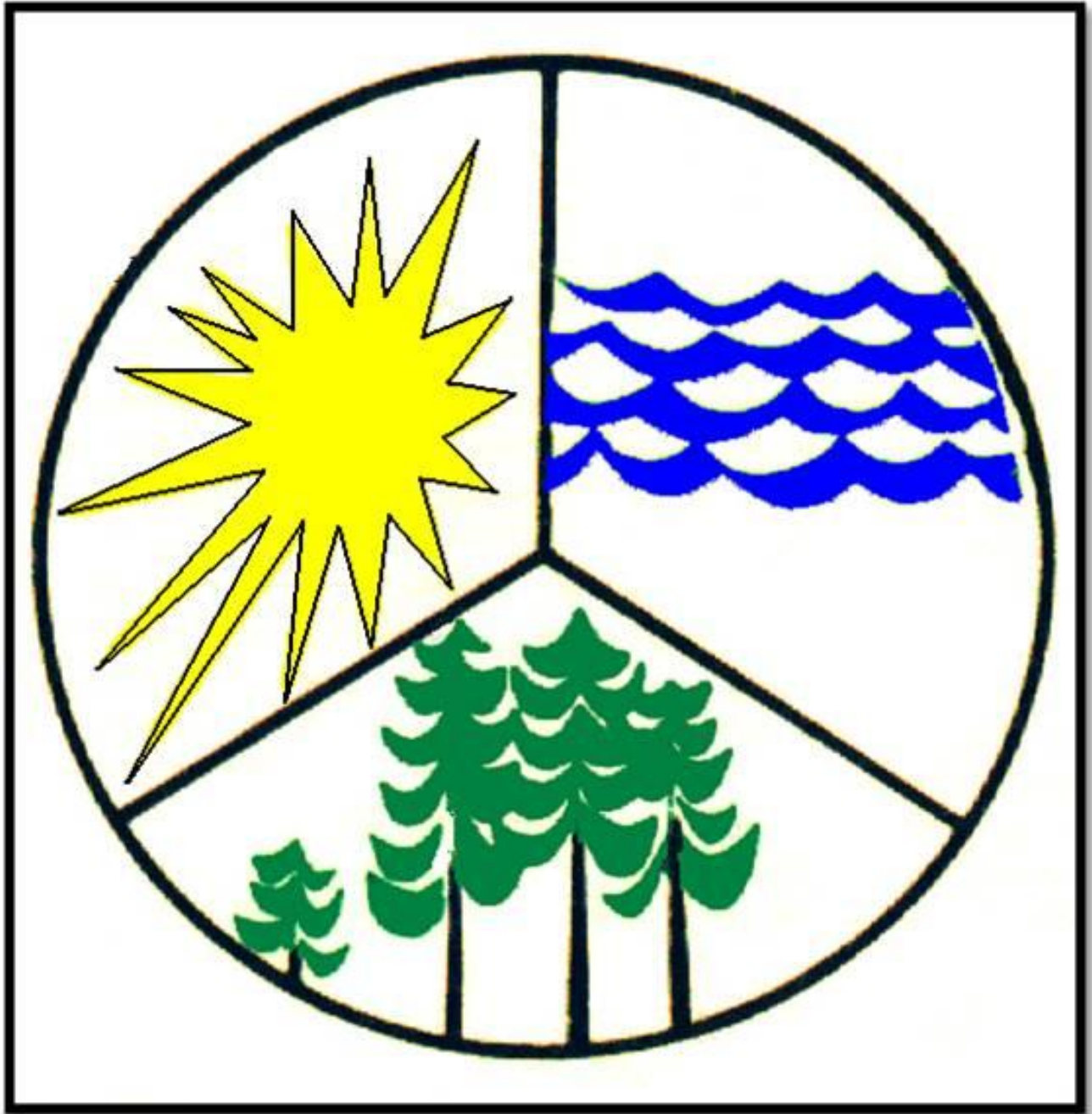


Waccamaw Region Section 208 Water Quality Management Plan



For the Waccamaw Region in South Carolina including Horry, Georgetown, and Williamsburg Counties.

**Prepared by the Waccamaw Regional Council of Governments-
September, 2011. Pending Final Approval by Board of Directors.**



Waccamaw Region Section 208 Water Quality Management Plan

Table of Contents

Section Title	Page Number
Chapter One: Introduction	
A. Clean Water Act	Page 1
B. Waccamaw Regional Council of Governments	Page 1
C. Section 208 Planning Purpose and Objectives	Page 3
Chapter Two: Description of the Waccamaw Region Study Area	
A. Physical Setting and Location	Page 5
Exhibit 2.1 <i>Waccamaw Region Section 208 Water Quality Management Plan- Study Area</i>	
B. Waccamaw Region Soil Profile	Page 6
C. Waccamaw Region Population Trends	Page 6
i. Table 2-1, Historical Population Data for the Waccamaw Region	Page 7
ii. Table 2-2, Population Projections for the Waccamaw Region	Page 8
D. Waccamaw Region Land Use Profile	Page 8
i. Table 2-3, Land Cover Change in Horry County: 1996-2006	Page 9
ii. Table 2-4, Land Cover Change in Georgetown County: 1996-2006	Page 9
iii. Table 2-5, Land Cover Change in Williamsburg County: 1996-2006	Page 10
E. Significantly Valuable Natural Resources	Page 10
i. Table 2-6, South Carolina Conservation Bank- Properties in the Waccamaw Region	Page 13
Chapter Three: Watershed Assessments	
A. Pee Dee Coastal Frontage Basin, Hydrological Unit: 03040208	Page 15
i. General Profile of the Little River/ Atlantic Intracoastal Waterway/ Murrells Inlet Watershed HUC Unit: 03040208-03	Page 16
ii. General Profile of the North Inlet Watershed HUC Unit: 03040208-04	Page 17
B. Waccamaw River Basin, Hydrological Unit: 03040206	Page 17
i. General Profile of the Juniper Swamp Watershed HUC Unit: 03040206-05	Page 18
ii. General Profile of the Waccamaw River Watershed HUC Unit: 03040206-07	Page 18
iii. General Profile of the Kingston Lake Watershed HUC Unit: 03040206-08	Page 19
iv. General Profile of the Waccamaw River Watershed HUC Unit: 03040206-09	Page 20
v. General Profile of the Waccamaw River Watershed HUC Unit: 03040206-10	Page 21
C. Great Pee Dee River Basin, Hydrological Units: 03040201, 03040203, 03040204, 03040207	Page 22
i. General Profile of the Lumber River Watershed HUC Unit: 03040203-14	Page 22
ii. General Profile of the Lake Swamp Watershed HUC Unit: 03040204-06	Page 23
iii. General Profile of the Brunson Swamp Watershed HUC Unit: 03040204-07	Page 23
iv. General Profile of the Little Pee Dee River Watershed HUC Unit: 03040204-08	Page 24
v. General Profile of the Sampit River Watershed HUC Unit: 03040207-01	Page 25
vi. General Profile of the Great Pee Dee River/ Winyah Bay Watershed HUC Unit: 03040207-02	Page 26
D. Lynches River Basin, Hydrological Unit: 03040202	Page 27
i. General Profile of the Lake Swamp Watershed HUC Unit: 03040202-06	Page 27

Waccamaw Region Section 208 Water Quality Management Plan

Table of Contents

Section Title	Page Number
Chapter Three: Watershed Assessments	
E. Black River Basin, Hydrological Unit: 03040205	Page 28
i. General Profile of the Pudding Swamp Watershed HUC Unit: 03040205-05	Page 28
ii. General Profile of the Black River Watershed HUC Unit: 03040205-06	Page 29
iii. General Profile of the Black River Watershed HUC Unit: 03040205-07	Page 29
iv. General Profile of the Black Mingo Creek Watershed HUC Unit: 03040205-08	Page 30
v. General Profile of the Black River Watershed HUC Unit: 03040205-09	Page 31
F. Santee River Basin, Hydrological Unit: 03050112	Page 31
i. General Profile of the Santee River Watershed HUC Unit: 03050112-01	Page 32
ii. General Profile of the South Santee River Watershed HUC Unit: 03050112-03	Page 32
iii. General Profile of the Wadmacon Creek Watershed HUC Unit: 03050112-04	Page 33
iv. General Profile of the North Santee River/ South Santee River Watershed HUC Unit: 03050112-06	Page 33
G. Total Maximum Daily Load Allocations	Page 34
i. Waccamaw River and the Atlantic Intracoastal Water Way near Myrtle Beach, SC	Page 34
a. Table 3-1, Monitoring Sites with an Established TMDL for Waccamaw River and Little River/ Atlantic Intracoastal Waterway	Page 35
b. Table 3-2, Ultimate Oxygen Demand TMDL Permit Limits Summary for Point Source Discharges in the Waccamaw River and Atlantic Intracoastal Waterway	Page 36
ii. Fecal Coliform in Shellfish Waters of the Murrells Inlet Estuary, South Carolina	Page 36
a. Table 3-3, Monitoring Sites with an Established TMDL for Murrells Inlet Estuary HUC#: 03040208-03	Page 37
b. Table 3-4, Land Use Acreage and Percentage Profile of Each Subwatershed In Murrells Inlet Estuary	Page 38
c. Table 3-5, Fecal Coliform Sample Data from September 2001-August 2004 At Impaired Monitoring Stations in the Murrells Inlet Estuary	Page 38
d. Table 3-6, Estimated Daily Average Fecal Coliform Loadings to Impaired Section of Murrells Inlet Estuary	Page 39
e. Table 3-7, TMDL Summary for the Murrells Inlet Estuary	Page 40
iii. Fecal Coliform in Shellfish Waters of the Litchfield- Pawley's Estuary, South Carolina	Page 40
a. Table 3-8, Monitoring Sites with an Established TMDL for the Litchfield- Pawleys Island Estuary HUC#: 03040208-04	Page 41
b. Table 3-9, Land Use Acreage and Percentage Profile of Each Subwatershed In the Litchfield-Pawleys Island Estuary	Page 42
c. Table 3-10, Fecal Coliform Sample Data from September 2001- August 2004 At impaired Monitoring Stations in the Litchfield- Pawley's Island Estuary	Page 42
d. Table 3-11, Estimated Daily Average Fecal Coliform Loadings to Impaired Sections of the Litchfield- Pawley's Island Estuary	Page 44
e. Table 3-12 TMDL Summary for the Litchfield- Pawley's Island Estuary	Page 44
iv. Fecal Coliform for Chinners Swamp of the Pee Dee River Basin	Page 44
a. Table 3-13, Monitoring Sites with an Established TMDL for the Brunson Swamp Watershed HUC#: 03040204-07	Page 45
b. Table 3-14, TMDL Summary for the Chinners Swamp Watershed	Page 47

Waccamaw Region Section 208 Water Quality Management Plan

Table of Contents

Section Title	Page Number
Chapter Four: Wastewater Treatment	
A. Introduction	Page 49
B. Historical Background	Page 49
i. Table 4-1, 1978 Waccamaw Regional 208 Areawide Water Quality Plan-Critical Water Quality Management Areas	Page 49
C. Existing Wastewater Treatment Resources	Page 50
i. <i>Insert 4-A, Waccamaw Region NPDES Point Source Dischargers-General Information</i>	
ii. <i>Insert 6-B, Waccamaw Region NPDES Point Source Dischargers-Permit Discharge Limits</i>	
D. Wastewater Treatment Management Issues	Page 50
i. Table 4-2, Categorical Pretreatment Standards for Indirect Industrial Dischargers	Page 55
E. Wastewater Treatment Management Opportunities	Page 58
F. Wastewater Treatment Management Goals and Policy Recommendations	Page 61
Chapter Five: Septic System Management	
A. Introduction	Page 65
B. Public Health and Environmental Concerns	Page 65
C. Future Septic System Management Needs	Page 66
i. Table 5-1, Communities Removed from the Priority List of Environmentally Distressed Communities since 1999.	Page 67
ii. Table 5-2, SC DHEC Priority List of Environmentally Distressed Communities for Sewer Needs	Page 68
D. Septic System Goals and Recommendations	Page 68
Chapter Six: Non-point Source Pollution	
A. Introduction	Page 71
B. Non-point Source Pollution Issues and Challenges	Page 71
i. Table 6-1, Agricultural Land Use Information	Page 72
ii. Table 6-2, Agricultural Livestock Data	Page 73
iii. Table 6-3, Chemical Application Data for Agricultural Lands	Page 74
iv. Table 6-4, Industrial Sectors Regulated under NPDES Stormwater Permit for Industrial Activities	Page 78
C. Non-point Source Pollution Management Programs	Page 79
i. Table 6-5, NPDES Phase II Small Regulated MS4 Jurisdictions	Page 80
D. Non-point Source Pollution Management Opportunities	Page 84
i. Table 6-6, South Carolina Low Impact Development Atlas	Page 90
E. Non-point Source Pollution Management Goals and Recommendations	Page 92

Waccamaw Region Section 208 Water Quality Management Plan

Table of Contents

Section Title	Page Number
Chapter Seven- Groundwater Management	
A. Introduction	Page 97
i. Table 7-1, South Carolina Groundwater Classifications and Standards	Page 97
B. Groundwater Issues and Management Programs	Page 98
C. Groundwater Management Goals and Recommendations	Page 100
Chapter Eight- Economic Development	
A. Introduction	Page 103
i. Table 8-1, Economic Benefits of Instituting Watershed Protection Practices	Page 104
B. Economic Development Opportunities	Page 105
C. Economic Development Strategies	Page 108
ii. Table 8-2, Industrial Water Use in the Waccamaw Region (2005)	Page 109
D. Economic Development Goals and Recommendations	Page 113
Chapter Nine- Water Quality Monitoring	
A. Introduction	Page 117
B. Background	Page 118
i. Table 9-1, Water Quality Core Indicators	Page 121
ii. Table 9-2, Supplemental Indicators for Aquatic Use Life Support	Page 121
C. Existing Monitoring Resources	Page 121
i. Table 9-3, Tiered Beach Rankings: Horry and Georgetown Counties	Page 124
ii. Table 9-4, Groundwater Monitoring Well Sites in the Pee Dee Region	Page 126
iii. Table 9-5, USGS Monitoring Stations Located in the Waccamaw Region	Page 127
iv. Table 9-6, North Inlet- Winyah Bay NERR Monitoring Stations	Page 129
v. Table 9-7, Sites Monitored by the Waccamaw River Volunteer Monitoring Project	Page 131
vi. Table 9-8, Sites Monitored by the Murrells Inlet Volunteer Monitoring Project	Page 131
D. Monitoring Needs and Strategies	Page 132
E. Water Quality Monitoring Goals and Recommendations	Page 133
Chapter Ten: Public Education and Outreach Programs	
A. Existing Public Outreach Programs	Page 137
B. Public Outreach Goals and Recommendations	Page 141
Chapter Eleven: Waccamaw Region Section 208 Program and Administrative Procedures	
A. Background	Page 145
B. Point Source Designated Management Agencies	Page 145
C. Non-Point Source Designated Management Agencies	Page 148
Exhibit 11.1 <i>Waccamaw Region 208 Planning Boundaries- Point Source Management Agencies</i>	
Exhibit 11.2 <i>Section 208 Management Agencies</i>	

Waccamaw Region Section 208 Water Quality Management Plan

Table of Contents

Section Title	Page Number
Chapter Eleven: Waccamaw Region Section 208 Program and Administrative Procedures	
D. Section 208 Conformance Review Procedures	Page 149
E. Annual Section 208 Plan Update	Page 150
F. Section 208 Plan Amendment Procedures	Page 150
G. Total Maximum Daily Load and Wasteload Allocation Procedures	Page 152
H. Section 208 Program Steering Committee	Page 156
Appendix	
A. Appendix A- Text of Section 208, Clean Water Act	Page A1
B. Appendix B- Water Classifications and Site Specific Standards	Page A6
C. Appendix C- SC DHEC Ambient Water Quality Monitoring Stations	Page A11
D. Appendix D- 2010 SC 303(d) List of Impaired Waterbodies	Page A13
E. Appendix E- Soil Profile: Horry, Georgetown, and Williamsburg Counties	Page A18
F. Appendix F- Source Water Assessment and Protection Program	Page A27
G. Appendix G- Groundwater Contamination Inventory	Page A29
H. Appendix H- Inventory of NPDES General Permits for Industrial Stormwater Sites	Page A43
I. Appendix I- Inventory of NPDES General Permits for Non-metal Mineral Mining Facilities	Page A46
J. Appendix J- Beach Monitoring Sites in the Waccamaw Region	Page A49
K. Appendix K- Shellfish Management Area Monitoring Sites	Page A50
L. Appendix L- Section 208 Plan Amendments from 1990-2000	Page A53
M. Appendix M- Section 208 Water Quality Public Survey and Results	Page A55
N. Appendix N- Watershed Maps, Yadkin-Pee Dee and Santee River Basins	Page A67
O. Works Cited	Page A69

Waccamaw Region Section 208 Water Quality Management Plan

Acronyms and Abbreviations

Below is a compilation of acronyms and abbreviations utilized throughout the text of the Waccamaw Region Section 208 Water Quality Management Plan and the corresponding appendix.

AIWW- *Atlantic Intracoastal Waterway*

AL- *Aquatic Life*

ARRA- *American Recovery and Reinvestment Act*

BMP- *Best Management Practice*

BOD- *Biochemical Oxygen Demand*

CAFO- *Concentrated Animal Feeding Operation*

CCD- *Census County Division*

CDP- *Census Designated Places*

CEPSCI- *Certified Erosion Prevention and Sediment Control Inspector*

CFU- *Colony Forming Unit*

CMOM- *Capacity, Management, Operations, and Maintenance*

COG- *Council of Governments*

CSPR- *Certified Stormwater Plan Reviewer Program*

CWSEC- *Coastal Waccamaw Stormwater Education Consortium*

DO- *Dissolved Oxygen*

FC- *Fecal Coliform*

FOG- *Fats, Oils, and Grease*

HUC- *Hydrological Unit Code*

I/I- *Inflow and Infiltration*

ISO- *International Organization of Standards*

LA- *Load Allocation*

LID- *Low Impact Development*

Waccamaw Region Section 208 Water Quality Management Plan

Acronyms and Abbreviations

MAHL- *Maximum Allowable Headworks Loading*

MGD- *Million Gallons per Day*

MOS- *Margin of Safety*

MPN- *Most Probable Number*

MS4- *Municipal Separate Storm Sewer System*

ND- *No Discharge*

NERR- *National Estuarine Research Reserve*

NOAA- *National Oceanic and Atmospheric Administration*

NPDES- *National Pollutant Discharge Elimination System*

POTW- *Publicly Owned Treatment Works*

SA and SB- *State water classifications for Tidal Saltwaters.*

SC DHEC- *South Carolina Department of Health and Environmental Control*

SC DHEC,OCRM- *South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management*

SC DNR- *South Carolina Department of Natural Resources*

SC DOT- *South Carolina Department of Transportation*

SRF- *State Revolving Fund*

SMS4- *Small Municipal Separate Storm Sewer System*

SSO- *Sanitary Sewer Overflow*

SWPPP- *Stormwater Pollution Prevention Plan*

TDR- *Transfer of Development Rights*

TMDL- *Total Maximum Daily Load*

USDA- *United States Department of Agriculture*

US EPA- *United States Environmental Protection Agency*

Waccamaw Region Section 208 Water Quality Management Plan

Acronyms and Abbreviations

UOD- *Ultimate Oxygen Demand*

USGS- *United States Geological Survey*

WLA- *Wasteload Allocation*

WSA- *Water and Sewer Authority*

WSD- *Water and Sewer District*

WWTF- *Wastewater Treatment Facility*