The Rappahannock and the Chesapeake Bay

The Chesapeake Bay is a body of water and, like a human body, its health depends on what goes into it. But, as everyone knows, the Chesapeake is not as healthy as it once was. The problems stem, in part, from the declining quality of the rivers that feed the Bay. This fact sheet explains how the Rappahannock River contributes to the Bay and outlines ways you can help keep the river clean.

THE RAPPAHANNOCK

If the Indians who once built villages along the Rappahannock and traveled and fished in its waters were to return to their namesake today, they would find it little changed; the Rappahannock is--for the moment--one of few relatively unspoiled rivers in the eastern United States. In fact, a contiguous 86-mile stretch, from the headwaters at Chester Gap to the Ferry Farm/Mayfield Bridge, has been designated as scenic river. Hardwoods and occasional stands of evergreens line the banks where beaver, wood ducks, deer, raccoons, and herons can be seen. Canoeists navigate the clear rapids and anglers pull smallmouth bass, sunfish, rockfish, and trout from the waters.

In the l9th century, copper and gold were mined in the river's upper reaches; in fact, Virginia was the largest gold-producing state in the nation until the California Gold Rush of 1849. And in the early part of this century, the mountain hollows of the Upper Rappahannock basin were farmed by settlers who produced apples, peaches, corn--and moonshine. Today, much of this area is preserved as part of Shenandoah National Park.

Downstream from Deep Run, the river soon joins forces with a major tributary, the Rapidan River, which was originally known as the Rapid Ann, in honor of the Queen of England. Below the fall line at Fredericksburg, the growing Rappahannock broadens into a tidal estuary where fish, oysters, and crabs are abundant. Watermen make a living from the river's bounty, whose catch in 1991 brought in a dockside value of 6.3 million dollars. Nearly one-third of Virginia's nesting population of bald eagles can be found in this now relatively quiet stretch of the river, where steamboats once plied the waters and, before them, colonial merchant ships sailed, stopping regularly at once-thriving tobacco towns and plantations such as Port Royal, Leedstown, and Carter's Wharf. The U.S. Fish & Wildlife Service is currently studying the potential of establishing a wildlife refuge between the bridges at Port Royal and Tappahannock to help protect this section of the river corridor which is home to black ducks, mallards, Canada geese, a variety of anadromous fish, the threatened joint vetch plant, and rapidly disappearing tidal freshwater wetlands-- so crucial to the Chesapeake Bay system. Moving down to the mouth where the Rappahannock empties into the Chesapeake Bay, the river is nearly four miles wide and scarcely resembles the narrow brook that found its source 184 miles away in the Blue Ridge mountains. It is here that in 1607 Captain John Smith, while spearing for fish, nearly succumbed to poisoning by a ray which stung him. The name lingers on: Stingray Point.

LAND USE...AND TROUBLES FOR THE RAPPAHANNOCK

Of the 2,848 square miles in the Rappahannock basin, 61 percent is forested and 35 percent is covered by cropland and pasture, while only an estimated 4 percent is urban. Because the Rappahannock basin has retained its rural nature, the river

has been, for the most part, spared the disturbing decline of water quality observed in other rivers that empty into the Bay. The Rappahannock is not entirely free of problems, however.

For example, in late 1992, over 6,500 acres of once-productive shellfish growing areas downstream of the Tappahannock bridge (mostly in the tributaries) no longer met the state's bacteriological standards. Oxygen concentrations in those waters have also dropped to dangerously low levels because of periodic algal blooms which, upon decaying, rob the water of its oxygen. In general, stands of submerged aquatic vegetation throughout the river are merely a fraction of those found here in the 1960s. This spells doom for many aquatic creatures, from crustacea to young fish, who depend on them for food and shelter. Catches of certain fish and shellfish species, such as shad, river herring, and oysters, have also declined precipitously.

Even in relatively pristine upstream areas, the amount of pollution in the Rappahannock can be surprising. A kerosene spill in December 1989 resulted in an estimated 5,000-barrel discharge, which leaked into Mine Run near Locust Grove, Virginia. Cleanup efforts are still ongoing. And semiannual cleanup events, conducted by the Friends of the Rappahannock between Warrenton and Fredericksburg, have dredged up everything from kitchen appliances to car radiators.

Since 35 percent of the land in the Rappahannock basin is used for either pasture or crops--especially corn grown for chicken feed--it is not surprising that much of the river's pollution comes from agricultural runoff. The things that can run off a farm after a storm include soil, manure, pesticides, and fertilizer.

In the upper Rappahannock basin, the U.S. Soil Conservation Service estimates that 15 tons per acre of highly erodible soil wash off the rolling hills each year--more than twice what soil scientists consider acceptable. Soil clouds water, smothering plants and fish eggs and clogging the gills of adult fish with silt and sediment. Manure can bring bacteria, making shellfish unharvestable and creating a potential health hazard for humans, while pesticides and herbicides can be toxic to aquatic grasses, fish, small game--and people. Fertilizers loaded with nitrogen and phosphorus overenrich the water with nutrients, causing algae to multiply very rapidly, or "bloom" as occurs at the mouth of the river. This in turn depletes the oxygen in the water and aquatic life may suffer. Virtually the entire estuarine portion of the river, from Leedstown to the mouth, is now classified as "nutrient enriched" by the state's Department of Environmental Quality.

Other significant pollution includes industrial discharges and the discharges from municipal sewage treatment plants (STPs), of which there are six along the river. If improperly treated, the discharge from a wastewater plant can introduce chlorine, bacteria, and nutrients into the receiving waters, with the potential to cause harmful environmental effects.

Major efforts are under way to reduce the amount of pollution that enters the Rappahannock. Virginia's Agricultural Best Management Practices (BMP) program has targeted the Rappahannock for cropland nonpoint pollution control efforts. In 1991, 687 farmers in the Rappahannock basin signed up for the state's cost-share program, which provides funds and technical advice to farmers who want to use practices (such as stripcropping, no till farming, and vegetated filter

strips) that will reduce runoff.

The State of Virginia has provided cost share grants to five STPs in the basin for systems to reduce or eliminate the chlorine in their discharge. State loans have also been used to upgrade and expand several major treatment plants in the upper Rappahannock. Residential septic system violations along shoreline areas are also being targeted for cleanup so that shellfish grounds there may be reopened. Finally, restoration of eelgrass, an important kind of submerged aquatic vegetation, continues. While plantings near Windmill Point and Mosquito Island have staged a comeback, others such as Parrot Island, have not.

THE FUTURE

Today, most of the pollutants in the Rappahannock come from agricultural runoff. That may change, however, as the land use patterns of the region change. Currently, only four percent of the Rappahannock basin is urban, but the population of the region is growing rapidly. With good reason, one author described the river as a "wilderness river at the doorstep of megalopolis."

Fredericksburg is one of the oldest cities in the area--and one of the fastest growing. The establishment of commuter rail service to Washington, D.C., has made it, along with nearby Spotsylvania and Stafford counties, a development hotspot. Meanwhile, areas downstream near the Chesapeake Bay, such as Middlesex and Lancaster counties, are currently weathering a boom in the construction of retirement homes and weekend retreats for those who live nearby in the Hampton Roads or Washington, D.C., metropolitan areas. In general, the population of the entire Rappahannock basin may grow as much as 16% in the next 12 years.

Population growth brings additional pollution which can lower water quality in the Rappahannock. Runoff from city streets can carry with it sulfur and nitrogen oxides (which come mainly from car exhaust that has been deposited on the streets), lawn clippings, fertilizers, oil, and heavy metals such as copper, lead and zinc, which are found in crankcase oil, car exhaust, and tire particles. In addition, great inrushes of soil are an ever-present hazard for parts of the river that are near construction sites.

Water supply is a growing concern, and a long-term solution will require regional cooperation. Plans for a major water development project--the Salem Church Dam, which would have flooded the Rappahannock upstream to its confluence with the Rapidan--were aborted in the 1970s, but there are those who still advocate--or fear-- similar proposals in the future. Although towns and cities within the Rappahannock basin will likely have an adequate supply of water for the near future, other nearby areas, such as the northern Virginia suburbs of Washington, D.C., may-- sooner or later--turn to the Rappahannock for relief.

Beyond these specific issues, there is one basic principle that could determine the future of the Rappahannock: wise and effective basin-wide land use planning. Pollution control and river preservation efforts by individuals will be more effective if coordinated within the framework of an overall management plan. The counties of Fauquier, Culpepper, and Rappahannock all have comprehensive land use management plans that call for preserving the area's rural character, while the City of Fredericksburg's zoning and land use regulations emphasize river

preservation.

Along with supporting the very real need for coordinated planning and management, individual residents of the Rappahannock basin can do a great deal to preserve the integrity of their river. Farmers can employ Best Management Practices on their land, while homeowners can reduce urban runoff by limiting impervious surfaces, restricting the use of fertilizer and pesticides, and by making certain that their septic systems are properly maintained. Everyone can become involved in zoning decisions that will shape the course of future development in the region. The Rappahannock basin, after all, offers citizens, government, and business leaders a rare opportunity in this day and age: the opportunity to demonstrate that economic and population growth can take place without degrading the river and its water quality. The continued health of the Rappahannock cannot be left to chance.