

03050201-050

(Cooper River)

General Description

Watershed 03050201-050 is located in Berkeley and Charleston Counties and consists primarily of the *Cooper River* and its tributaries. The watershed occupies 50,841 acres of the Lower Coastal Plain and Coastal Zone regions of South Carolina. The predominant soil types consist of an association of the Bohicket-Chipley-Leon-Capers series. The erodibility of the soil (K) averages 0.17 and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 33.0% forested land, 25.4% urban land, 17.8% water, 13.1% forested wetland, 6.0% nonforested wetland, 3.2% scrub/shrub land, 1.0% agricultural land, and 0.5% barren land.

The Cooper River is formed at "The Tee" by the confluence of the West Branch Cooper River and the East Branch Cooper River and flows past the City of Charleston and into the Charleston Harbor. En route to the Charleston Harbor, the Cooper River accepts drainage from Tidal Creek, Grove Creek (Little Johnson Creek), the Back River watershed, Flag Creek (Pepper Gully), Slack Reach, Yellow House Creek, the Goose Creek watershed, Filbin Creek, Noisette Creek, Clouter Creek, Shipyard Creek, Newmarket Creek, and the Wando River watershed. There are 362.8 acres of lake waters in the watershed. There are a total of 57.1 stream miles and 7,105.9 acres of estuarine areas, all classified SB. The furthest upstream site on the Cooper River is classified freshwater and saltwater. Other natural resources in this watershed include the Francis Marion National Forest near the Flag Creek headwaters and Cypress Gardens.

Surface Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
MD-152	P/W	FW/SB	COOPER RIVER AT S-08-503, 6.2 MI ESE OF GOOSE CREEK
MD-043	P/SPRP	SB	COOPER RIVER AT CHANNEL MARKER 72 NEAR USN AMMO DEPOT
MD-044	P/W	SB	COOPER RIVER BELOW MOUTH OF GOOSE CREEK AT CHAN. BUOY 60
MD-249/MD-593	P/W	SB	FILBIN CREEK AT VIRGINIA AVE., NORTH CHARLESTON
MD-248	P/SPRP	SB	COOPER RIVER AT MARK CLARK BRIDGE (I-526)
RT-01633	RT01	SB	CLOUTER CREEK, 2.5 MI E OF NORTH CHARLESTON
MD-045	P/INT	SB	COOPER RIVER ABOVE MOUTH OF SHIPYARD CK AT CHAN BUOY 49
MD-243	P/W	SB	SHIPYARD CREEK BETWEEN MARKER #6 AND MCALLOY DOCK
MD-047	P/W	SB	TOWN CREEK (W SIDE OF DRUM ISLAND) UNDER GRACE MEM. BRDG
MD-046	P/W	SB	COOPER RIVER UNDER GRACE MEMORIAL BRIDGE

Cooper River – There are six SCDHEC monitoring sites along the Cooper River. Recreational uses are fully supported at all sites and, with the exception of MD-152, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter. At the furthest upstream site (*MD-152*), which is mapped in 03050201-060, aquatic life and recreational uses are fully supported for both freshwater and saltwater classifications. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration and a significant increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters. Aquatic life uses are fully supported at the next site downstream (*MD-043*), and

significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and total nitrogen concentration and a significant increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters. Further downstream (**MD-044**), aquatic life uses are fully supported. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration, and a significant increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters.

Aquatic life uses are again fully supported further downstream (**MD-248**). Significant decreasing trends in five-day biochemical oxygen demand, turbidity, total phosphorus concentration, and total nitrogen concentration and a significant increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters. There is a significant increasing trend in pH. At the furthest sites downstream (**MD-045, MD-046**), aquatic life uses are fully supported and significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration and a significant increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters.

Filbin Creek (MD-249) - Aquatic life uses are partially supported due to dissolved oxygen excursions. Significant decreasing trends in five-day biochemical oxygen demand and turbidity, and a significant increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters. There is a significant increasing trend in pH. Recreational uses are not supported due to fecal coliform bacteria excursions.

Clouter Creek (RT-01633) - Aquatic life and recreational uses are fully supported.

Shipyard Creek (MD-243) – Aquatic life uses are fully supported. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, total phosphorus and total nitrogen concentration, and a significant increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Town Creek (MD-047) - Aquatic life uses are fully supported. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration and a significant increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes the Cooper River within this watershed (see advisory p.69).

Shellfish Monitoring Stations

<u>Station #</u>	<u>Description</u>
09B-13	CONFLUENCE OF WANDO RIVER AND COOPER RIVER
10B-06	CENTER OF CHANNEL OFF CHARLESTON YACHT CLUB

NPDES Program

Active NPDES Facilities

<i>RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)</i>	<i>NPDES# TYPE COMMENT</i>
COOPER RIVER MEAD WESTVACO SC PIPE #: 001, 002 FLOW: M/R	SC0001759 MAJOR INDUSTRIAL
COOPER RIVER AMERADA HESS/VIRGINIA AVE. N. PIPE #: 001, 002 FLOW: M/R	SC0002852 MINOR INDUSTRIAL
COOPER RIVER AMERADA HESS/VIRGINIA AVE. S. PIPE #: 001,002 FLOW: M/R	SC0002861 MINOR INDUSTRIAL
COOPER RIVER ALLIED TERMINALS/CHARLESTON PIPE #: 001 FLOW: M/R	SC0001350 MINOR INDUSTRIAL
COOPER RIVER SOPUS PRODUCTS/CHAS. PIPE #: 001 FLOW: M/R	SC0003026 MINOR INDUSTRIAL (EQUILON ENTERPRIZES)
COOPER RIVER SUN CHEMICAL CORP. PIPE #: 001 FLOW: M/R	SC0003441 MAJOR INDUSTRIAL (BAYER CORP.)
COOPER RIVER US NAVY/WEAPONS STATION PIPE #: 001,002,003 FLOW: M/R	SC0043206 MINOR INDUSTRIAL
COOPER RIVER NCSO/FELIX DAVIS WWTP PIPE #: 001 FLOW: 27.0	SC0024783 MAJOR DOMESTIC
COOPER RIVER OAK AMERICAS LLC/COOPER RIVER PLT. PIPE #: 001 FLOW: M/R	SC0026506 MAJOR INDUSTRIAL (E.I. DUPONT)
COOPER RIVER BP AMOCO CHEMICALS/COOPER RIVER PIPE #: 001 FLOW: M/R	SC0028584 MAJOR INDUSTRIAL
COOPER RIVER BCW&SA/LOWER BERKELEY WWTP PIPE #: 001 FLOW: 15.0	SC0046060 MAJOR DOMESTIC
COOPER RIVER NUCOR STEEL/BERKELEY PLT PIPE #: 001-003 FLOW: M/R	SC0047392 MAJOR INDUSTRIAL
COOPER RIVER TRIBUTARY MT PLEASANT WATER PLANT #2	SC0043273 MINOR DOMESTIC

PIPE #: 001 FLOW: 0.5	
COOPER RIVER TRIBUTARY EVENING POST PUBLISHING CO. PIPE #: 001 FLOW: M/R	SCG250040 MINOR INDUSTRIAL
TIDAL CREEK TO COOPER RIVER CHARLESTON CPW/DANIEL ISLAND PIPE #: 001 FLOW: 0.5 PROPOSED FLOW: 0.75, 1.0, 2.0, 4.0	SC0047074 MINOR DOMESTIC MAJOR DOMESTIC
TIDAL CREEK TO COOPER RIVER SCE&G/WILLIAMS STATION PIPE #: 001-005 FLOW: M/R	SC0003883 MAJOR INDUSTRIAL
FILBIN CREEK DEFENSE FUEL SUPPORT PT/CHAS. PIPE #: 001,002 FLOW: M/R	SCG340022 MINOR INDUSTRIAL (SC0021997)
FILBIN CREEK MEAD WESTVACO CORP/CHAS. PIPE #: 004 FLOW: M/R	SC0001759 MAJOR INDUSTRIAL
FILBIN CREEK KINDER MORGAN BULK TERM./N. CHAS. PIPE #: 001 FLOW: M/R	SCG340015 MINOR INDUSTRIAL (MARATHON ASHLAND/SC0034134)
SHIPYARD CREEK KINDER MORGAN BULK TERM./SHIPYARD RIV. TERM. PIPE #: 001 FLOW: M/R	SC0048046 MINOR INDUSTRIAL
SHIPYARD CREEK MONTENAY CHARLESTON/RESOURCE RECOVERY PIPE #: 001-004 FLOW: M/R	SC0041173 MINOR INDUSTRIAL (FOSTER WHEELER)

Nonpoint Source Management Program

Mining Activities

<i>MINING COMPANY</i> <i>MINE NAME</i>	<i>PERMIT #</i> <i>MINERAL</i>
OL THOMPSON CONSTRUCTION CO., INC. PRIMUS TRACT	0962-15 SAND/CLAY

Land Disposal Activities

Landfill Facilities

<i>SOLID WASTE LANDFILL NAME</i> <i>FACILITY TYPE</i>	<i>PERMIT #</i> <i>STATUS</i>
WESTVACO LANDFILL INDUSTRIAL	IWP-177, IWP-090, IWP-150 -----
CHARLESTON/SPRUIL AVE. DUMP MUNICIPAL	----- CLOSED

GASTON DUMP
MUNICIPAL

CLOSED

HOLSTON LANDFILL
MUNICIPAL

DWP-003
NEVER OPENED

ROMEY STREET LANDFILL
MUNICIPAL

DWP-079, DWP-061
CLOSED

Growth Potential

The Union Terminal (Sea Port Facility) within the City of Charleston is projected to be an area of population growth. The population in the urban areas west of the Cooper River has declined in the last decade and are not expected to grow in the near future. The U.S. Navy Base/Shipyard was closed by the Navy in 1996. The Office/Manufacturing/Industrial reuses of this property will occur well into the future, but residential uses are not significant components of the Base Reuse Plan. The Bushy Industrial Park, which includes several very large industries, is also located in this watershed, and should continue to encourage industrial growth.

Watershed Protection and Restoration

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.

Cooper River Watershed (03050201-050)

-  Mines
-  Landfills
-  Water Quality Monitoring Sites
-  Random Sites - 2001-2002
-  Shellfish Monitoring Sites
-  NPDES Permits
-  Highways
-  Interstate
-  Rail lines
-  Modeled Streams
-  Streams
-  County Lines
-  Lakes
-  Estuaries
-  SCDHEC 11-Digit Hydrologic Units
-  City
-  Public Lands

