

03050101-15

(Catawba River/Lake Wylie)

General Description

The South Carolina portion of watershed 03050101-15 (formerly 03050101-180, 190) is located in York County and consists primarily of the *Catawba River* and its tributaries as it flows through Lake Wylie. The watershed occupies 88,527 acres of the Piedmont region of South Carolina. Land use/land cover in the watershed includes: 53.7% forested land, 25.1% agricultural land, 14.1% urban land, 6.5% water, 0.5% forested wetland (swamp), and 0.1% barren land.

The Catawba River originates in North Carolina and flows through Lake Wylie into South Carolina in this watershed. Lake Wylie is used for both power generation and recreation. Tributaries draining into and forming arms of Lake Wylie in South Carolina include Catawba Creek, Mill Creek, Crowders Creek (South Fork Crowders Creek, Rocky Branch, Brown Creek, Beaverdam Creek, Camp Run), Torrence Branch, and Allison Creek. Allison Creek originates near the Town of Clover and is joined by Morris Branch, Calabash Branch (Walker Branch), Grist Branch, Johnson Branch (Rock Branch), and Big Branch before forming an arm of Lake Wylie near the City of York. Little Allison Creek is also impounded and flows into the Allison Creek arm of the lake. There are a total of 618.0 stream miles in the entire Catawba River/Lake Wylie watershed (369.8 miles within South Carolina) and 8,288.1 acres of lake waters (7,957.3 acres within South Carolina), all classified FW.

Surface Water Quality

<u>Station</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
CW-197	P/INT	FW	LAKE WYLIE ABOVE MILL CREEK ARM AT END OF S-46-557
CW-192	S/W	FW	SOUTH FORK CROWDERS CREEK AT S-46-79 4.5 MI NW OF CLOVER
CW-152	P/SPRP	FW	CROWDERS CREEK AT US 321 0.5 MI N OF NC STATE LINE
CW-023	P/SPRP	FW	CROWDERS CREEK AT S-46-564 NE OF CLOVER
CW-024	W/BIO	FW	CROWDERS CREEK AT S-46-1104
CW-105	S/W	FW	BROWN CREEK AT S-46-226, 0.3 MI W OF OLD N.MAIN ST. IN CLOVER
RS-06020	RS06/BIO	FW	BEAVERDAM CREEK AT BRIDGE AT S-46-64 32 MI ENE OF CLOVER
CW-696	BIO	FW	BEAVERDAM CREEK AT S-46-114
CW-153	S/W	FW	BEAVERDAM CREEK AT S-46-152 8 MI E OF CLOVER
CW-027	S/SPRP	FW	LAKE WYLIE, CROWDERS CK ARM AT SC 49 AND SC 274
CW-245	W	FW	LAKE WYLIE, CROWDERS CK ARM -1 ST POWERLINE UPSTR.OF MAIN POOL
CW-198	P/W	FW	LAKE WYLIE, OUTSIDE MOUTH OF CROWDERS CREEK ARM
CW-171	S/W	FW	ALLISON CREEK AT US 321, 3.1 MI S OF CLOVER
CW-134	S/W	FW	CALABASH BRANCH AT S-46-414 2.5 MI SE OF CLOVER
CW-249/CW-694	INT/BIO	FW	ALLISON CREEK AT S-46-114
CW-200	S/W	FW	LAKE WYLIE AT SC 274 , 9 MI NE OF YORK
CW-709	BIO	FW	LITTLE ALLISON CREEK AT SC 274
CW-201	P/W	FW	LAKE WYLIE, NORTH LAKEWOOD SD AT EBENEZER ACCESS
RL-06433	RL06	FW	LAKE WYLIE, 0.5MI W OF TEGA CAY
CW-230	W/INT	FW	LAKE WYLIE, AT DAM UNDER POWERLINES

Lake Wylie – There are eight SCDHEC monitoring sites along Lake Wylie. Aquatic life and recreational uses are fully supported at **CW-197**, in the upper region of the lake, and significant decreasing trends in turbidity, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for these parameters.

Moving downlake to the Crowders Creek arm of the lake and **CW-027**, aquatic life uses are fully supported; however, there are significant decreasing trends in dissolved oxygen concentration. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions. Aquatic life and recreational uses are fully supported at **CW-245**. Aquatic life and recreational uses are fully supported at **CW-198**, and significant decreasing trends in turbidity, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for these parameters. There is a significant increasing trend in pH at this site.

In the Allison Creek arm of the lake and **CW-200**, aquatic life uses are not supported due to total phosphorus concentration and chlorophyll-a excursions. In addition, there is a significant increasing trend in five-day biochemical oxygen demand. Although pH excursions occurred, they were typical of values seen in lake systems and were considered natural, not standards violations. Recreational uses are fully supported at this site. Aquatic life and recreational uses are fully supported at **CW-201**, and significant decreasing trends in five-day biochemical oxygen demand, turbidity, total phosphorus concentration, and fecal coliform bacteria suggest improving conditions for these parameters.

Aquatic life and recreational uses are fully supported at **RL-06433** near the base of the lake. Aquatic life uses are not supported at **CW-230**, near the dam, due to copper excursions. In addition, there is a significant increasing trend in five-day biochemical oxygen demand. There is a significant increasing trend in pH. Although pH excursions occurred, they were typical of values seen in lake systems and were considered natural, not standards violations. Recreational uses are fully supported at the dam site.

South Fork Crowders Creek (CW-192) – Aquatic life and recreational uses are fully supported; however, there are significant increasing trends in five-day biochemical oxygen demand and total phosphorus concentration.

Crowders Creek – There are three SCDHEC monitoring sites along Crowders Creek, and all sites are not supported for recreational uses due to fecal coliform bacteria excursions. At the upstream site (**CW-152**), aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in five-day biochemical oxygen demand. Significant decreasing trends in total phosphorus and total nitrogen concentration suggest improving conditions for these parameters. At the midstream site (**CW-023**), aquatic life uses are fully supported and significant decreasing trends in turbidity, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for

these parameters. There is a significant increasing trend in pH at this site. Aquatic life uses are also fully supported at the downstream site (*CW-024*).

Brown Creek (CW-105) - Aquatic life uses are fully supported; however, there is a significant increasing trend in five-day biochemical oxygen demand. Recreational uses are not supported due to fecal coliform bacteria excursions.

Beaverdam Creek – There are three SCDHEC monitoring sites along Beaverdam Creek. At the upstream site (*RS-06020*), aquatic life uses are partially supported based on macroinvertebrate community data. Recreational uses are not supported due to fecal coliform bacteria excursions. Although macroinvertebrate communities appeared to be impacted at the midstream site (*CW-696*), the sample was considered to be not representative due to severe drought conditions that existed during the sampling year. At the downstream site (*CW-153*), aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen concentration and significant increasing trends in five-day biochemical oxygen demand and turbidity. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

Allison Creek – There are two SCDHEC monitoring sites along Allison Creek and recreational uses are not supported at either site. At the upstream site (*CW-171*), aquatic life uses are fully supported; however, there is a significant increasing trend in five-day biochemical oxygen demand. At the downstream site (*CW-249*), aquatic life uses are fully supported; however, there are significant increasing trends in five-day biochemical oxygen demand and total phosphorus concentration. Although macroinvertebrate communities appeared to be impacted at *CW-694*, the sample was considered to be not representative due to severe drought conditions that existed during the sampling year.

Calabash Branch (CW-134) - Aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. Recreational uses are not supported due to fecal coliform bacteria excursions. Significant decreasing trends in total phosphorus and fecal coliform bacteria suggest improving conditions for these parameters.

Little Allison Creek (CW-709) - Although macroinvertebrate communities appeared to be impacted at this site, the sample was considered to be not representative due to severe drought conditions that existed during the sampling year.

A fish consumption advisory has been issued by the Department for PCBs and includes Lake Wylie within this watershed (for the most current advisories visit www.scdhec.gov/fish).

Natural Swimming Areas

***FACILITY NAME
RECEIVING STREAM***

***PERMIT #
STATUS***

EBENEZAR PARK
LAKE WYLIE

46-N17
ACTIVE

NPDES Permitted Activities

Active NPDES Facilities

***RECEIVING STREAM
FACILITY NAME***

***NPDES#
TYPE***

LAKE WYLIE
TEGA CAY #2 WWTP

SC0026743
MINOR DOMESTIC

LAKE WYLIE
TEGA CAY #3 & #4 WWTP

SC0026751
MINOR DOMESTIC

BEAVERDAM CREEK
BEAVER CREEK MHP

SC0032662
MINOR DOMESTIC

BEAVERDAM CREEK
PHARR YARNS/CLOVER DIVISION

SC0028321
MINOR INDUSTRIAL

CROWDERS CREEK
CURTIN BROS. CONTRACTING INC./RIDDLE MILL PIT

SCG730476
MINOR INDUSTRIAL

TORRENCE BRANCH
MCCALL GRADING CO./MCCALL MINE

SCG730591
MINOR INDUSTRIAL

MILL CREEK
LAKE WYLIE MHP

SC0037605
MINOR DOMESTIC

ALLISON CREEK ARM OF LAKE WYLIE
DUKE POWER CO./CATAWBA NUCLEAR STATION

SC0004278
MAJOR INDUSTRIAL

Municipal Separate Storm Sewer Systems (MS4)

***RECEIVING STREAM
MUNICIPALITY
RESPONSIBLE PARTY
IMPLEMENTING PARTY***

***NPDES#
MS4 PHASE
MS4 SIZE***

LAKE WYLIE/CATAWBA RIVER
TEGA CAY
TEGA CAY
TEGA CAY

SCR039103
PHASE II
SMALL MS4

LAKE WYLIE/CATAWBA RIVER
UNINCORPORATED AREAS
YORK COUNTY
YORK COUNTY

SCR039104
PHASE II
SMALL MS4

Nonpoint Source Permitted Activities

Land Disposal Activities

Landfill Facilities

<i>LANDFILL NAME</i> <i>FACILITY TYPE</i>	<i>PERMIT #</i> <i>STATUS</i>
DEER CREEK COMPOSTING SITE COMPOSTING	462672-3001 ACTIVE
MCCALL DEER CREEK DR. LANDFILL C&D	462672-1701 ACTIVE
TEGA CAY 126, INC. CONSTRUCTION TEGA CAY 126, INC. C&D	462436-1201 INACTIVE ----- INACTIVE
DUKE POWER CO. INDUSTRIAL	463303-1601 ACTIVE
DUKE POWER CO. INDUSTRIAL	----- INACTIVE
RIVER HILLS MAINTENANCE COMPOSTING FACILITY COMPOSTING	462497-3001 INACTIVE
RIVER HILLS COMM. ASSOC. COMPOSTING FACILITY COMPOSTING	462497-3002 ACTIVE

Mining Activities

<i>MINING COMPANY</i> <i>MINE NAME</i>	<i>PERMIT #</i> <i>MINERAL</i>
MCCALL GRADING COMPANY, INC. MCCALL MINE	0926-91 GRAVEL
CURTIN BROS. CONTRACTING INC. RIDDLE MILL PIT	1345-91 SAND; SAND/CLAY

Water Quantity

<i>WATER USER</i> <i>WATERBODY</i>	<i>REGULATED CAP. (MGD)</i> <i>PUMPING CAP. (MGD)</i>
CITY OF ROCK HILL	30.0
LAKE WYLIE	45.0

Growth Potential

There is a high potential for growth in this watershed, which contains the Lake Wylie community and the Cities of Tega Cay and Clover. Residential development along the frontage of Lake Wylie continues to increase, with densest areas located in Tega Cay and Clover, the River Hills development in the Lake Wylie community, and the area between the City of Rock Hill and Lake Wylie. Residential development away from the lake is increasing but remains scattered. Commercial development continues to occur in the Lake Wylie community along S.C. Hwys 49 and 274 and around Clover and Tega Cay. Another major land use in the area is the

Catawba Nuclear Station on the west side of the lake. Transportation projects, which will have an impact on future growth, include the widened Buster Boyd Bridge and S.C. Hwy 49, both of which provide improved access into the Charlotte, N.C. urban area and encourage further residential and commercial growth along the western shore of the lake. There are also a few areas of intensive farming in the rural portion of the watershed. Water and sewer services are available in the immediate vicinity of Clover and Tega Cay and the River Hills development in the Lake Wylie community. Water has also been extended along S.C. Hwy 274 near Lake Wylie. Future growth should continue to be centered on the S.C. Hwys 49 and 274 corridors near Lake Wylie and around Clover and Tega Cay. Residential growth between Clover and the lake will continue to scattered throughout the rural areas. The Town of Clover is the only municipality in York County that has a sewer system without its own treatment capacity. The City has shut down its waste treatment plant and tied in with Gastonia, N.C.

Watershed Restoration and Protection

Total Maximum Daily Loads (TMDLs)

TMDL was developed by SCDHEC and approved by EPA for *Beaverdam Creek* water quality monitoring site CW-153 to determine the maximum amount of fecal coliform bacteria it can receive from nonpoint sources and still meet water quality standards. The primary source of fecal coliform to the stream was determined to be runoff from grazed pastureland in the watershed. The second largest source was runoff from built-up land. The TMDL states that a 77% reduction in fecal coliform loading is necessary for the stream to meet the recreational use standard.

A TMDL was also developed by SCDHEC and approved by EPA for *Brown Creek* (a tributary of Beaverdam Creek) water quality monitoring site CW-105 to determine the maximum amount of fecal coliform bacteria it can receive from nonpoint sources and still meet water quality standards. The primary sources of fecal coliform to the stream were determined to be failing septic systems, possible direct discharges, and runoff from built-up areas. The TMDL states that a 98.4% reduction in fecal coliform loading from these sources is necessary for the stream to meet the recreational use standard.

A TMDL was developed by SCDHEC and approved by EPA for *Allison Creek* water quality monitoring site CW-171 to determine the maximum amount of fecal coliform bacteria it can receive from nonpoint sources and still meet water quality standards. The primary sources of fecal coliform to the stream were determined to be runoff from agricultural activities, cattle-in-streams, and failing septic systems in the watershed. The TMDL states that a 67% reduction in fecal coliform loading from urban sources is necessary for the stream to meet the recreational use standard.

A TMDL was also developed by SCDHEC and approved by EPA for *Calabash Creek* (a tributary of Allison Creek) water quality monitoring site CW-134 to determine the maximum amount of fecal coliform bacteria it can receive from nonpoint sources and still meet water quality standards. The primary source of fecal coliform to the stream was determined to be runoff from the urban land in the watershed. The TMDL states that a 74% reduction in fecal

coliform loading from urban sources is necessary for the stream to meet the recreational use standard.

Three TMDLs were developed by NCDENR using the WARMF Model and approved by the EPA for *Crowders Creek* and *South Fork Crowders Creek* in Gaston County, NC and York County, SC (monitoring sites CW-023, CW-024, and CW-192). These TMDLs determine the maximum amount of fecal coliform bacteria that Crowders Creek and South Fork Crowders Creek at each site can receive from all pollution sources and still meet water quality standards. At the time the TMDL was approved, there were five permitted continuous dischargers of fecal coliform in the North Carolina portion of the watershed. Land application of biosolids (Sludge byproducts of the wastewater treatment.) was also permitted for the watershed within North Carolina. Also there were several NPDES permitted stormwater dischargers (MS4s) in the North Carolina portion of the watershed. Potential sources of fecal coliform pollution in the watershed contributing to the impairment of Crowders Creek include leaking sewers, sanitary sewer overflows (SSOs), failing septic systems, and possibly livestock. The TMDLs require a reduction of 79% in the current load from all MS4s and nonpoint sources within the watershed.

A TMDL was developed by SCDHEC using the load duration methodology and approved by the EPA for the lower portion of *Allison Creek* in York County (monitoring site CW-249). This TMDL determines the maximum amount of fecal coliform bacteria that Allison Creek at CW-249 can receive from pollution sources and still meet water quality standards. At the time the TMDL was approved there were no permitted dischargers of fecal coliform in the watershed and none of the watershed had been designated as part of a MS4. Potential sources of fecal coliform pollution in the watershed contributing to the impairment of lower Allison Creek include livestock, wildlife, and possibly failing septic systems. The TMDL requires a reduction of 81% in the current load to the creek to meet standards. For more detailed information on TMDLs, please visit www.scdhec.gov/tmdl.

Special Projects

TMDL Implementation for Fecal Coliform Bacteria in Allison Creek, Calabash Branch, Beaverdam Creek, and Brown Creek

The targeted areas in Allison Creek, Calabash Branch, Beaverdam Creek, and Brown Creek have been documented by SCDHEC as violating the water quality standard for fecal coliform. A Total Maximum Daily Load (TMDL) has since been developed and approved for these areas. The objective of this project is to reduce fecal coliform loading in Allison Creek at CW-171 by 67%, in Calabash Branch at CW-134 by 74%, in Beaverdam Creek at CW-153 by 77%, and in Brown Creek at CW-105 by 98.4% so that these watersheds meet the water quality standards for fecal coliform bacteria. There are several tools available for implementing these nonpoint source TMDLs, including nonpoint source outreach educational activities and materials. Section 319 grant funding through SCDHEC may be available to aid in implementing best management practices (BMP) within the areas of concern outside of areas deemed as Municipal Separate Storm Systems (MS4s) by the National Pollutant Discharge Elimination System (NPDES) Phase II. The Project will characterize possible sites of fecal coliform loading by

using local knowledge, illicit discharge sampling, and spatial data analysis, while evaluating existing BMPs within the watershed. SCDHEC will continue to monitor water quality in these streams to evaluate the effectiveness of these measures.

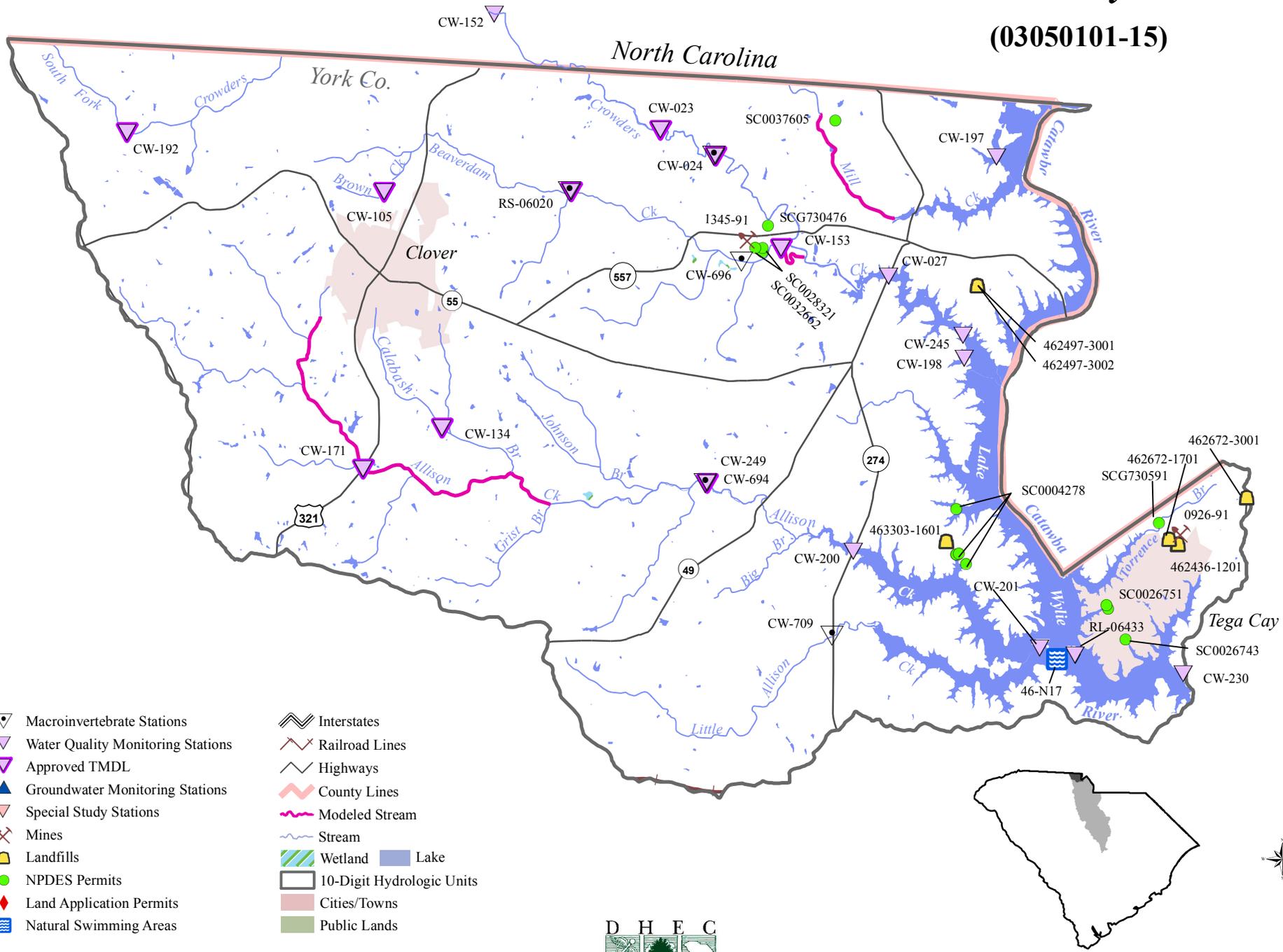
"No Discharge" Designation for Lake Wylie

In May 2000, Lake Wylie was designated a *No Discharge* lake for marine toilets due to its importance from both an economical and recreational standpoint, which includes providing a reliable drinking water source for the City of Rock Hill. Federal and state law prohibit the discharge of untreated sewage into the waters of the United States, but treated sewage from marine toilets previously had been permitted, provided it has undergone some treatment and disinfection. Because microorganisms can continue to thrive after rudimentary treatment by on-board marine toilets, discharges may be completely banned from such waterbodies to protect the public's health, safety, and welfare. Federal law allows states to completely ban discharges if it can be demonstrated that adequate and accessible pumpout facilities are available. The law banning discharges applies to large vessels with on-board toilets.

<http://www.dnr.sc.gov/marine/vessel/sclaw.html>

Catawba River/Lake Wylie Watershed

(03050101-15)



- ▽ Macroinvertebrate Stations
- ▽ Water Quality Monitoring Stations
- ▽ Approved TMDL
- ▲ Groundwater Monitoring Stations
- ▽ Special Study Stations
- ⚡ Mines
- 🗑️ Landfills
- NPDES Permits
- ◆ Land Application Permits
- 🌊 Natural Swimming Areas
- ⚡ Interstates
- 🚂 Railroad Lines
- 🛣️ Highways
- 🗺️ County Lines
- 🌊 Modeled Stream
- 🌊 Stream
- 🌿 Wetland
- 🟦 Lake
- 📏 10-Digit Hydrologic Units
- 🏘️ Cities/Towns
- 🌳 Public Lands

