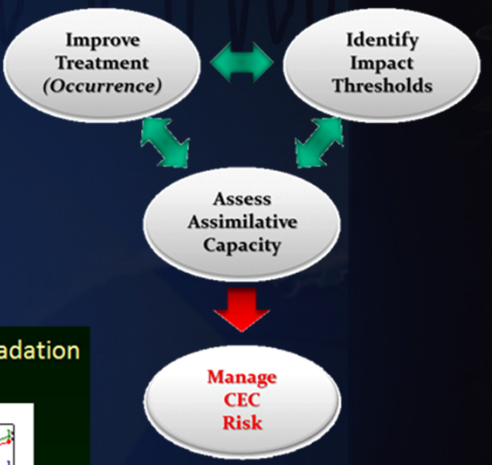
Oxic Sediment?



Bradley et al. ES&T. 2009







Bradley et al. ET&C 2007

Bradley et al. ET&C 2008

Bradley et al. ES&T 2009

Barber et al. ES&T 2010

Writer et al. ES&T ASAP

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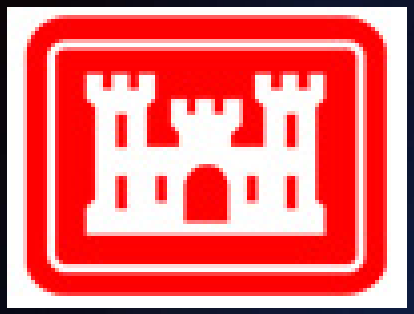
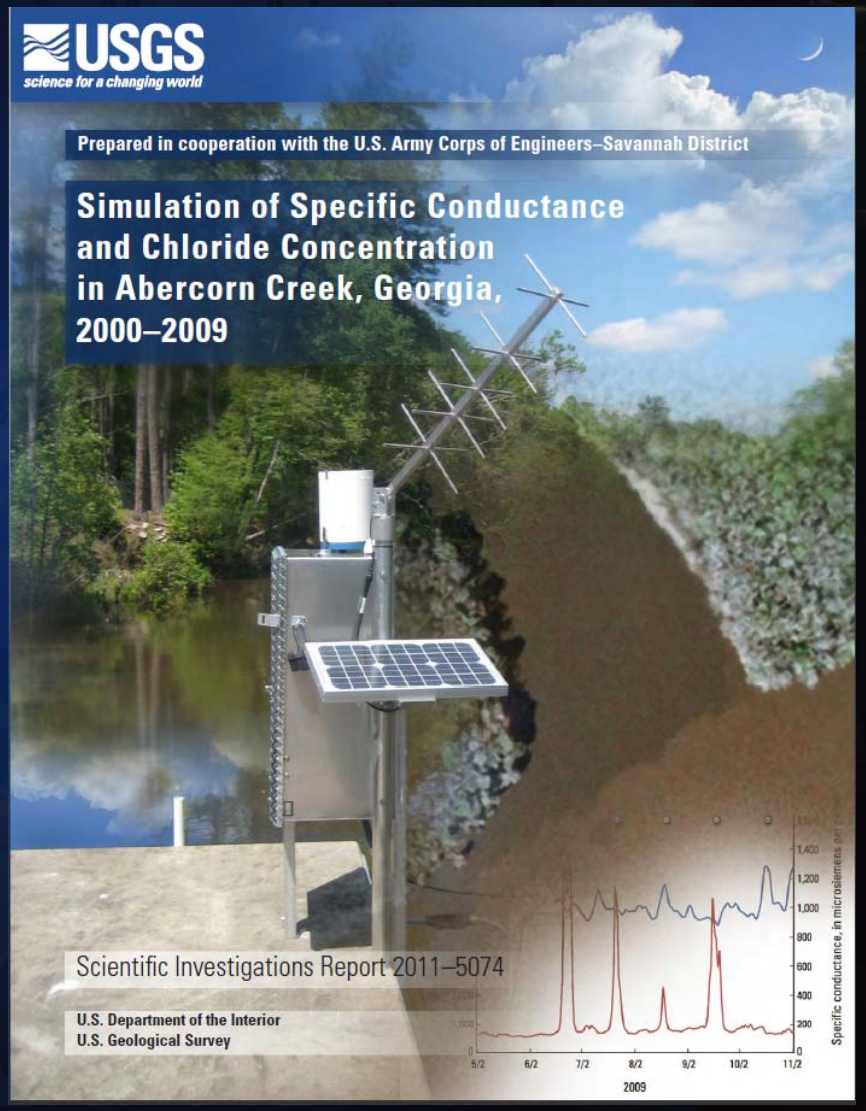


Georgia Ports Authority

CITY OF savannah

U.S. FISH & WILDLIFE SERVICE



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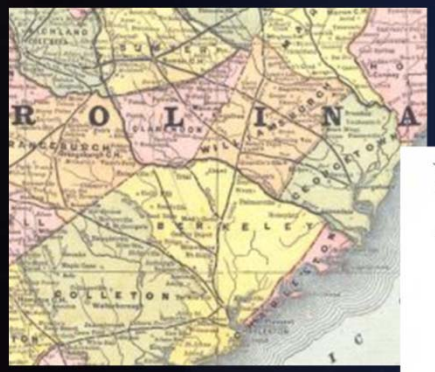
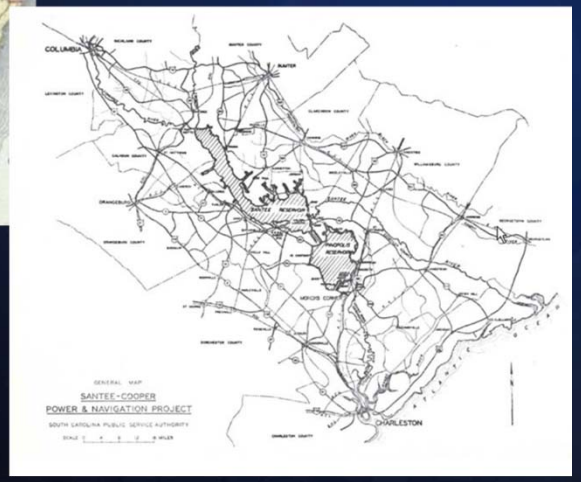
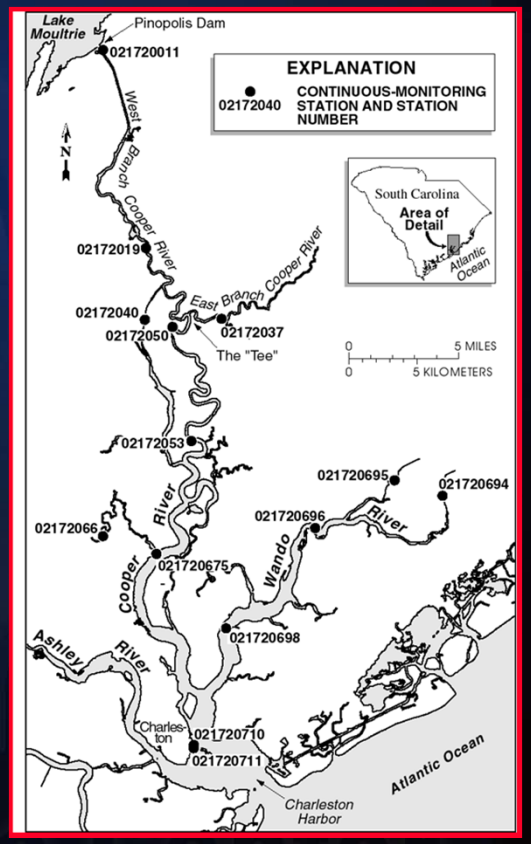
Charleston, SC

"Where the Ashley and Cooper Rivers form the Atlantic Ocean"

The Cooper River Salinity Alert Network
28 years of Real-time Water-Quality Monitoring







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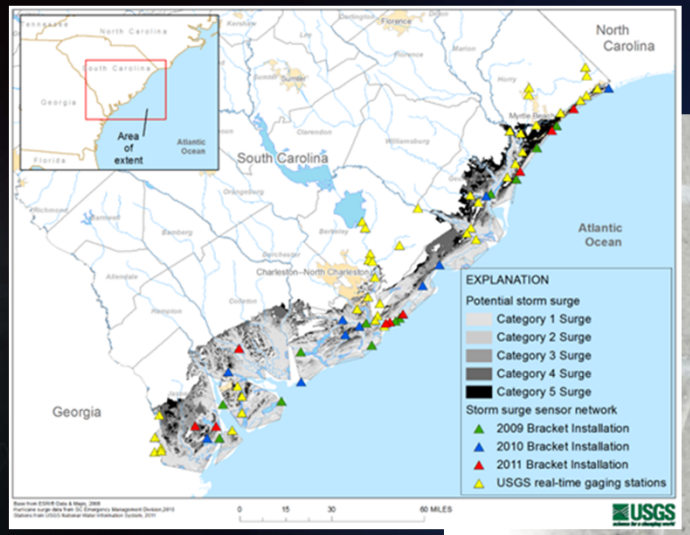
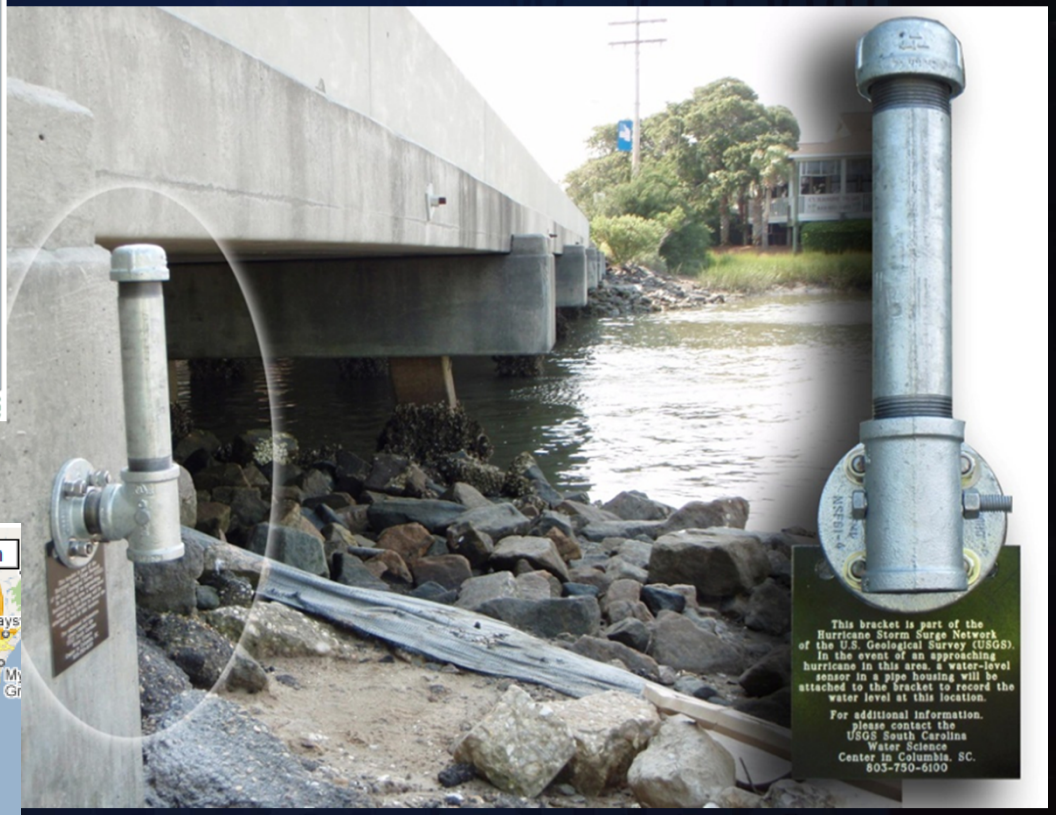
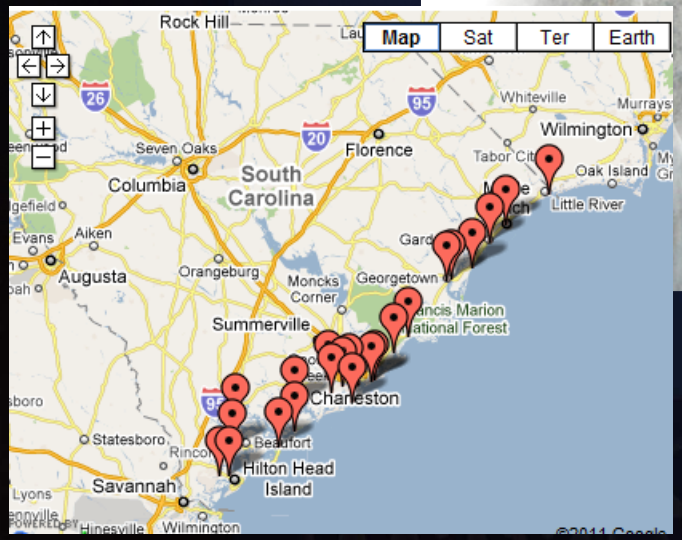
Hurricane Storm Tide Network







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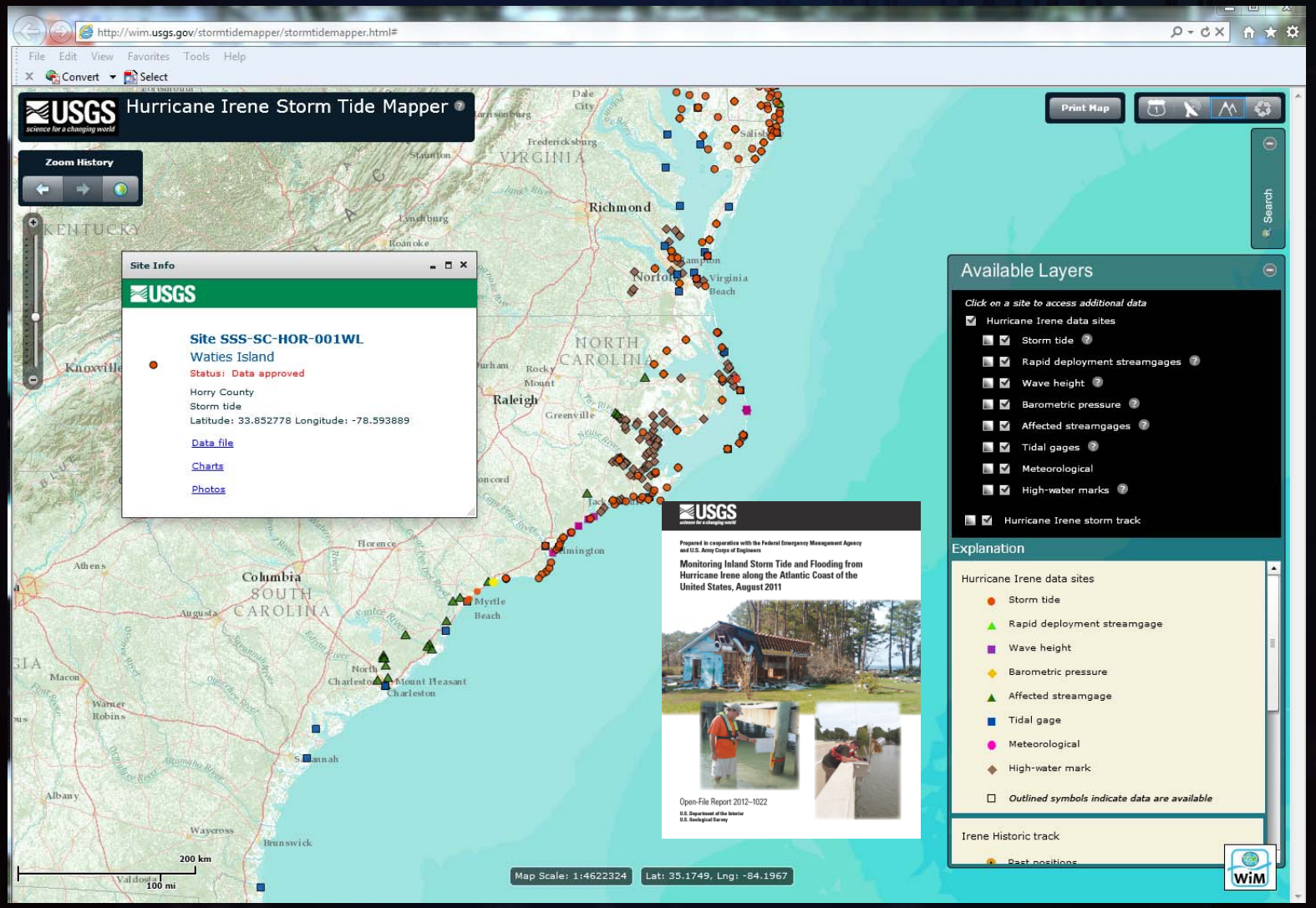

http://wim.usgs.gov/stormtidemapper/stormtidemapper.html

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Water Research Foundation

BWSA

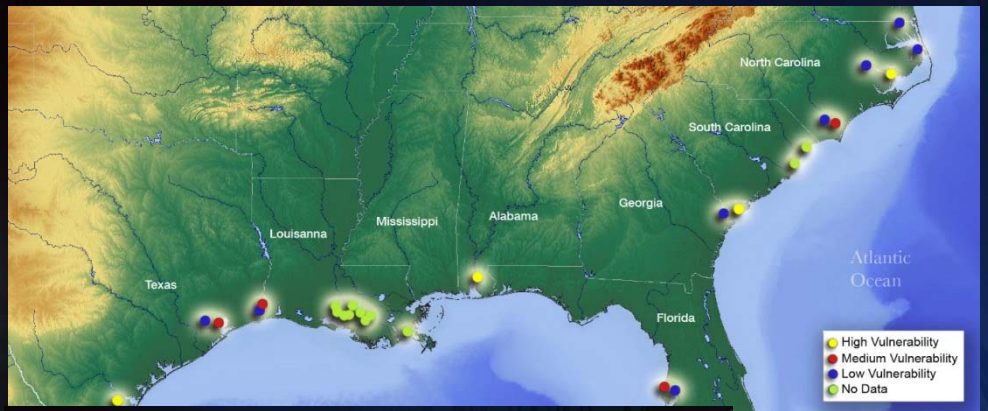
Sea Grant

UNIVERSITY OF SOUTH CAROLINA
cisa carolinas integrated sciences & assessments

NOAA

NOAA Sectoral Applications Research Program

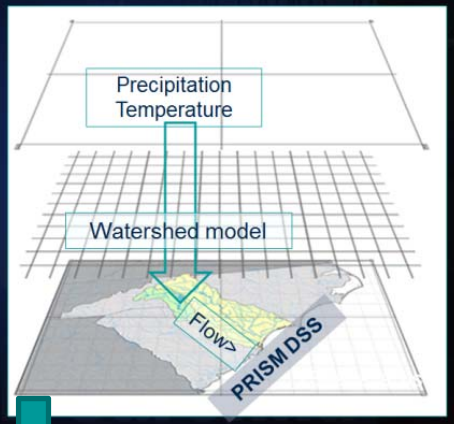
Effects of CC on Salinity Intrusion in Coastal Rivers



Global & regional circulation models

Gridded rainfall input to watershed model

Salinity intrusion model



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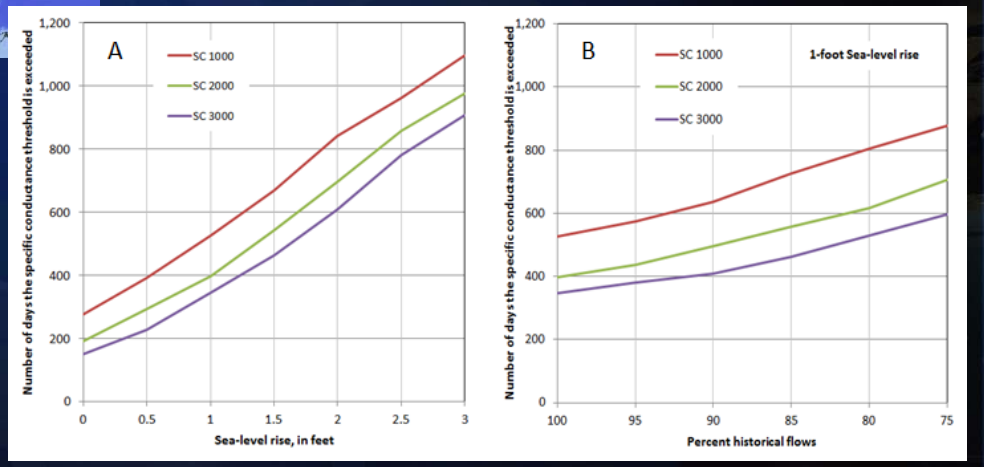


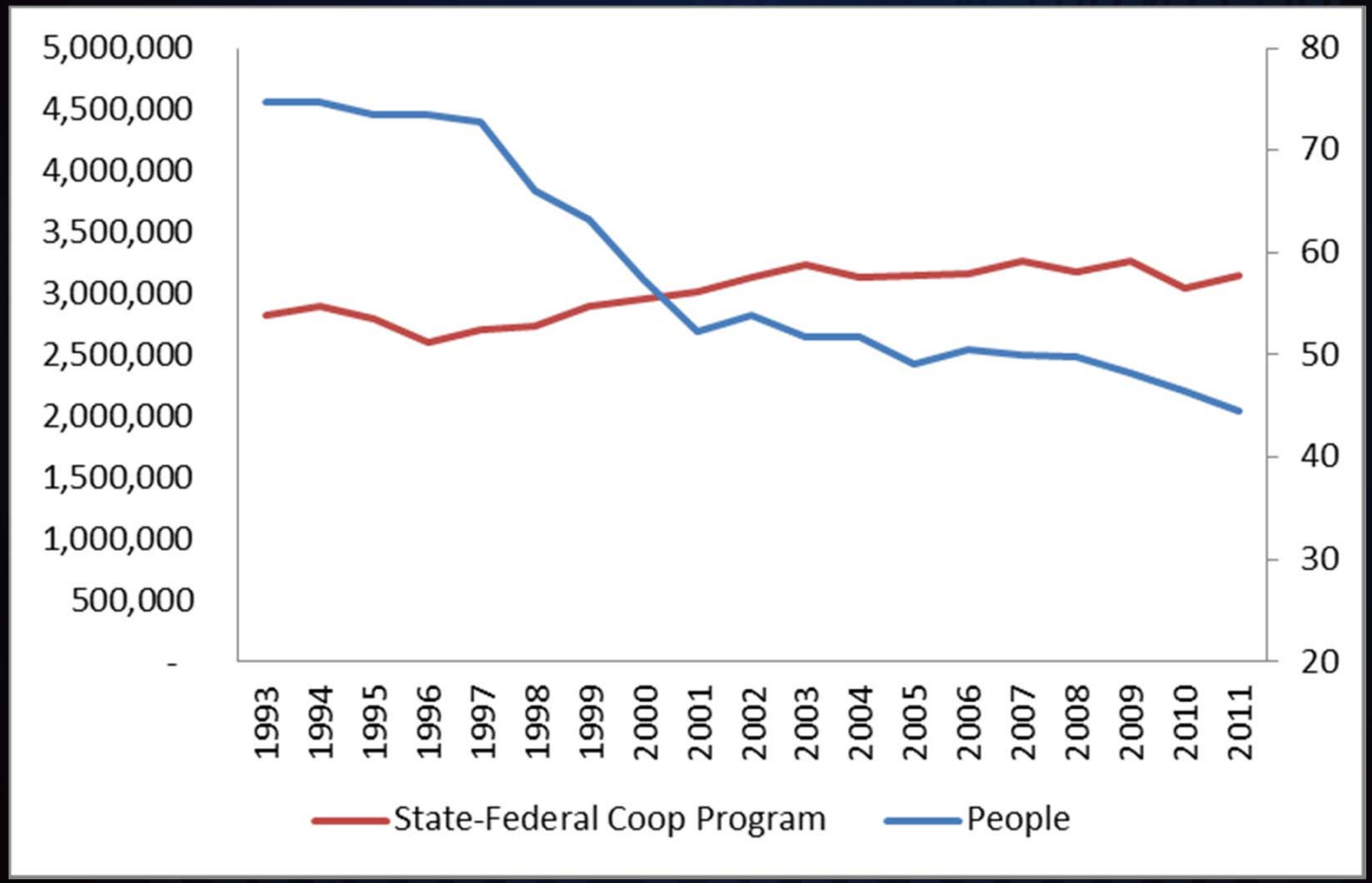
Decision Support System Excel Spreadsheet

Sea-level rise

Reduced inflow

USGS South Carolina Water Science Center

Challenges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State-Federal Coop Program
People

Discussion