

The pages in this document were taken from the "Corsica River Watershed Characterization" published in October 2003. The entire document can be found at http://dnrweb.dnr.state.md.us/download/bays/cr_char.pdf.

Corsica River Watershed Characterization

**Excerpt Showing an Example of Nonpoint
Source Pollution Characterization**

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2. Diffuse or Nonpoint Sources

Sources of pollution that include areas of land and other sources that do not have a specific point of origin are called nonpoint sources. Nonpoint sources are commonly significant contributors of pollutants, particularly nutrients and sediment. These diffuse sources include rain water that runs off roofs, streets and parking lots (sometimes via storm drains) into nearby surface waters, as well as run-off from farm fields and, to a much lesser extent, forests. Also included in nonpoint source pollution is deposition from the atmosphere and contributions from ground water, where septic systems are a factor.

a. Nutrients

According to computer modeling presented in MDE's April 2000 nutrient TMDL report for the Corsica River watershed, nutrients from nonpoint sources dominate the average nutrient load to the river based on 1997 water quality data and projected land use data for the Year 2000:

- Nitrogen from nonpoint sources accounts for about 96% of the entire nitrogen load to the Corsica River (268,211 lb/yr total nitrogen).
- Phosphorus from nonpoint sources accounts for about 89% of the entire phosphorus load to the Corsica River (19,380 lb/yr total phosphorus).

These nonpoint source estimates do not distinguish between naturally occurring nonpoint nutrients and those caused by human activity. Both types are accounted for in the load estimates. (Naturally occurring nutrient loads, also called background loads, are the loads that would be generated if the entire watershed was in undisturbed forest and no other human-generated nutrients were contributed through atmospheric deposition.)

Given the current understanding of nutrient loads and related problems in the Corsica River, it is reasonable for WRAS partners to identify and prioritize projects with the intention of reducing nutrient loads for several reasons:

- Elevated nutrient levels in the Corsica River, which is an indicator of eutrophication, may persist after upgrades to the Centreville WWTP envisioned in MDE's TMDL computer modeling. Elimination of the Corsica River's water quality impairments will likely require reduction of nutrient loads from nonpoint sources in the watershed.
- Reduction of nonpoint source nutrient loads can be accomplished, in part, through existing programs that implement best management practices and through education of land managers.

b. Sediment

Nonpoint source sediment loads have not been estimated for the Corsica River Watershed. However, several current sources of information identify sediment as a problem:

- The Corsica River is listed for impairment by sediment / suspended solids in Maryland's 303(d) list.
- Phosphorus, which tends to be transported in association with soil particles, is identified as an impairment in the Corsica River.

c. Shoreline Erosion

Wherever land and open water meet, change in the form of erosion or accretion of land is the inevitable result of natural processes. Human activity in these areas often either inadvertently accentuates these natural processes or purposefully attempts to control movement of water and/or loss of land. Erosion of shorelines can contribute significant amounts of nutrients (mostly phosphorus) and sediment (water column turbidity, habitat loss.) The table [Queen Anne's County Shore Erosion Rate Summary](#) provides a brief overview of local conditions.⁷

Queen Anne's County Shore Erosion Rate Summary ⁷ (Miles of Shoreline)				
Total Shoreline	Total Eroding Shoreline	Erosion Rate		
		0 to 2 feet / year	2 to 4 feet / year	4 or more feet / year
323	95 (29%)	64	12	2

Maps of historic shoreline change were produced in 1999 by the Maryland Geological Survey (MGS) in a cooperative effort between DNR and the National Oceanic and Atmospheric Administration (NOAA). These maps included digitized shorelines for several different years in Queen Anne's County. The maps show that extensive changes have occurred adjacent to large bodies of open water. Copies of these 1:24000 scale maps are available from the MGS.

Currently, DNR is working to improve the ability to predict areas of high-rate shoreline erosion. In addition to considering historic erosion rates, contributory effects of land subsidence and sea level rise are being considered. To help generate predictive tools, two pilot areas have been selected: Queen Anne's County and Dorchester County. Results from this work are not currently available but information will be shared with local jurisdictions and other interests when they become available.

Groundwater and Water Supply

In the Corsica River Watershed, ground-water is the source for all water supplied to community use. The Town of Centreville operates the only community water supply system in the watershed under MDE permit QA1967G002. The Town's wells are all in the immediate vicinity of the community that they serve as shown in [Map 5 MDE Permits](#). Much of the town is close enough to the wellheads to potentially affect them so it may be anticipated that the wellhead protection areas will encompass the majority of the town..

In general, community water supply systems employ confined aquifers in order to avoid the potential of local near-surface pollution. Therefore, community wells are not likely to be affected by near-surface groundwater nutrient loads.