

03050201-010

(*Lake Moultrie*)

General Description

Watershed 03050201-010 is located in Berkeley County and consists primarily of *Lake Moultrie* and its tributaries. The watershed occupies 87,730 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yauhannah-Yemassee-Rains-Lynchburg 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: 64.4% water, 21.1% forested land, 5.4% forested wetland, 4.1% urban land, 3.1% scrub/shrub land, 1.4% agricultural land, and 0.5% barren land.

Lake Moultrie was created by diverting the Santee River (Lake Marion) through a 7.5 mile Diversion Canal filling a levee-sided basin and impounding it with the Pinopolis Dam. South Carolina Public Service Authority (Santee Cooper) oversees the operation of Lake Moultrie, which is used for power generation, recreation, and water supply. The 4.5 mile Tail Race Canal connects Lake Moultrie with the Cooper River near the Town of Moncks Corner, and the Rediversion Canal connects Lake Moultrie with the lower Santee River. Duck Pond Creek enters the lake on its western shore. The Tail Race Canal accepts the drainage of California Branch and the Old Santee Canal. There are a total of 43.8 stream miles and 57,535.3 acres of lake waters in this watershed, all classified FW. Additional natural resources in the watershed include the Dennis Wildlife Center near the Town of Bonneau, Sandy Beach Water Fowl Area along the northern lakeshore, the Santee National Wildlife Refuge covering the lower half of the lake, and the Old Santee Canal State Park near Monks Corner.

Surface Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
CSTL-079/SC-025	P/W/SC	FW	DIVERSION CANAL AT SC 45 12.6 MI W OF ST. STEPHENS
SC-031	SC	FW	NORTHERN QUADRANT OF LAKE MOULTRIE AT MOUTH OF REDIVERSION CANAL
SC-028	SC	FW	NW QUADRANT OF LAKE MOULTRIE NEAR ANGEL'S LANDING COVE
SC-043	SC	FW	TRIBUTARY FLOWING TO LAKE MOULTRIE FROM CROSS GENERATING STATION
SC-026	SC	FW	LAKE MOULTRIE TRIB 0.4 MI UPSTREAM OF SC 6
SC-027	SC	FW	SW QUADRANT OF LAKE MOULTRIE, 0.75 MI E OF SHORELINE
SC-034	SC	FW	DUCK POND CREEK AT SC 6
RL-02328	RL02	FW	SW LAKE MOULTRIE NEAR DUCK POND CREEK, APPROX. 2 MI E OF CROSS
RL-02322	RL02	FW	NE LAKE MOULTRIE, 3 MI FROM BONNEAU BEACH
ST-037/SC-030	INT/SC	FW	LAKE MOULTRIE AT CHANNEL MARKER 17
RL-02454	RL02	FW	SW LAKE MOULTRIE IN OPEN WATER
RL-01006	RL01	FW	LK MOULTRIE, 5.5MI N OF MONCK'S CORNER & 1.5MI NW OF CAMP MOULTRIE
RL-01026	RL01	FW	LK MOULTRIE, 4.5MI N OF MONCK'S CORNER, 1.5MI NNE OF S-08-5 ENDING
SC-046	SC	FW	SE QUADRANT OF LAKE MOULTRIE AT PINOPOLIS EMBAYMENT
SC-032	SC	FW	SE QUADRANT OF LAKE MOULTRIE AT CHANNEL MARKER 2
CSTL-062/SC-033	P/INT/SC	FW	TAILRACE CANAL AT US 52 & 17A BELOW LAKE MOULTRIE

Diversion Canal (CSTL-079/SC-025) - Aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in turbidity. A

significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

Lake Moultrie – There are eleven monitoring stations on Lake Moultrie, both SCDHEC and SCPSA sites (*SC-031, SC-028, SC-027, RL-02328, RL-02322, ST-037/SC-030, RL-02454, RL-01006, RL-01026, SC-046, SC-032*). Aquatic life and recreational uses are fully supported at all sites. Aquatic macrophytes have proliferated and public access has been restricted. Treatment measures have included aquatic herbicides and/or grass carp stocking since 1989 to the present. Aquatic herbicide continues to be applied to reduce problem plant populations, enhance waterfowl habitat, and to reduce impacts to public accesses, recreational uses, irrigation withdrawals, navigation, and water quality.

Lake Moultrie Tributary (SC-043) - Aquatic life uses are fully supported, but recreation uses are not supported due to fecal coliform bacteria excursions.

Lake Moultrie Tributary (SC-026) - Aquatic life uses are fully supported, but recreation uses are not supported due to fecal coliform bacteria excursions.

Duck Pond Creek (SC-034) - Aquatic life and recreational uses are fully supported.

Tail Race Canal (CSTL-062/SC-033)- Aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen concentration. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen 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

Old Santee Canal State Park Swimming Lake - The Lake has been treated annually from 1989 to 1998 with aquatic herbicides in an attempt to control aquatic macrophyte growth that has impaired the lake's recreational uses. In addition, *Tilapia* (200 fish/vegetated acre or 2,000 fish) and grass carp (15 fish/acre or 150 fish) were stocked in 1995, *Tilapia* (2,000 fish) were restocked in 1996, and grass carp (150 fish) were restocked in 1997.

A fish consumption advisory has been issued by the Department for mercury and includes the Diversion Canal, Lake Moultrie, and the Tail Race Canal within this watershed (see advisory p.69).

Natural Swimming Areas
FACILITY NAME
RECEIVING STREAM

PERMIT #
STATUS

SOMERSET POINT
LAKE MOULTRIE

15-N06
ACTIVE

LIONS BEACH
LAKE MOULTRIE

15-N01
ACTIVE

BERKELEY FAMILY YMCA
LAKE MOULTRIE

15-1006N
ACTIVE

Groundwater Quality

<u>Well #</u>	<u>Class</u>	<u>Aquifer</u>	<u>Location</u>
AMB-053	GB	PEE DEE	MONCKS CORNER

NPDES Program

Active NPDES Facilities

RECEIVING STREAM

FACILITY NAME

PERMITTED FLOW @ PIPE (MGD)

NPDES#

TYPE

COMMENT

DIVERSION CANAL
SCPSA/CROSS GENERATING STATION
PIPE #: 003 FLOW: 0.079
PIPE #: 001,02A,02B,004 FLOW: M/R

SC0037401
MAJOR INDUSTRIAL

LAKE MOULTRIE
US NAVY/SHORT STAY REC. FAC.
PIPE #: 001 FLOW: M/R

SC0024708
MINOR INDUSTRIAL

LAKE MOULTRIE
BERKELEY COUNTY/CROSS HIGH SCHOOL
PIPE #: 001 FLOW: 0.0158

SC0027103
MINOR DOMESTIC

TAIL RACE CANAL
SCPSA/JEFFERIES GENERATING STATION
PIPE #: 001 FLOW: 0.006
PIPE #: 002 FLOW: 376
PIPE #: 003,004,006,007 FLOW: M/R

SC0001091
MAJOR INDUSTRIAL

TAIL RACE CANAL
C.R. BARD, INC.
PIPE #: 001 FLOW: 0.382

SC0035190
MAJOR INDUSTRIAL

TAIL RACE CANAL
SCPSA/MONCKS CORNER WTP
PIPE #: 001 FLOW: M/R

SCG641011
MINOR DOMESTIC

DUCK POND CREEK
BERKELEY COUNTY/CROSS ELEM SCHOOL
IPE #: 001 FLOW: 0.015

SC0034479
MINOR DOMESTIC

Nonpoint Source Management Program

Mining Activities

MINING COMPANY

MINE NAME

PERMIT #

MINERAL

D&A PARTNERSHIP JOHN R. CUMBIE MINE	0747-15 SAND
DAVID WEEKS WEEKS MINE	1488-15 SAND

Land Disposal Activities

Landfill Facilities

<i>LANDFILL NAME</i> <i>FACILITY TYPE</i>	<i>PERMIT #</i> <i>STATUS</i>
SCPSA/CROSS GENERATING STATION INDUSTRIAL	085801-1601 (083337-1601, IWP-186) ACTIVE
SCPSA/CROSS GENERATING STATION INDUSTRIAL	IWP-185 CLOSED
SCPSA C&D LANDFILL	083322-1201 (CWP-034) -----

Water Quantity

<i>WATER USER</i> <i>STREAM</i>	<i>REGULATED CAPACITY (MGD)</i> <i>PUMPING CAPACITY (MGD)</i>
SANTEE COOPER REG. WTR. AUTH. LAKE MOULTRIE	36.0 38.0

Growth Potential

There is a moderate potential for growth in this watershed. Lake Moultrie contributes significantly to the growth in the area in terms of fishery tourism and residential development. The Towns of Monk Corner, Cross, and Bonneau should benefit from the lake-based growth. Monks Corner provides both water and sewer services and may encourage future growth. The Pinopolis peninsula has low density residential, including several historic structures, and a Santee Cooper semi-private recreation/conference center. There is a regional domestic water supply system on Lake Moultrie near Lions Beach (water withdrawn from Pinopolis cove) that serves the Berkeley County Water and Sewer Authority, Moncks Corner, Goose Creek, and the Summerville Public Service Area.

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.

Special Projects

Santee Cooper FERC Relicensing

Hydroelectric projects require licenses issued by the Federal Energy Regulatory Commission in order to operate. These licenses require re-evaluation periodically in order to incorporate new information for the protection of the common good and typically last from 30 to 50 years. In addition to economic factors, a wide variety of natural resource elements can be considered including: reservoir water quality, downstream water quality, fisheries issues, flow issues, and shoreline management issues. State and federal agencies as well as citizens and nonprofit groups have been meeting to discuss these issues in the Santee Cooper re-licensing process. All federal permits, which have any bearing on waters of the state, must first receive a §401 water quality certification. The §401 water quality certification will be SCDHEC's main responsibility in the process. For more information on Santee Cooper's re-licensing, view their website at: <http://www.santeecooper.com/environment/ferc/index.html>.

Lake Moultrie and Wadboo Swamp Watersheds (03050201-010,-020)

