03050106-07

(Broad River)

General Description

Watershed 03050106-07 (formerly 03050106-060) is located Newberry, Fairfield, and Richland Counties and consists primarily of the ***Broad River*** and its tributaries from the Parr Shoals dam to its confluence with the Saluda River. The watershed occupies 148,599 acres of the Piedmont region of South Carolina. Land use/land cover in the watershed includes: 59.4% forested land, 21.4% urban land, 13.0% agricultural land, 3.0% forested wetland, 2.0% water, 0.8% barren land, and 0.4% scrub/shrub land.

This section of the Broad River accepts drainage from its upper reaches, together with Mayo Creek, Crims Creek (Rocky Creek, Summers Branch), Wateree Creek (Risters Creek), Boone Creek, Freshley Branch, Mussel Creek, and the Little River Watershed. Hollingshead Creek (Boyd Branch, Wildhorse Branch, Metz Branch, Hope Creek, Bookman Creek) enters the river next followed by the Cedar Creek Watershed, Nipper Creek, Nicholas Creek (Swygert Branch, Moccasin Branch), Slatestone Creek, and Burgess Creek. Crane Creek and Smith Branch enter the river at the base of the watershed near the City of Columbia. Sorghum Branch, Dry Branch (Crescent Lake, Stevensons Lake, Roberts Branch), Elizabeth Lake, and Cumbess Creek drain into Crane Creek followed by North Branch Crane Creek. North Branch Cane Creek accepts drainage from Beasley Creek (Robertson Branch, Lot Branch, Hawkins Branch), Swygert Creek, Dry Fork Creek, and Long Branch. A portion of the Broad River is diverted into the Broad River Canal in Columbia before flowing into the Congaree River. Although depicted in the upper Congaree River Watershed (03050110-01), the canal is associated with this lower Broad River watershed; therefore any facilities or stations in this area will be included in this watershed. The Harbison State Forest is located next to the Broad River just downstream of Nicholas Creek and a Heritage Trust Preserve is located along Nipper Creek. There are a total of 274.1 stream miles and 671.3 acres of lake waters.

Surface Water Quality

Station #	Type	Class	Description
B-236	P/W	FW	BROAD RIVER AT SC 213, 2.5 MI SW OF JENKINSVILLE
RS-03517	RS03	FW	CRIMS CREEK TRIBUTARY AT S-36-25
B-800	BIO	FW	CRIMS CREEK AT SC 213
B-801	BIO	FW	WATEREE CREEK AT SR 698
B-110	S	FW	ELIZABETH LAKE AT SPILLWAY ON US 21
B-316	P	FW	CRANE CREEK AT S-40-43 UNDER I-20, NORTH COLUMBIA
B-280	P/BIO	FW	SMITH BRANCH AT N MAIN ST (US 21) IN COLUMBIA
B-337	W	FW	BROAD RIVER AT US 176 (BROAD RIVER ROAD) IN COLUMBIA
B-080	P/W	FW	BROAD RIVER DIVERSION CANAL AT COLUMBIA WATER PLANT

Broad River – There are two SCDHEC monitoring sites along this section of the Broad River. At the upstream site ***(B-236)***, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life chronic criterion. There is a significant increasing trend in pH. A very high concentration of lead was measured in the 2000 sediment sample and chrysenes, fluoranthenes, DDE (a metabolite of DDT), and pyrene were detected in the sample. A very high

concentration of cadmium was measured in the 2004 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported at this site and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter. Aquatic life uses are fully supported at the downstream site ***(B-337)***, but recreational uses are partially supported due to fecal coliform bacteria excursions.

Broad River Diversion Canal (B-080) – Aquatic life uses are fully supported, but recreational uses are partially supported due to fecal coliform bacteria excursions.

Crims Creek Tributary (RS-03517) – Aquatic life uses are fully supported. A very high concentration of cadmium was measured in the 2003 sediment sample. Recreational uses are not supported due to fecal coliform bacteria excursions.

Crims Creek (B-800) – Aquatic life uses are partially supported based on macroinvertebrate community data.

Wateree Creek (B-801) – Aquatic life uses are fully supported based on macroinvertebrate community data.

Elizabeth Lake (B-110) – Aquatic life uses are fully supported. There is a significant increasing trend in pH. A significant increasing trend in dissolved oxygen concentration suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Crane Creek (B-316) – Aquatic life uses are partially supported based on macroinvertebrate community data. There is a significant increasing trend in pH. A significant decreasing trend in turbidity suggests improving conditions for this parameter. A very high concentration of cadmium was measured in the 2000 sediment sample and dieldrin, DDE (a metabolite of DDT), and DDT were also detected in the sample. Benzoic acid and bis(n-octyl) phthalate were detected in the 2004 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are partially supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Smith Branch (B-280) – Aquatic life uses are fully supported; however, there is a significant increasing trend in total phosphorus concentration. There is a significant increasing trend in pH. Significant increasing trends in dissolved oxygen concentration and decreasing trends in turbidity suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
BROAD RIVER SCE&G/PARR HYDRO STA. PIPE #: 001 FLOW: 0.035	SC0001864 MINOR INDUSTRIAL
BROAD RIVER MARTIN MARIETTA/N. COLUMBIA QUARRY PIPE #: 001 FLOW: M/R	SCG730066 MINOR INDUSTRIAL
BROAD RIVER RAINTREE ACRES SD/MIDLANDS UTILITIES PIPE #: 001 FLOW: 0.14	SC0039055 MINOR DOMESTIC
BROAD RIVER TOWN OF CHAPIN WWTP PIPE #: 001 FLOW: 1.2 PIPE #: 001 FLOW: 2.4, 5.0 (PROPOSED)	SC0040631 MAJOR DOMESTIC
BROAD RIVER RICHLAND COUNTY BROAD RIVER WWTP PIPE #: 001 FLOW: 2.5 (6.0 PROPOSED)	SC0046621 MAJOR DOMESTIC
MAYO CREEK (TO BROAD RIVER) SCE&G/SUMMER NUCLEAR STA. PIPE #: 013 FLOW: 0.015	SC0030856 MAJOR INDUSTRIAL
MAYO CREEK SCE&G/SUMMER NUCLEAR TRAINING CTR PIPE #: 001 FLOW: 0.0004 (PIPE #: 002 FLOW: 0.0105 PROPOSED)	SC0038407 MINOR INDUSTRIAL
CRANE CREEK HANSON BRICK COLUMBIA PIPE #: 001 FLOW: 0.0065	SC0031640 MINOR INDUSTRIAL
NIPPER CREEK VULCAN MATERIALS CO./DREYFUS QUARRY PIPE #: 001, 002 FLOW: M/R	SCG730052 MINOR INDUSTRIAL
BEASLEY CREEK TRIBUTARY BOSE CORPORATION PIPE #: 001 FLOW: M/R	SCG250182 MINOR INDUSTRIAL
BURGESS CREEK HANSON BRICK EAST.MANNING PIT PIPE #: 001 FLOW: M/R	SCG730509 MINOR INDUSTRIAL
BROAD RIVER TRIBUTARY MARTIN MARIETTA/HARBISON QUARRY PIPE #: 001 FLOW: M/R	SCG730588 MINOR INDUSTRIAL
BROAD RIVER TRIBUTARY BORAL BRICKS/LABORDE MINE PIPE #: 001 FLOW: M/R	SCG730639 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Activities

SOLID WASTE LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
RICHLAND COUNTY SANITARY LANDFILL DOMESTIC	401001-1101 CLOSED
RICHLAND COUNTY C&D LANDFILL	401001-1201, 1202 ACTIVE
OLD CITY OF COLUMBIA LANDFILL DOMESTIC	-------- CLOSED
DARTMOUTH AVENUE C&D DUMP DOMESTIC	-------- CLOSED
KNIGHTNER STREET C&D DUMP C&D LANDFILL	-------- CLOSED
CRAWFORD ROAD C&D DUMP C&D LANDFILL	-------- CLOSED
BREAZIO ROAD C&D DUMP C&D LANDFILL	-------- CLOSED
ETHELS AVENUE C&D DUMP C&D LANDFILL	-------- CLOSED
EAGLE CONSTRUCTION C&D	PROPOSED ---------
COUNTY LINE C&D LF C&D	PROPOSED ---------
CAROLINA WRECKING ST C&D LC LANDFILL C&D LANDFILL	402451-1301 CLOSED
SHEALY LC&D C&D LANDFILL	402405-1701 INACTIVE
BILLY MEETZ C&D LANDFILL	402463-1701 ACTIVE
WHITAKER AIR CURTAIN INCINERATOR INCINERATOR	402769-4001 ACTIVE
EARGLES COMPOSTING COMPOSTING	402706-3001 INACTIVE
LOVELESS & LOVELESS, INC. C&D LANDFILL	402428-6001 INACTIVE
BROAD RIVER LANDSCAPING C&D LANDFILL	402467-1701 ACTIVE
MUNGO HOMES INC. LAND APPLICATION	402645-8001 ACTIVE

BILL MOCK DUMP DOMESTIC	---------- CLOSED
BFI WASTESTREAM DOMESTIC	-------- INACTIVE
BLYTHEWOOD CONSTRUCTION CO., INC. C&D LANDFILL	402479-1701 ACTIVE
ELMWOOD AVE. SITE C&D LANDFILL	402631-2001 INACTIVE

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
MARTIN MARIETTA MATERIALS INC. NORTH COLUMBIA QUARRY	0099-79 GRANITE
MARTIN MARIETTA MATERIALS INC. HARBISON QUARRY	0101-79 SHALE
RICHARDSON CONSTRUCTION CO. RICHARDSON'S MONTICELLO FILL	0738-79 CLAY
BORAL BRICK, INC. LABORDE MINE	0448-79 CLAY
HANSON BRICK COLUMBIA BROAD RIVER MINE	0187-79 SHALE
HANSON BRICK COLUMBIA MANNING	0538-79 SHALE
VULCAN CONSTRUCTION MATERIALS LP DREYFUS QUARRY	0129-79 GRANITE

Water Quantity

WATER USER ***STREAM***	***REGULATED CAP. (MGD)*** ***PUMPING CAP. (MGD)***
CITY OF COLUMBIA BROAD RIVER CANAL	71.0 91.0

Growth Potential

There is a high potential for growth in this watershed, which contains the northwest portion of the Greater Columbia Metropolitan Area and ample water and sewer service. In addition, the watershed contains the Town of Peak and portions of the Towns of Irmo, Chapin, Little Mountain, and Blythewood. The I-26, I-20, and I-77 corridors, along with the U.S. Hwy. 321, U.S. Hwy. 21, and U.S. Hwy. 176 corridors, will serve to increase residential, commercial, and industrial growth in the Greater Columbia Area. The northwest portion of the city (St. Andrews, Irmo, and Harbison) will continue to develop as a regional commercial hub for the area. Industrial development along the I-77 corridor is expected to remain strong due to the aggressive economic development policy by the City of Columbia and Richland County. The Killian and

Blythewood areas in particular are expected to see increased construction activity. There is a high potential for growth on the eastern edge of the watershed, in Northeast Richland County. New commercial developments (The Village at Sandhills, Rice Creek Village, Sparkleberry Square, Sparkleberry Crossing) are expected to further increase the growth of a rapidly growing residential area.

Watershed Protection and Restoration Strategies

Total Maximum Daily Loads (TMDLs)

A TMDL was developed for SCDHEC and approved by EPA for fecal coliform bacteria in the **Broad River** at Columbia (***B-337***). There are eight facilities that have fecal coliform limits in their NPDES permits that discharge into this long section of the Broad River. Part of the City of Columbia Municipal Separate Storm Sewer System (MS4) is in this section of the Broad River watershed. Possible sources of fecal coliform bacteria in the Broad River, identified in the TMDL, include MS4 stormwater runoff, leaking sewers, SSOs, failing onsite wastewater disposal systems, land application of manure, cattle watering in the creek, pets, and wildlife. The TMDL specifies a reduction in the load of fecal coliform bacteria into this section of the Broad River of 62% in order for the river to meet the recreational use standard.

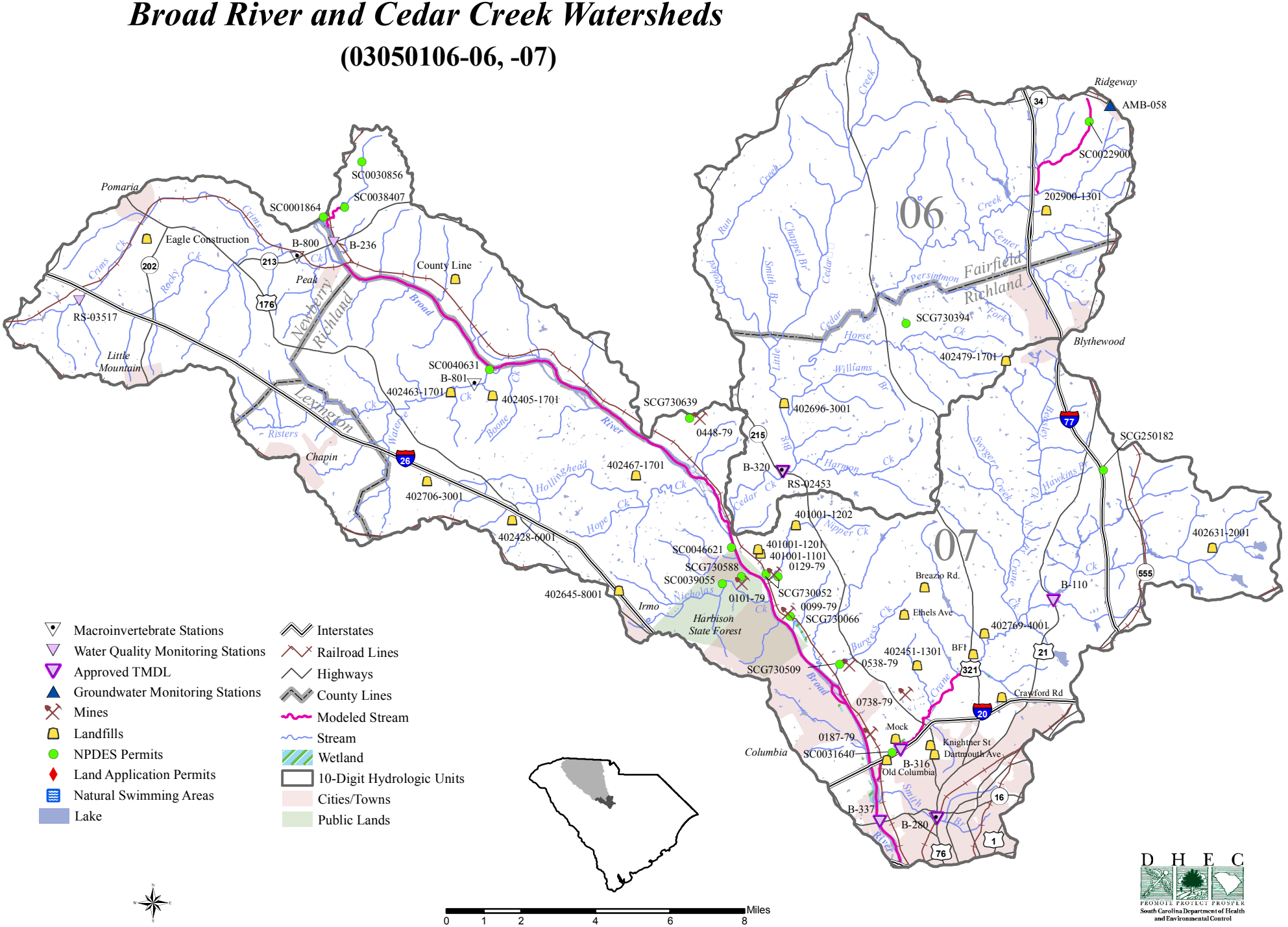
TMDLs were also developed for SCDHEC and approved by EPA for fecal coliform bacteria in **Crane Creek** at water quality monitoring sites ***B-110*** (the Elizabeth Lake spillway) and ***B-316***. Hanson Brick Corporation (SC0031640) has fecal coliform limits in its NPDES permit. It discharges into Crane Creek downstream of Elizabeth Lake. The City of Columbia Phase I Municipal Separate Storm Sewer System (MS4) extends into the Crane Creek watershed. Possible sources of fecal coliform bacteria in Crane Creek identified in the TMDL include Stormwater from the MS4 areas, leaking sewers, failing onsite wastewater disposal systems, pets, and wildlife. The TMDLs specify reductions in the load of fecal coliform bacteria into Crane Creek above Elizabeth Lake of 48% and downstream of Lake Elizabeth of 92 % in order for the creek to meet the recreational use standard.

A TMDL was developed for SCDHEC and approved by EPA for fecal coliform bacteria in **Smith Branch** at water quality monitoring site ***B-280***. There are no facilities that have fecal coliform limits in their NPDES permits that discharge into Smith Branch. However, the creek drains a highly urbanized area of Columbia, which is designated as the City of Columbia Municipal Separate Storm Sewer System (MS4). Possible sources of fecal coliform bacteria in the branch, identified in the TMDL, include MS4 runoff, leaking sewers, failing onsite wastewater disposal systems, pets and wildlife. The TMDL specifies a reduction in the load of fecal coliform bacteria into Smith Branch of 99% in order for the creek to meet the recreational use standard.

Funding for TMDL implementation activities is currently available. For more information, see the Bureau of Water web page www.scdhec.gov/water or call the Watershed Program at (803) 898-4300.

Broad River and Cedar Creek Watersheds

(03050106-06, -07)



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South Carolina Department of Health and Environmental Control