The Nanticoke and the Chesapeake Bay

The Chesapeake Bay is a body of water, and like the human body, its health depends on what goes into it. The Chesapeake Bay is fed by ten major rivers and numerous smaller rivers and creeks that flow out of Pennsylvania, Maryland, Virginia, the District of Columbia, Delaware, New York and West Virginia. These rivers bring the necessary elements and fresh water that, when mixed with the ocean's salt water, form the lifeblood of the Chesapeake Bay--the most productive estuary in the United States.

As we are becoming more and more aware, the Chesapeake is not as healthy as it once was. The problems stem, in part, from declining water quality in the rivers that feed the Bay. This fact sheet discusses how the Nanticoke River contributes to the Bay and outlines some ways that we can help keep this river clean.

"THOSE WHO PLY THE TIDAL STREAM"

Around June of 1608, Captain John Smith set out from Jamestown, VA to explore the many rivers of the Chesapeake Bay in the hope that one of them would lead him to the mythical treasures of the far east. During this journey, Captain Smith found the River known today as the Nanticoke. Captain Smith gave several names to the River, but the tribe he encountered there, he called the Nantaquak and also the Kuskarawaok, after the name of the tribal chief's home village.

The lifestyle of this prosperous tribe of Indians corresponded to the land they inhabited. Since primitive farming was difficult on the marshy ground, they thrived predominately on hunting and fishing. The Nanticoke were accomplished canoeists and it was their close ties to the water which inspired their name, translated, "those who ply the tidal stream", "sea shore settlers", or "tidewater people." However, the Nanticoke did not lead an isolated life. Smith called them "the best Marchants" of all other tribes in the region; important trading commodities were animal pelts and roanoke--beads made from shells of oysters and clams.

The Nanticoke River, flowing quietly on the lower Delmarva peninsula, remains largely unchanged by the passage of time and still offers glimpses of the Chesapeake Bay once inhabited by the Nanticoke Indians and discovered by Captain John Smith.

THE NANTICOKE WATERSHED

Every bay, river and creek has a watershed. A watershed is all of the land from which water drains into a creek, river or bay. Watersheds are important because they contain most of a river's potential sources of water pollution including septic systems, wastewater treatment plants, farms, factories, houses and constructions sites. Improving the health of a river cannot be accomplished unless potential sources of pollution in the watershed are reduced or eliminated.

The Nanticoke River flows southwest from the central portion of Delaware through the eastern shore of Maryland to Tangier Sound and the Chesapeake Bay. From the headwaters to the Delaware-Maryland line, the River is about 25 miles long, approximately half of its overall length. The watershed which encompasses this natural community is quite extensive. The upper portion of the Nanticoke is the largest watershed in Delaware, the River is occupies nearly 250,000 acres in Kent

and Sussex counties, about one third of Delaware's land surface. Maryland's share of the watershed is about 125,000 acres in Dorchester and Wicomico counties.

The Nanticoke watershed stands apart from other tributaries to the Chesapeake Bay because of the extensive unbroken forests lining the River. Thirty-eight percent of the watershed is forested including the largest continuous pine forest left on the Delmarva peninsula. Freshwater wetlands border nearly all the major streams and these wetlands account for 22 percent of the land surface. The Nanticoke is also listed on the Nationwide Rivers Inventory because of its undeveloped nature. The 1990 North American Waterfowl Management Plan states that the Nanticoke is, "...among the most pristine habitats remaining in Delaware."

LIVING RESOURCES

Not only is the Nanticoke watershed brimming with plant and animal life, but the diversity of those living resources is astounding. Within the watershed, habitat types range from upland forest to estuarine salt marsh and it is this diversity of habitat which enables the watershed to support the wide variety of plants and animals. In the many acres of woodlands grow mainly loblolly pine, sweetgum, red maple, Atlantic white cedar and a variety of oaks. The watershed is also home to significant numbers of rare and endangered plant species including box huckleberry, Parker's pipewort, seaside alder and reversed bladderwort.

Among the animals, several threatened and endangered species are also common in the watershed. Bald eagles, recently upgraded from endangered to threatened, Peregrine falcons, and Delmarva fox squirrels all thrive in the Nanticoke. In fact, the Delmarva fox squirrel breeds so successfully that managers are repopulating other native areas with squirrels from the Nanticoke. The watershed is also home to more common species such as muskrat, otter, raccoon, beaver, white- tailed deer as well as the exotic nutria.

The Nanticoke, and particularly its lower reaches, is renowned for the quality of its waterfowl habitat and, in fact, the Nanticoke watershed together with the neighboring Blackwater River watershed support 35 percent of all wintering waterfowl which use the Atlantic Flyway, a migratory route that follows the east coast from Mexico to Canada. Some of the species which breed in and around the Nanticoke include herons, mallard, black duck, wood duck, canvasback duck, gadwall and blue-winged teal. Among other species which visit and winter at the river are redhead duck and American green-winged teal.

FISHERIES

The Nanticoke provides valuable commercial and recreational fisheries. Sportfishermen angle for white and yellow perch, pickerel, catfish, largemouth bass, bluefish, sea trout, weakfish and rockfish (striped bass). The productive largemouth bass spawning areas of the upper River draw many fishermen and host fishing tournaments. For commercial fishermen, the River provides white perch, catfish, alewife, river herring, rockfish, oysters and blue crabs. In fact, the blue crab is the most viable commercial fishery in the Nanticoke. Unfortunately the same can no longer be said of oysters, which have been decimated by disease and over harvest. Although researchers are working hard to find solutions, oysters continue to decline.

Historically, two of the most important fish that swim the Nanticoke are rockfish and shad. At one time, the Nanticoke was a vital spawning area in Maryland for these

species which have been cornerstones of the Bay's commercial fisheries. The population of rockfish, once nearly obliterated by over harvest, has rebounded somewhat following years of catch limits and a five year complete ban on harvest with 1994 a particularly strong year. Maryland has imposed a fishing moratorium on shad since 1980. In Delaware, shad catches are permitted but have been low.

CULTURE

About 43 percent of the land in the watershed is utilized by agriculture. That land supports about 1,300 animal production farms with poultry being the most common. In fact, the Nanticoke has more animal production units than any other river basin in Maryland. One result of this high level of livestock density is huge quantities of manure, a potent source of nutrients. To reduce nutrient pollution, farmers are increasingly implementing Best Management Practices (BMP). Conservation tillage and no-till farming, the most widely used BMPs along the Nanticoke, limit how frequently the soil is laid bare by planting directly into crop residue with limited plowing or none at all. Other BMPs practiced include cover crops and animal waste storage facilities, important for the poultry industry. Nearly all of the farmland in the Critical Area, within 1000 feet of the shoreline, as well as much of the land beyond is enrolled in nutrient management plans. These plans aid farmers in retaining nutrients by identifying the appropriate times, conditions and quantities for application of fertilizer, planting and harvest.

FOREST PRODUCTS

The land owned and managed for forest products amounts to well over 300,000 acres across the lower Delmarva peninsula. To prevent the potential loss of soil and critical habitat, Delaware and Maryland have developed guidelines to regulate these practices. These guidelines seek to ensure not only habitat and soil protection, but also reduced water quality impacts by regulating cutting along waterways.

Within the Nanticoke watershed, several forest products companies own large amounts of land which they manage for wood production - the second largest industry in the watershed - as well as recreation, water quality and wildlife. In fact, these forest products companies have generally managed land to the benefit of the River. Typically, buffers are left which exceed the states' requirements and land is replanted soon after harvest. In addition, the land is being managed for loblolly pine and several hardwoods which are native species in the region. Chesapeake Corporation is turning a tract of their land into an informative demonstration site that shows the synergy possible between Chesapeake's management practices and the unique habitats found in the Nanticoke watershed.

DEVELOPMENT

Development along the Nanticoke, though not exploding like other areas in the region, is steady. The extensive wetlands have contributed to the slow rate of development in the River corridor. In addition, this area may have been overlooked in favor of land on the nearby coast. Either way, the Nanticoke has benefitted by the lack of development pressure. Mismanaged development becomes particularly troublesome because of its two adverse impacts: destruction of habitat and increased opportunity for erosion. Development is occurring around the existing towns and, in particular, around Seaford, Delaware yet the watershed remains mostly rural.

THE NUTRIENT PROBLEM

Unfortunately, like the Chesapeake Bay and most rivers in the region, the Nanticoke suffers from an overabundance of nutrients. The constant influx of nutrients, principally nitrogen and phosphorous, sets off a chain of events which devastate the Bay's ecosystem. The excess nutrients act like a fertilizer to algae, quickly causing enormous growths, called blooms, which block out light. When algae blooms die, they settle to the bottom and decompose. As decomposition occurs, oxygen is removed from the water, a process called eutrophication.

One natural characteristic of the Nanticoke watershed that is significant with regard to pollution is the soil. The light and sandy soil conditions found throughout the watershed permit high permeability. This means that nitrogen isn't trapped in the soil, but instead easily washes through into the groundwater. This groundwater pollution is significant in the Nanticoke because groundwater reserves contribute noticeably to the quantity of water flowing in the River. As a result, groundwater pollution is closely tied to river pollution. Little can be done to alter the soil characteristics in the watershed so residents must seek preventative solutions.

Another problem facing Nanticoke residents is nitrogen leakage from septic systems. Over half of the residents of the watershed use home septic systems which trap sewage solids in a tank and disperse the remainder under ground. Although some nitrogen will escape a septic system that is working correctly, they must be emptied regularly to maintain maximum performance and prevent unnecessary leaking. Emptying every three years is the recommended schedule. Septic systems have a direct impact on groundwater and pose an acute problem in areas such as the Nanticoke. Groundwater is also a primary source of drinking water and when heavily laden with nitrates, a chemical form of nitrogen, can pose a human health risk.

ONGOING REMEDIES

Within the Nanticoke watershed, a number of regional, state and local efforts are currently underway to protect and enhance the river. Delaware designated the Nanticoke as "ERES" waters thereby recognizing the River's distinct value as an exceptional recreational and ecological resources. In addition, ERES requires a commitment for increased levels of treatment for wastewater. The Delaware Department of Natural Resources and Environmental Control (DNREC) has begun the Nanticoke River Demonstration Project. The objectives of this Project are to develop comprehensive resource management systems for poultry operations; to implement rural homeowner education programs for maintaining septic systems; and to reduce nutrient loading from nonpoint sources. In Maryland, the Department of Natural Resources, Natural Heritage Program has identified the upper Nanticoke and three of the River's tributaries, Chicone Creek, Mill Creek and Savannah Lake as Natural Heritage Areas.

Maryland has developed and begun implementing Tributary Strategies for the ten watershed regions in the state. Each Strategy lays out a plan for reducing nutrients from agriculture, developed land and point sources as well as resource protection. Implementation of the Strategies' voluntary programs will be achieved through implementation teams composed of local government, community leaders, state officials and other interested persons. The Nanticoke is included in the Lower Eastern Shore Tributary Strategy.

The Nanticoke is also fortunate to have several active and committed citizens organizations working to preserve and protect this river and its watershed. Maryland's chapter of The Nature Conservancy has made the Nanticoke a protection priority in its Campaign for the Chesapeake Rivers. The Nanticoke Watershed Alliance is a bi-state effort made up of three citizen groups: the Friends of the Nanticoke, the Nanticoke Watershed Preservation Committee, and the Wicomico Environmental Land Trust and is supported by the U.S. National Park Service, DNREC, DNR, the Chesapeake Bay Foundation, and other local interests. These organizations seek to promote long-term stewardship and preservation of the River as an educational and recreational resource.

WHAT WE CAN DO

There are many things that we can do around our homes or farms, when working or recreating, that can help improve the Nanticoke River. Here are just a few ways that we can help enhance the Nanticoke:

- Homeowners can restrict the use of fertilizers and pesticides on lawns and gardens. Have septic systems pumped out every three years.
- Farmers can work with their local Soil Conservation Districts to implement BMPs and develop farm conservation plans.
- Boaters can make sure that marine sanitation devices are installed and working correctly and that motor oil, paint, gasoline and other harmful substances do not pollute the water.