03050202-070

(Charleston Harbor/Stono River)

General Description

Watershed 03050202-070 is located in Charleston County and consists primarily of the ***Charleston Harbor*** and its tributaries, and the ***Stono River*** with its tributaries from Wappoo Creek to the Atlantic Ocean. The watershed occupies 81,611 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Bohicket-Capers-Kiawah-Foxworth series. The erodibility of the soil (K) averages 0.20 and the slope of the terrain averages 1%, with a range of 0-6%. Land use/land cover in the watershed includes: 28.1% nonforested wetland, 25.2% forested land, 21.9% water, 10.1% urban land, 9.0% scrub/shrub land, 4.6% agricultural land, 0.8% forested wetland, and 0.3% barren land.

This segment of the Stono River, classified SFH, accepts drainage from the upper Stono River watershed (03050202-050), flows between Johns Island and James Island, and then flows through the Stono Inlet to the Atlantic Ocean. On the Johns Island side of the river, the Stono River receives drainage from Pennys Creek, Hut Creek, Abbapoola Creek, Alligator Creek, and the Kiawah River. The Kiawah River accepts drainage from Captain Sams Creek, Haulover Creek, Bryans Creek, and Chaplin Creek. The Kiawah River drains directly into the Atlantic Ocean through Captain Sams Inlet. Bass Creek (Cinder Creek) drains into the Stono River from Kiawah Island.

Streams draining into the Stono River from James Island include James Island Creek or Ellis Creek (Simpson Creek, Wolfpit Run), Holland Island Creek, and Green Creek. The Folly River (Folly Creek, Oak Island Creek, Robbins Creek, King Flats Creek, Cutoff Reach, Cole Creek), classified SFH, drains into the mouth of the Stono River. Robbins Creek and King Flats Creek are also connected to the Stono River through Green Creek. Lighthouse Creek (Block Island Creek, Rat Island Creek, Ft. Johnson Creek, First Sister Creek, Second Sister Creek) flows between Folly Island and Morris Island and through Lighthouse Inlet to the Atlantic Ocean. Ft. Johnson Creek connects the Lighthouse Creek drainage to Clark Sound (Seaside Creek, Secessionville Creek). The sound drains into Charleston Harbor through Schooner Creek near Fort Sumter. Charleston Harbor is classified SB. The Ashley River watershed (03050202-040) draining into the harbor is classified SA and the Cooper River watershed (03050201-050) draining into the harbor is classified SB. Also draining in the Charleston Harbor is Dill Creek, Horse Creek, Shem Creek (SB), The Cove (Cove Creek), Bass Creek, and Parrot Point Creek. There are 754.1 acres of lake waters and 13,852.3 acres of estuarine areas in this watershed.

Surface Water Quality

Station #	Type	Class	Description
MD-069	INT	SB/SFH	AIWW AT SC 703, E OF MT. PLEASANT
MD-071	P/SPRP	SB	SHEM CREEK AT BRIDGE ON US 17
MD-247	P/INT	SB	CHARLESTON HARBOR NEAR MT. PLEASANT WWTP DIFFUSER
MD-034	P/W	SA	RT. BANK OF ASHLEY R. BETW MOUTH OF JAMES ISL. CK & DILL CK
MD-165	P/INT	SB	CHARLESTON HARBOR AT FT.JOHNSON PIER AT MARINE SCIENCE LAB
RO-02016	RO02	SB	CHARLESTON HARBOR, 0.1 MI E OF FT. JOHNSON
MD-048	P/W	SB	S. CHANNEL CHAS HARBOR OFF FT JOHNSON , BELL BUOY 28

RT-01644	RT01	SB	CLARK SOUND, 4 MI S OF CHARLESTON
RT-02008	RT02	SFH	SECOND SISTER CREEK, 0.1 MI FROM CONFL WITH LIGHTHOUSE CREEK
MD-274	INT	SFH	FOLLY CREEK, AT SECESSIONVILLE POLLUTION LINE
MD-130	INT	SFH	FOLLY CREEK AT SC 171
MD-026	P/W	SFH	STONO RIVER AT SC 700
RO-01144	RO01	SFH	STONO RIVER, 7.5 MI SW OF CHARLESTON
MD-206	S/INT	SFH	STONO RIVER AT ABBAPOOLA CREEK
MD-208	S/W	SFH	STONO RIVER MOUTH AT BUOY 10 OFF SANDY POINT
MD-273	INT	SFH	KIAWAH RIVER ON THE FLATS
MD-207	S/W	SFH	KIAWAH RIVER MOUTH AT STONO RIVER
RT-01642	RT01	SFH	TRIBUTARY TO STONO INLET, 11 MI SW OF CHARLESTON

Atlantic Intracoastal Waterway (MD-269) – Although mapped in 03050202-060, the waters reflect this watershed as well. The water quality analysis is identical for both SFH and SB classifications. Aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute criterion. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for these parameters. There is a significant decreasing trend in pH. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Shem Creek (MD-071) – Aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute criterion. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Charleston Harbor – There are four SCDHEC monitoring sites within the Charleston Harbor, and recreational uses are fully supported at all sites. Aquatic life uses are fully supported at ***MD-247.*** There is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, total nitrogen concentration, and fecal coliform bacteria concentration suggest improving conditions for these parameters.

Aquatic life uses are not supported at ***MD-165*** due to occurrences of copper in excess of the aquatic life acute criterion. There is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand, total nitrogen concentration, and fecal coliform bacteria concentration suggest improving conditions for these parameters.

Aquatic life uses are fully supported at ***RO-02016***. Aquatic life are again fully supported at ***MD-048.*** There is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand, total nitrogen concentration, and fecal coliform bacteria concentration suggest improving conditions for these parameters. *Fish tissue samples from the Charleston Harbor indicate no advisories are needed at this time.*

Ashley River (MD-034) - Aquatic life and recreational uses are fully supported. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand, total nitrogen concentration, and fecal coliform bacteria concentration suggest improving conditions for these parameters. *Fish tissue samples from the lower Ashley River (downstream of US 17) indicate no advisories are needed at this time.*

Clark Sound (RT-01644) – Aquatic life and recreational uses are fully supported.

Second Sister Creek (RT-02008) – Aquatic life and recreational uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentration conditions. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations.

Folly Creek (MD-274) – Aquatic life and recreational uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentration conditions. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations.

Folly River (MD-130) – Aquatic life and recreational uses are fully supported.

Stono River – There are four SCDHEC monitoring sites along the Stono River, and recreational uses are fully supported at all sites. At the furthest upstream site ***(MD-026)***, aquatic life uses are not supported due to occurrences of dissolved oxygen and copper excursions. Significant decreasing trends in five-day biochemical oxygen demand, total nitrogen concentration, and fecal coliform bacteria concentration suggest improving conditions for these parameters. Aquatic life uses are fully supported at the next site downstream ***(RO-01144)***.

Further downstream ***(MD-206)***, aquatic life uses are partially supported due to dissolved oxygen excursions. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. There is a significant decreasing trend in pH. At the furthest downstream site ***(MD-208)***, aquatic life uses are fully supported and significant decreasing trends in five-day biochemical oxygen demand and fecal coliform bacteria concentration suggest improving conditions for these parameters. There is a significant decreasing trend in pH.

Kiawah River - There are two SCDHEC monitoring sites along the Kiawah River. At the upstream site ***(MD-273)***, aquatic life and recreational uses are fully supported. Aquatic life uses are also fully supported at the downstream site ***(MD-207),*** and a significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. There is a significant decreasing trend in pH. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Stono Inlet Tributary (RT-01642) – Aquatic life uses are not supported due to turbidity excursions. Recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes the Atlantic Ocean edging this watershed (see advisory p.69).

Shellfish Monitoring Stations

Station #	Description
09A-10	MARKER 126 – AIWW AT OLD PITT STREET BRIDGE
10A-02	FOLLY CREEK BRIDGE
10A-03	BOWEN ISLAND DOCK IN FOLLY CREEK
10A-04	BACKMAN CREEK AT FOLLY CREEK
10A-05	KING FLATS AT FOLLY CREEK
10A-06	OPPOSITE LITTLE ISLAND IN FOLLY CREEK
10A-07	NORTH BOUNDARY OF PROHIBITED AREA AT FOLLY MARINA
10A-08	FOLLY RIVER BRIDGE
10A-09	LAST DOCK NORTH IN FOLLY RIVER
10A-11	RAT ISLAND CREEK AT CONFLUENCE WITH FIRST CREEK ON LEFT FROM LIGHTHOUSE CREEK
10A-13	LIGHTHOUSE CREEK AT CONFLUENCE WITH FOLLY CREEK
10A-15	SECESSIONVILLE CREEK AT PRIVATE DOCKS
10A-15A	FOLLY CREEK AT CONFLUENCE WITH SECESSIONVILLE CREEK
10A-16	CLARK SOUND AT OCEAN VIEW FLATS
10A-16A	FLUDD'S CREEK AT CLARK SOUND
10A-18	MOUTH OF SCHOONER CREEK
10A-18A	CHARLESTON HARBOR AT SCHOONER CREEK
10A-19	JUST INSIDE CLARK SOUND FROM SCHOONER CREEK
10A-20	BACKMAN'S COMMERCIAL DOCK IN BACKMAN CREEK
10A-22	FOLLY RIVER STATE SHELLFISH GROUND OPPOSITE FOLLY ISLAND
10A-23	LIGHTHOUSE CREEK STATE SHELLFISH GROUND AT MOUTH OF FIRST SISTER CREEK
10A-24	COLE CREEK STATE SHELLFISH GROUND
10A-25	FOLLY MARINA
10A-26	JUST SEAWARD OF CONFLUENCE OF LIGHTHOUSE CREEK AND FOLLY RIVER IN LIGHTHOUSE CREEK
10A-27	MIDWAY STATIONS 18&18A
10A-28	MOUTH OF SMALL CREEK LEADING TO BACK OF BLOCK ISLAND
10A-29	OUTFALL OF MORRIS ISLAND DISCHARGE
10A-30	SECOND BEND IN RATHALL CREEK
10A-31	UPPER REACHES OF RAT ISLAND CREEK NW OF STATION 11
10A-32	BLOCK ISLAND CREEK – 100 YDS S.OF SPILT FORM SPOIL AREA
10A-33	CONFLUENCE OF LIGHTHOUSE CREEK AND CLARK SOUND
10A-34	THE FIRST DOCK IN SECESSIONVILLE CREEK AT ITS CONFLUENCE WITH CLARK SOUND
10A-35	RIGHT FORK OF SCHOONER CREEK, MIDDLE OF DOCKS, ACROSS FROM PARROT POINT DEVELOPMENT
10B-01	MOUTH OF CHARLESTON HARBOR AT BUOY #25
10B-02	200 YDS EAST OF MOUTH OF FT. JOHNSON BOAT BASIN
10B-02A	OFF THE END OF JAMES ISLAND YACHT CLUB DOCK
10B-03	MOUTH OF JAMES ISLAND CREEK
10B-04	ASHLEY RIVER AT BUOY #@ - RED NUN BUOY
10B-05	OFF THE TIP OF THE BATTERY AT WHITE DANGER MARKER
10B-07	OFF OLD PIER PILINGS AT RUILS OF CASTLE PINKNEY
10B-09	MOUTH OF SHEM CREEK – RED MARKER 16
10B-11	AIWW AT TIP OF SULLIVANS ISLAND GREEN MARKER 137
10B-12	MT. PLEASANT WWTP OUTFALL
11-03	DOCKS BETWEEN MARKERS 10&11 IN STONO RIVER
11-05	MOUTH OF ABBAPOOLA CREEK
11-06	ABBAPOOLA CREEK AT FIRST LARGE BEND

11-0A6	ABBAPOOLA CREEK AT CONFLUENCE WITH SMALL CREEK ON WEST BACK AT 7TH BEND
11-07	GREEN CREEK AT STONO RIVER
11-08	MOUTH OF KIAWAH RIVER
11-10	KIAWAH RIVER AT KIAWAH ISLAND BOAT LANDING
11-21	SOUTH KIAWAH RIVER ON THE FLATS
11-22	KIAWAH RIVER POG AT MINGO POINT
11-23	CAPTAIN SAMS CREEK AND KIAWAH RIVER
11-24	CAPTAIN SAMS CREEK AT S. TIP OF LONG ISLAND
11-28	MULLETT HALL CREEK 150 YDS FROM MOUTH AT FORK
11-29	KIAWAH RIVER BETWEEN BRYANS CREEK AND MULLETT HALL CREEK
11-30	KIAWAH RIVER AT MOUTH OF BRYANS CREEK
11-31	BASS CREEK AT CONFLUENCE WITH KIAWAH RIVER
11-32	BASS CREEK AT CONFLUENCE WITH CINDER CREEK
11-33	SOL LEGARE BOAT LANDING
11-34	CINDER CREEK AT PUBLIC DOCK – 3RD BEND FROM CONFLUENCE WITH BASS CREEK
11-35	BASS CREEK AT PUBLIC DOCK – 5TH BEND FROM CONFLUENCE WITH CINDER CREEK

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
CHARLESTON HARBOR TOWN OF MT PLEASANT/CENTER ST. & RR RD PIPE #: 001 FLOW: 3.7 PIPE #: 002 FLOW: 6.0 PIPE #: 003,005 FLOW: M/R PIPE #: 006 FLOW: 0.0349	SC0040771 MAJOR DOMESTIC
ASHLEY RIVER INTO CHARLESTON HARBOR CHARLESTON CPW/PLUM ISLAND PIPE #: 001 FLOW: 36.0	SC0021229 MAJOR DOMESTIC
CHARLESTON HARBOR NATIONAL PARK SERVICE/FT SUMTER NATL. MT PIPE #: 001 FLOW: M/R	SC0047147 MINOR INDUSTRIAL
COVE CREEK TOWN OF SULLIVANS ISLAND WWTP PIPE #: 001 FLOW: 0.57	SC0020052 MINOR DOMESTIC
UNNAMED TRIBUTARY TO KIAWAH RIVER KIAWAH RESORT/CASSIQUE GOLF CO. PIPE #: 001 FLOW: M/R	SC0048186 MINOR DOMESTIC
HUT CREEK TO STONO RIVER THREE OAKS/CHICKEN FARM MINE PIPE #: 001 FLOW: M/R	SCG730083 MINOR INDUSTRIAL
FOLLY CREEK TRIBUTARY ATLANTIC FARMS, INC. PIPE #: 001-005 FLOW: M/R	SCG130001 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
TOWN OF SULLIVANS ISLAND MUNICIPAL	------- CLOSED

Land Application Sites

LAND APPLICATION *FACILITY NAME*	*PERMIT #* *YPE*
SPRAY ON GOLF COURSE KIAWAH ISLAND UTILITIES	ND0017361 DOMESTIC

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
CHARLESTON COUNTY KINSEY-BLAKE BORROW PIT	0314-19 SAND; SAND/CLAY
W. FRAZIER CONSTRUCTION CO., INC. (DIRTCO) MURRAY WOODS PIT	0512-19 SAND/CLAY
ISLAND CONSTRUCTION CO., INC. TREMONT MINE	0660-19 SAND
THREE OAKS CONTRACTORS, INC. CHICKEN FARM MINE	1129-19 SAND
MURRAY SAND CO., INC. DAVIS PIT	1513-19 SAND
WINGATE FARMS WINGATE	1493-19 SAND
DENISE M.MOSIMANN BEAM REACH MINE	1218-19 SAND
SUNNYSIDE FARMS, INC. SUNNYSIDE FARMS	1322-19 SAND

Growth Potential

There is a high potential for growth in this watershed, which contains the Town of Kiawah Island, the City of Folly Beach, and portions of the City of Charleston and the Towns of Seabrook Island, Sullivans Island, and Mt. Pleasant. Suburban growth areas include: the Dills Property, Ellis Property II, Stiles Point Plantation, Stonefield, Fort Lamar, Grimbel Shores, and Harborwoods III on James Island; and Kiawah Island, Andell Property, and Hope Plantation on Johns Island. All growth areas in the watershed have water and sewer services available.

Watershed Protection and Restoration

Special Projects

Charleston Harbor Project

For the past five years, the Charleston Harbor Project (CHP) has been conducting hundreds of experiments and studies in an effort to come up with a Special Area Management Plan for the Charleston Harbor. The primary goals are simple: to maintain and enhance the quality of the environment in the Charleston Harbor estuary system, to maintain the wide range of water uses and natural resources of the systems, and to anticipate and address potential problems before adverse impacts occur. The Charleston Harbor project initiated a comprehensive variety of projects designed to inform the public and decision makers on all major issues affecting the Harbor and facilitate the best possible policies for achieving economic and natural resources goals for the region. Considerable scientific research was conducted with over fifty reports published on topics including, ecological dynamics, water quality impacts of urban growth, and recreational uses of the resource.

A publication with recommendations related to these studies was made available in 2000. One particular recommendation of the final report was the development of a Special Area Management Plan focused on the Upper Cooper River region. This project was currently under way in 2004 with the management of old rice fields, a major subject of interest. A website with the final report as well as a searchable database of other information on the project is available at: www.scdhec.gov/eqc/ocrm/HTML/chp.html.

Total Maximum Daily Loads (TMDLs)

Two TMDLs addressing dissolved oxygen were developed by SCDHEC for the ***Charleston Harbor Estuary:*** one covering the Ashley River and the other covering the Charleston Harbor, the Cooper River, and the Wando River. The Harbor/Cooper River/Wando River portion of the system (consisting of the Tail Race Canal, West Branch Cooper River, East Branch Cooper River, Shipyard Creek, Town Creek, Back River, Goose Creek, Wando River and Charleston Harbor) is not considered to be impaired with respect to dissolved oxygen (with the exception of the Wando River monitoring site MD-115); however, available information indicates much of the system does not meet the applicable water quality standard for dissolved oxygen for significant periods of time and is considered water quality limited for the purposes of wasteload allocation (WLA) development. WLAs are an integral part of a TMDL, and although not always developed through the TMDL process, the Department and EPA have chosen to use the TMDL process to develop WLAs for the Charleston Harbor system (see following section).

Results of a water quality model indicate the need for a 70% reduction in discharge of oxygen demanding substances to the overall system. A phased approach to achieving these reductions is proposed with an initial Phase I reduction of 60%. For more detailed information on TMDLs, please visit the SCDHEC's Bureau of Water homepage at http://www.scdhec.gov/water and click on "Watersheds and TMDLs" and then "TMDL Program".

Special Models

Charleston Harbor System TMDLs

The modeling efforts for Charleston Harbor and its tributaries have been completed and phased TMDLs for the Ashley and the Cooper systems have been issued by the Department and approved by EPA Region 4. Interim TMDL limits were included in NPDES permits for a number of dischargers while final TMDL limits were included for some dischargers who were already meeting the final limits. Permits included compliance schedules that allowed the opportunity for additional modeling work to be completed before compliance with final limits is required. A group of dischargers working through the local Councils of Government has initiated another modeling effort that is currently underway. If this effort is successfully completed within the allotted time, the existing TMDLs will be revised and, as appropriate, new limits incorporated into NPDES permits for discharges covered by the TMDL.

Stono River / Charleston Harbor Watershed

(03050202-070)