

Executive Summary

The Lumber River Basin consists of four smaller subbasins belonging to the Pee Dee River Basin. Three of these subbasins eventually drain to the Pee Dee River in South Carolina before reaching the Atlantic Ocean, and the fourth subbasin drains directly to the Atlantic Ocean. The basin is located in the southeastern part of North Carolina along the border with South Carolina. The basin stretches from the sandhills through the coastal plain down to the ocean. It is home to two aquatic based state parks and many large wetland areas. This plan covers samples collected from January 2002 through December 2006 and includes all recent issues through 2008 related to water quality.

Challenges

There are two main and widespread water quality challenges in the Lumber Basin and both are related to human consumption of aquatic resources. One is the closure of shellfish waters due to elevated bacteria levels. The second is the issue of fish consumption advisories due to mercury. The shellfish industry provides a source of income and a local source of food to the people of North Carolina. This industry's resources are currently threatened by poor water quality due to high bacteria levels in stormwater runoff. All shellfishing waters in the basin are considered to be impaired because they are either permanently or frequently closed to shellfish harvesting. High levels of mercury found in fish tissue samples is the other major water quality problem in the basin. Ingesting mercury can lead to central nervous system damage in humans. A total daily maximum load (TMDL) for mercury has been developed for many waterbodies in the basin and a statewide TMDL is under development for the others.

Protecting water quality in areas of high population growth presents another challenge to the Division of Water Quality (DWQ) and the State. Some areas in the basin (Brunswick, Hoke, and Moore Counties) are experiencing very rapid growth. Proper planning, such as, stormwater management programs, wastewater treatment plant upgrades, and land conservation are required to protect water quality as the area grows. For activities such as stormwater controls, proactive implementation prior to development can save considerable costs compared to retrofitting. Brunswick County has a Build-out Scenario Study that if implemented could establish it as a national leader in design and implementation of low impact development and potentially aid in the reopening of adjacent shellfish waters.

Changes in Water Quality Assessment Ratings

Aquatic Life

There were no aquatic life impairments reported in any of the previous basinwide plans. However, this time there were three freshwater stream segments impaired due to benthic macroinvertebrate samples. Two are most likely due to nonpoint source pollution and the other one was related to problems with the Red Springs Wastewater Treatment Plant (WWTP). DWQ is working with the Red Springs WWTP to upgrade and improve performance at the facility. In addition to these three freshwater impairments, there are two saltwater streams impaired for exceeding aquatic life standards. Montgomery Slough is impaired because of low dissolved oxygen levels and Calabash River is impaired for copper. Both are also impaired for turbidity.

Shellfish Harvesting

Since the last basinwide water quality plan in 2003, the percent of shellfish waters meeting their uses has decreased from about 16 percent to zero percent due to high fecal coliform levels. This loss of use results from both automatic closures following rainfall and permanent closures.

Fish Consumption

All waterbodies in the Lumber Basin are currently impaired for fish consumption as are all surface waters in North Carolina. Some of these impairments are based on direct data, while most are impaired on an evaluated basis. The only impairments in the Waccamaw subbasin are due to mercury levels in fish tissue. There have been no improvements in fish consumption ratings since the last plan. Mercury exceedances in fish tissue is a global problem, thought to result primarily from atmospheric pollution, and requires both a large scale solution and a long time to resolve.

Recreation

Recreational swimming advisories were announced only as a precaution during severe tropical weather events, which can often create a health hazard in coastal areas. No recreational areas were closed as the result of bacteria testing. Currently no waterbodies are impaired for loss of recreational use.

Current Initiatives to Protect and Restore Water Quality

Point Source Pollution

DWQ is working with several different groups and programs to restore and protect water quality. Point sources such as wastewater dischargers are working with DWQ and the Regional Council of Governments to upgrade their facilities by obtaining grants and loans. The division inspects these facilities and provides technical assistance on how to improve the operation of the facilities.

Nonpoint Source Pollution

Nonpoint source pollution is addressed by many programs at the federal, state, and local level. DWQ addresses nonpoint source pollution through the 319 grants program, as well as, through a number of permitting programs such as the Confined Animal Feeding Operations (CAFO), Stormwater, Biosolids, Onsite Wastewater, and 401 Certification programs. DWQ also coordinates with other divisions within the Department of Environment and Natural Resources (DENR) to identify and solve nonpoint source pollution problems. The Division of Soil and Water Conservation helps to educate the public and provide incentives. Coordination with the North Carolina Ecosystem Enhancement Program has been and will continue to be a means to identify and restore waterbodies. DWQ also addresses nonpoint source pollution by working with the Divisions of Land Resources, Environmental Health, Forest Resources, Marine Fisheries and Waste Management, as well as, the Clean Management Trust Fund and many other agencies and organizations.

The *Coastal Habitat Protection Plan* (CHPP) program is a good example of an effort that has brought DENR agencies together and is getting results. Together with the Division of Marine Fisheries, Wildlife Resources Commission and Division of Coastal Management; the Environmental Management Commission is implementing actions identified in the CHPP to improve coastal resources. The CHPP is being updated and additional action items will be identified. Completion of this update is scheduled for 2010.

Shellfishing waters have been heavily impacted by nonpoint source pollution. New coastal stormwater rules known as Session Law 2008-211, that went into effect on October 1, 2008, place stricter stormwater standards on Brunswick County and 19 other coastal counties. Upon implementation, these rules should limit the amount of fecal coliform bacteria loading to the estuaries from new development. In order to reduce existing fecal coliform in the estuaries retrofitting of existing development is necessary. Some of this is already underway as sewer service is provided to communities with aging and poorly functioning septic systems. The reduction of fecal coliform levels in the water is needed to ensure the survival of the shellfishing and related tourism industries in Brunswick County. The *North Carolina Coastal Nonpoint Source Program Plan* is being updated and the Division will be working on addressing any issues and implementation needs identified in that plan, especially those that would protect and improve shellfish waters. A Total Maximum Daily Load (TMDL) for fecal coliform bacteria is

currently being developed to identify needed bacteria reductions in the Lockwoods Folly River watershed and to set the stage for future reduction efforts.

Conservation

The Clean Water Management Trust Fund (CWMTF) provides competitive grant awards to purchase conservation easements that establish buffers along waterways. The North Carolina Division of Soil and Water Conservation have expanded the Conservation Reserve Enhancement Program (CREP) to the Lumber River basin. Recently there have been substantial purchases of conservation easements in the Waccamaw subbasin. However, there are many streams and rivers in need of buffers. The continued purchase of conservation easements by public and private groups is encouraged.

Education

The Waccamaw Riverkeeper® is working with stakeholders in the Waccamaw River subbasin to develop a Volunteer Water Quality Monitoring Program and a Muddy River Watch Program. In addition, a group of stakeholders is working to establish a paddle trail on Lake Waccamaw, the Waccamaw River and its tributaries to promote recreation and protection of its unique habitats. These actions should improve awareness and participation in addressing the watershed's water quality issues.

Monitoring and Assessment

The Division is continuing its biological and ambient monitoring and is further refining its assessment capabilities. Based on the 2002 to 2006 assessment, priorities for additional study include:

- Porter Swamp – Chapter 2 – impaired for biological integrity; possibly due to high flows at the time of sampling.
- Mill Branch – Chapter 2 – impaired for biological integrity; possibly due to agricultural runoff. This branch drains to a portion of the Lumber River currently rated Excellent.