Tom Mullikin
Chairman, South Carolina Floodwater Commission
Authorizing of the South Carolina Floodwater Commission

WHEREAS, South Carolina has experienced numerous episodes of flooding along the coast, rivers, and low-lying interior areas as results of rains, storms, hurricanes and tides that highlight the need for a state-wide plan to accommodate and mitigate flooding impacts in the state; and

WHEREAS, the State will benefit from a coordinated and collaborative effort to identify comprehensive responses and solutions to protect persons, property and enterprises and to fully appreciate the attributes and power of the forces of nature; and

WHEREAS, in these endeavors it is vital that this State work to accommodate and mitigate flooding to lessen the negative impacts to our State's economy to facilitate growth, promote tourism and assist communities and businesses struggling with repeated flooding events; and

WHEREAS, a coordinated national, state, local and community effort is necessary and appropriate to facilitate the interaction between governments at all levels and the private and academic sectors to address these issues.
SC FLOODWATER COMMISSION
PURPOSE & MISSION

To create a state-wide flood accommodation, response and mitigation effort.

The Commission shall serve as a vehicle for authorities to research, evaluate, share and coordinate measures and ideas being considered.

The Commission shall identify short-term and long-term recommendations to alleviate and mitigate flood impacts to this State, with special emphasis on cities, communities and enterprises located on or near the coast and rivers.

The Commission shall consider, in its discretion, any and all relevant studies, data, reports and expert and lay opinion on storm water management and use, urbanization impact, coastal shoreline fluctuation, project and operational financing, affordability, available grants, appropriate partnerships, and the impact such decisions have upon neighboring cities, counties and states to ensure that a comprehensive, executable strategy may be adopted.
1. Flooding from North Carolina Watersheds
2. Coastal Flooding
3. Nuisance Flooding
History of Flooding in SC

• Five major flooding disasters affected South Carolina in the period between 2012 to 2019
  • Hurricane Joaquin and the Historic Flood (2015),
  • Hurricane Matthew (2016)
  • Hurricane/Tropical Storm Irma (2017)
  • Hurricane Florence (2018)
  • Hurricane Dorian (2019)

• The South Carolina Emergency Operations Division (SCEMD) has compiled the following damage statistics of each event on our state.
  • Joaquin - $2.2 Billion
  • Matthew - $1.47 Billion
  • Irma - $218 Million
  • Florence - $385 Million
  • Dorian - $91 Million (estimate)

• Combined - $4.364 Billion
SC FLOODWATER COMMISSION
TASK FORCES

ARTIFICIAL REEF SYSTEMS
LIVING SHORELINE
INFRASTRUCTURE & SHORELINE ARMORING
SMART RIVER AND DAM SECURITY
GRID SECURITY

LANDSCAPE BEAUTIFICATION & PROTECTION
NATIONAL SECURITY
STAKEHOLDER ENGAGEMENT
FEDERAL FUNDING
ECONOMIC DEVELOPMENT
Artificial Reefs

The hydrodynamic features of artificial reefs act to reduce incoming waves and alter current patterns and shoreline adjustments behind the artificial reefs. The utilization of artificial reefs can be used to enhance shoreline protection structures. The reef structure buffers shorelines against waves, storms, and floods, helping to prevent loss of life, property damage, and erosion.

The purpose of the Artificial Reefs Task Force is to assess the suitability of artificial reefs to help prevent erosion along the South Carolina coastline to protect against floods by: reviewing current knowledge of artificial reefs and their potential in South Carolina; laying out a plan to deploy and evaluate the effectiveness of a test reef; and considering the issues involved in using artificial reefs on a large scale.
Living Shoreline

Living shorelines use native vegetation to stabilize the shoreline. Living shorelines provide a natural alternative to shoreline stabilization methods like bulkheads, and they provide a buffering of the shoreline from waves and storms as well as numerous other benefits including pollution remediation and marine habitats.
Infrastructure and Shoreline Armoring

The focus of the Infrastructure and Shoreline Armoring Task Force was on culverts, ditches, and other existing water drainage and flow infrastructure in need of maintenance and/or enhancement, and to prioritize and make recommendations to bring the infrastructure to full functioning capacity.

The task force also considered shoreline armoring and specific stabilization methodologies that balance the needs of manmade protection and that of natural systems.
Smart River and Dam Security

An important step in better managing our natural resources is to effectively combine datasets and multiple model inputs and outputs, such as data collected through lidar and other studies, for an enhanced understanding of our complex river systems and dams.

The purpose of the Smart Rivers and Dam Security Task Force was twofold: combine datasets and multiple models, and identify data and modeling needs, to produce better flood mitigation planning and management, and review the status of the state’s dams and make recommendations for safety and reliability for flood mitigation.
Grid Security

A key element of resiliency and recovery during a flooding event is the safety, security, and continued operation of the electric grid. It is imperative to provide sanitary essentials, continued recovery, and continuity of normal activities. An important aspect considered is “connectivity.”

The Grid Security Task Force was tasked to examine and explore possible ways to best mitigate flooding issues as related to the protection of South Carolina’s electric grid giving priority to efforts directed towards hardening and modernizing the grid itself with an emphasis on disaster prevention, service survivability, and rapid recovery.
Urbanization, clearing trees, draining wetlands, and paving the ground exacerbates flooding. The purpose of the Landscape Beautification and Protection Task Force was to recommend methods to integrate urban and rural environmental aesthetics and risk reduction as a strategy in response to the conflict between the conservation of green spaces and urban development. Landscape beautification and protection are critical elements for the development of successful and sustainable green infrastructure that can provide natural and man-made flood mitigation mechanisms.
The shifting hazard of increased flooding amplify risks for people, valuable assets, essential infrastructure, and important economic industries such as energy production and shipping.

The purpose of the National Security Task Force was to present findings based on research, assessments, and evaluations regarding vulnerabilities and other floodwater issues to respective military facilities and other national security-related infrastructure within the Task Force’s area of responsibility.
Stakeholder Engagement

Attention to stakeholders is critically important throughout the process to ensure understanding, appreciation, information sharing, legitimacy and commitment to produce collaborative efforts which result in unique solutions. Stakeholders who have a stake or a vested interest in the program, and/or policies, being evaluated and therefore also have a stake in the evaluation will be invited to speak and participate.

The purpose of the Stakeholder Engagement Task Force was to identify key stakeholders who may be affected and facilitate education and communication with these stakeholders.
Federal Funding

Members of this task force were charged with identifying sources of and securing federal funding to supplement any or all of the floodwater commission task force initiatives.
Economic Development

A challenge exists to research and develop plans for economic opportunities associated with an increase in water from our river systems and along our coastline. Expansion of our lake system including canals and off-ramps through river diversions could open opportunities for lake and/or canal watersports while providing for potential electricity generation. Canal systems along the coast and in the low country have the potential to utilize underused and low-lying areas for tourist/economic development.
THE SC FLOODWATER COMMISSION

THE FINAL REPORT OF THE SOUTH CAROLINA FLOODWATER COMMISSION WAS PRESENTED TO THE GOVERNOR ON NOVEMBER 8, 2020

Available online on the Governor’s Website
RECOMMENDATIONS OF THE SC FLOODWATER COMMISSION
10 Point Plan

1. **PLANT 1 MILLION TREES IN 10 YEARS.**

2. **DEVELOP STRATEGY AND COMPLETE CLEANING DITCHES AND CULVERTS IN ALL 46 COUNTIES.**

3. **PLANT NATURAL VEGETATION ALONG ALL 187 MILES OF COAST LINE.**

4. **STUDY THE FEASIBILITY OF A NATURAL AND MANMADE REEF SYSTEM ALONG SOUTH CAROLINA COAST LINE.**

5. **PREPARE UNDERGROUND POWER LINES TO THE EXTENT POSSIBLE AND HARDEN POWER GRID THROUGH PHYSICAL AND TECHNOLOGICAL MODERNIZATION BY THE END OF THE DECADE.**
6. DEVELOP A COMPREHENSIVE WATER FLOW MODEL OF SOUTH CAROLINA RIVERS SUNDER VARIOUS CONDITIONS. USE THE RESULTS OF THIS RIVER FLOW MODEL TO EDUCATE ALL STATE AND LOCAL STAKEHOLDERS TO ENCOURAGE DEVELOPMENT OF BEST PRACTICES FOR INFRASTRUCTURE THAT IS IN HARMONY WITH THE CHANGING ENVIRONMENT WITHIN EACH WATERSHED. USE MODELING TO IMPROVE OPERATING PROCEDURES AND TECHNIQUES DURING NORMAL AND EXTRAORDINARY CONDITIONS, AND MOST IMPORTANTLY, USE IT FOR PLANNING AND PREVENTION. IMPROVE SMALL DAM BEST PRACTICES AND REGULATIONS BASED ON MODELING AND THE LATEST RESEARCH. ENSURE RIVERS AND CANALS ARE FREE OF MAJOR DEBRIS SO THEY MAY EFFECTIVELY MOVE WATER.

7. ENHANCE FLOOD SECURITY AROUND MILITARY INSTALLATIONS TO ENSURE A CONTINUED ROBUST PRESENCE IN SOUTH CAROLINA.
8. DEVELOP AND EXECUTE A PLAN TO USHER IN AN ERA OF ALTERNATIVE AND DISTRIBUTED POWER AS A GLOBAL LEADER TO PROTECT AND ENHANCE GRID SECURITY.

9. STUDY AND CONSIDER NEW RESERVOIRS THAT MIGHT PROTECT SOUTH CAROLINA AGAINST FLOODING FROM NORTH CAROLINA WATERSHEDS BY CONSERVING THIS WATER AND USING IT TO ENHANCE OUR ENVIRONMENT.

10. ENSURE THAT ALL WATER FLOW ACTIVITIES WITHIN THE STATE ARE WELL COORDINATED THROUGH WATERSHEDS AND VISIBLE TO ALL STAKEHOLDERS, PUBLIC AND PRIVATE. CODIFY CONSOLIDATIONS WITHIN THE SOUTH CAROLINA CODE TO ENSURE EFFICIENCIES AND EFFECTIVENESS IN ADDRESSING THIS MOUNTING AND COMPLEX CHALLENGE AND CREATE A NEW POSITION OF A STATE RESILIENCY OFFICER.
THE SC FLOODWATER COMMISSION
DEMONSTRATION & ACTION PROGRAMS

• Living Shoreline Sweetgrass planting program
• Marion County Service Day
• Horry County Service Day
• Marion County Survey
• SEA Econet Water Level Sensing
• Smart Reef Demonstration
• SC7 Expedition
• Power Plant Program
• S.259 SC Resilience Revolving Fund Act
Living Shoreline Sweetgrass Planting Demonstration

During the Feb 9, 2019 Quarterly Meeting of the SCFWC, Governor McMaster and Lt. Governor Evette joined SCFWC Chairman Tom Mullikin and other Task Force leaders in a Sweetgrass Planting demonstration.

Sweetgrass (Muhlenbergia sericea) is an evergreen sea grass that is native to coastal South Carolina (as well as North Carolina, Georgia, Florida and Texas). It is hardy and drought resistant. Sweetgrass is also used to make the iconic baskets found throughout Charleston.

The tradition of sweetgrass basket-making dates back three centuries. The tightly coiled baskets were originally used in rice harvesting. Today, they are a folk tradition and a Lowcountry art form recognized worldwide.

Volunteer programs to plant sweetgrass and other beach grasses along the South Carolina coast are one step to help address the state’s flood control issues while replenishing a local resource for one of our most beloved cultural touchstones.
Marion County Service Day

On June 15, 2019 the SCFWC organized the Marion County Service Day.

Approximately 350 Volunteers
Marion County Service Day

Marion, South Carolina
The S.C. Floodwater Commission and S.C. Forestry Commission (SCFC) facilitated a community project to build resiliency through urban tree cover in the city of Marion. The SCFC solicited the assistance of the Urban & Community Forestry Program in executing a tree planting demonstration. This planting demonstration included planting 40 new landscape trees on the Marion Hike & Bike Path located along Bobby Gerald Parkway, between the canal and N. Withlacoochee Avenue. The goal being to allow for offsetting of storm water naturally and to aid in infiltration, thereby reducing the potential for flooding, erosion, and runoff.

Sellers, South Carolina
The SCFWC worked with the citizens of the Town of Sellers, SC to plant 5 to 10 beautification trees and the clearing of the town park in Sellers directly across from the Sellers Library and Community Center.
Marion County Service Day

Nichols, South Carolina

- Drainage and Infrastructure
- 25,000 ft of roadside drainage cleaned
- 1.5 miles of canal cleaned
- A major drainage pipe underneath Kemper Road removed and replaced
Horry County Service Day

November 8, 2019

Four Locations: Socastee, Bucksport, Conway, Loris

Approximately 500 Volunteers

Drainage and Infrastructure
• Cleared 13 tandem dump truck loads (over 10 tons per truck load – 130 tons) of debris from roadside ditches.
• Collected 11 yards of spoils from drainage ditch in the vacuum truck.
• Collected 5.23 tons of debris and litter from waterways, wetlands and ditches (including 45 pounds of recyclables)
SEA Econet Water Level Sensing

November 8, 2019

The Center for Marine and Wetland Studies at CCU in coordination with the SC Floodwater Commission has initiated a pilot water-level sensing network as part of the overall SEA Econet “observations-modeling-applications-technology” initiative.

Four water level sensors were prepared. The devices are self-contained and report water levels every 5 minutes.
Smart Reef Demonstration

Partnership between S.C. Floodwater Commission and Coastal Carolina University to generate offshore and marine information in real time

The reef site is one of 43 artificial reef sites managed by the S.C. Dept. of Natural Resources’ Artificial Reef Program.
South Carolina 7

The South Carolina Floodwater Commission partnered with The South Carolina Natural Heritage Corridor, Global Eco Adventures, and numerous SC agency and corporate partners to conduct the South Carolina 7 (SC7), a world class expedition across the great state of South Carolina from the mountains to the sea exploring nationally recognized ecological wonders, historic and other epics sites along the route.

The mission of the SC7 was to raise awareness of Floodwater Prevention & Resiliency across South Carolina and engage leaders & citizens in the protection and enjoyment of South Carolina’s natural resources.

Along the route, numerous discussions were held on topics such as resiliency, floodwater-mitigation issues, conservation as well as other issues such as adult and childhood fitness, outdoor therapy, and more. These discussions took place primarily through a series of fireside chats led by key topic experts in order to stimulate action that will continue long after the expedition ends.

Date: July 1 through July 30

Link to Documentary Trailer: https://www.southcarolina7.com
Power Plant Program

Arbor Day: Tree Planting
Friday, April 30, 2021

Goal is to plant one-million trees – assisted by students from every school in the state, volunteers, counties, cities and private sector partners on Arbor Day.

Dubbed “Power Plant SC,” the statewide project will be the largest single-day tree planting event in American history.
S.259 SC Resilience Revolving Fund Act
Signed into Law

Bill signing Ceremony
MUSC
Charleston SC
October 13, 2020