

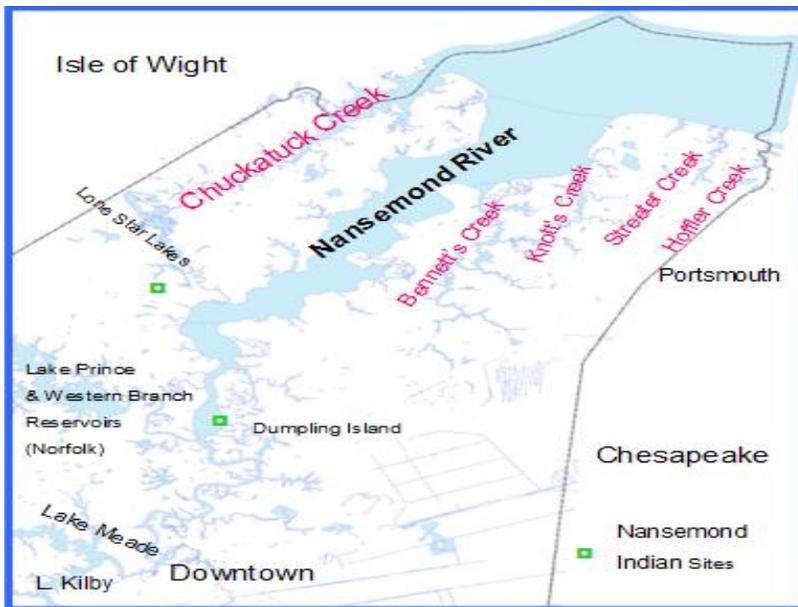
2010 State of the Nansemond Report

June 14, 2011

Published by the Nansemond River Preservation Alliance Water Quality Committee

NRPA Position

The Nansemond River Preservation Alliance supports the Environmental Protection Agency in its efforts to restore our waterways¹ to full health. Specifically, NRPA supports the City of Suffolk's Watershed Implementation Plan to significantly reduce pollution in the Nansemond River. NRPA is an advocate for protection of wetlands and maintenance of forested areas in the watershed.



About the Nansemond River

The Nansemond River was named for the Native American tribe that fished its waters for thousands of years before European settlers arrived. In 1609, Capt. John Smith sailed into the Nansemond River and in 1642 Anglican settlers formed a Parish near the shores of the Nansemond, known today as St. Johns Church.

The Nansemond River originates in downtown Suffolk. Lakes Cahoon, Kilby and Meade were once streams which were the headwaters of the Nansemond. They have since been separated from the River by dams and are now owned by the City of Portsmouth. Lakes Burnt Mills and Prince were once streams which were the headwaters of the Western Branch but were also impounded by dams and are now owned by the City of Norfolk. Except for lake overflow, the Nansemond River has no significant source of unpolluted fresh water.

¹ Waterways include the Nansemond River and all its tributaries, as well as Chuckatuck Creek.

The Nansemond River runs 20 miles from downtown Suffolk to its confluence with the James River. Bennett's Creek, which feeds into the Nansemond downstream of the Rt. 17 Bridge, is a major tributary. The Nansemond Watershed drains 161,358 acres of land in Suffolk and Isle of Wight County. However, a significant portion of the rain water drains into the aforementioned Lakes. Salinity at the mouth of the Nansemond averages 15 parts per thousand (brackish) but only 3 ppt near downtown Suffolk. Much of the Nansemond River, outside of the navigation channel, is of shoal depth. Tidal rise and fall averages 3 feet.

Chuckatuck Creek, which parallels the Nansemond River for a portion of its length, feeds into the James just north of the Nansemond. Upper Chuckatuck Creek is connected to Crane Lake, one of the 12 Lonestar Lakes, which originated as marl mining pits. The remaining Lakes are isolated from Chuckatuck Creek and several serve as part of the Suffolk municipal water supply.

The Nansemond Watershed has a legacy of agriculture, from tobacco in the 18th century to peanuts, soybeans and cotton today. But the real legacy of the Nansemond stems from its once thriving oyster, crab and shad fisheries which are all but gone today as the result of pollution and disease, loss of habitat and over fishing².

Today, development is reducing the forests and threatening the wetlands in the Nansemond Watershed.

Pollution

Much of the Nansemond River has been classified as **impaired** by State agencies due to high levels of bacteria. Other sources of pollution include nitrogen and phosphorus. Further, water clarity in the Nansemond and Chuckatuck Creek is poor, denying sunlight to the submerged grasses which produce oxygen and feed aquatic animals.

The EPA, under a consent decree, ordered all jurisdictions bordering the Chesapeake Bay and tributaries to submit Watershed Implementation Plans (WIPs) for significant reductions in pollutants discharged into the Bay. The consent decree is based upon the science of total maximum daily loads (TMDLs), the levels which waterways can absorb and dissipate. However, much work remains to restore the Nansemond River to full health.

Bacteria

The principle pollutant in the River is fecal bacteria which results from untreated storm water runoff, pet waste, faults in old sanitary sewer lines and improperly maintained septic systems. Monitoring by the Virginia Department of Environmental Quality, conducted from 1980 to 2010, indicates high levels of bacteria in the upper Nansemond³ (south of Rt. 125). The upper Nansemond River remains impaired for shellfish harvesting and recreation. The Virginia Department of Health recently opened portions of the lower Nansemond (Rt. 125 north) for shellfish harvesting.

2010 Grade, lower Nansemond: B+

2011 Grade, upper Nansemond: F

² For more information, the reader is referred to *The River Binds Us*, edited by Karla Smith, Hallmark Publishing Co., 2007.

³ VA DEQ data from 1980 to 2010: geometric mean fecal coliform levels at the Rt. 460 Bridge near downtown and at Shingle Creek were 680 cfu/100 ml vs. target levels for shell fishing and recreation of 14 cfu/100 ml of 200 cfu/ml, respectively.

Nitrogen & Phosphorus

Nitrogen and phosphorus pollution result from use of fertilizers on agricultural and suburban lands. Runoff during rains carries pollution-bearing sediment into the River, either directly or via the storm water system. These nutrients promote the growth of algae which consume the dissolved oxygen necessary to support marine life. In 2010, nitrogen and phosphorus levels in much of the upper Nansemond exceeded algae bloom thresholds.⁴

2010 Grades for Nitrogen: Lower Nansemond: insufficient data

Upper Nansemond: D

2010 Grades for Phosphorus, Lower Nansemond: insufficient data

Upper Nansemond: D

Dissolved Oxygen

Marine animals suffocate without sufficient levels of dissolved oxygen. Dissolved oxygen is produced by underwater plants through photosynthesis. Reducing nutrients will reduce algae and increase dissolved oxygen. In 2010, dissolved oxygen levels in the Nansemond River were sufficient to support marine life.

2010 Grade: B

Water Clarity

Underwater grasses (Submerged Aquatic Vegetation) provide water filtration and produce dissolved oxygen. In addition, they provide food for aquatic animals such as Blue Crabs. SAVs depend on clear water for sunlight to enable photosynthesis. In 2010, water clarity in the Nansemond was poor.⁵

2010 Grade: Poor (rating based upon limited data - no letter grade assigned).

⁴ DEQ advises that algae blooms may appear at phosphorus levels > 0.01 mg/L. Measured levels exceeded 0.01 mg/L.

⁵ Secchi Disk readings in minimally impaired streams exceed 1.0 meters; levels in the lower Nansemond were <0.5m.



Habitat

Wetlands

Wetlands comprise the interface between the Nansemond River and its shoreline. Wetlands act as a filter to remove pollutants such as bacteria, nitrogen, phosphorus and sediment which might otherwise enter the River from storm water runoff. Wetlands also provide a habitat for animals, especially juveniles, and they contribute to the beautiful views which we all value.

The Nansemond River and its tributaries are blessed with more than 29,000 acres of wetlands. However, there are no wetlands to filter a major source of pollution in the Nansemond, untreated storm water runoff from downtown Suffolk.

In 1988, the Virginia General Assembly enacted the Chesapeake Bay Preservation Act designed to preserve its wetlands in order to protect the Bay from pollution due to storm water runoff. The key provisions of the Act were the establishment of a Resource Protection Area (a defined shoreline boundary) together with a 100 foot vegetated buffer adjacent to the shoreline. However, waterfront property is attractive to developers and the City of Suffolk has granted exceptions which allowed developers to build in the buffer zones. Developers' promises to restore buffers have often gone unfulfilled. This practice is threatening the wetlands.

2010 Grade:

B-

Oyster Restoration

Nansemond River Preservation Alliance is seeking funding for NRPA's proposed School Oyster Gardening Project. School children from Suffolk and Isle of Wight Co. will learn to raise seed oysters which they will then transfer to oyster sanctuaries (reefs) where the oysters will become natural filters as they grow to adulthood. The goals of the program are to: 1) provide environmental education, 2) restore oyster reefs in the Nansemond and Chuckatuck Creek and 3) foster environmental stewardship among the students and teachers. NRPA is also working with community organizations and residents to restore oyster beds.

2010 Grade: Programs in startup mode (no letter grade assigned)

Open Space and Public Access

The Nansemond River and tributaries are surrounded by nearly 35,000 acres of forested land. However, that land is slowly giving way to development.

The City of Suffolk maintains several public parks with water access or views, including Bennett's Creek Park, Constant's Wharf Park and Lone Star Lakes Park. Bennett's Creek Park and Lone Star Lakes Park offer fishing but only Bennett's Creek Park has a boat ramp with access to the Nansemond. NRPA has opened a dialogue with the Suffolk Dept. of Parks and Recreation to provide a small boat launch facility at Sleepy Hole Park.

The U.S. Fish and Wildlife Service maintains the Nansemond Wildlife Refuge, located south of Sleepy Hole Park. Although the Refuge is not open to the public at present, the City of Suffolk hopes to provide access in the future. The only active public marina in either the Nansemond River or Chuckatuck Creek is located at Constant's Wharf in downtown Suffolk.

2010 Grade: D

Pollution Control Efforts

Storm Water System Improvements

The Suffolk Department of Public Works will institute several programs to comply with the EPA requirements to limit pollution due to storm water runoff, including stricter enforcement of erosion fences for developers, a storm water medallion program to prevent dumping of pollutants into storm drains and programs to limit pet waste which may enter the River. NRPA is encouraged by the Department of Public Works plan to continue the pollution monitoring previously conducted by DEQ.

2010 Grade: C+

Sanitary Sewer Improvements

Suffolk's Department of Public Utilities will employ a two phased approach to meet the new EPA requirements. The first, assessment, will consist of smoke testing and video camera analysis of sanitary sewer mains to find any breaches in integrity. This phase will pinpoint old sewer lines and pump stations which need replacement in the second phase, implementation.

The vast majority of homes in Suffolk are served by City sewer service. The Department of Public Utilities requires registration and pump out of private septic systems every five years and will continue to convert septic systems to City sewer service where feasible.

2010 Grade: C+

Clean Boating

Boating activity on the Nansemond River is relatively low and opportunities for improvements are modest. The only active public marina on the Nansemond, Constant's Wharf, has a pump out station. The scattering of private docks along Chuckatuck Creek and Bennett's Creek have few if any live aboards who might discharge waste.

2010 Grade: B

Summary

More than 400 years ago, Capt. John Smith sailed into the pristine waters of the Nansemond River. Today, the River is classified as **impaired** by pollution. Much work remains to be done to restore the Nansemond River to full health. Fortunately, NRPA along with other community organizations and local government agencies are dedicated to that end.

A summary report card follows this page. For further information, including the supporting documentation for this Report, the reader is referred to *Baseline Levels of Pollution in the Nansemond River as of 2010*, posted on our website, nansemonddriversavers.org