

The pages in this document were taken from the "Corsica River Watershed Restoration Action Strategy: Final Report" published in September 2004. The entire document can be found at http://dnrweb.dnr.state.md.us/download/bays/cr_strategy.pdf.

Corsica River Watershed Restoration Action Strategy: Final Report

**Excerpt Showing an Example of an
Assessment of Existing Conditions and
Pollutant Load Estimates**

September 2004

Total Maximum Daily Loads of Nitrogen and Phosphorous for Corsica River

On April 9, 2000 the EPA approved the Total Maximum Daily Loads (TMDLs) established by the Maryland Department of the Environment (MDE) for the Corsica River for phosphorous and nitrogen. A TMDL reflects the total pollutant loading of the impairing substance a water body can receive and still meet water quality standards. The Corsica River was first identified on the 1996 303(d) list submitted to EPA by the Maryland Department of the Environment.

Impairments from Maryland's 303(d) list are:

- Nutrients in the tidal portions of the River
- Fecal Coliform
- Sediment
- Biological Impairment (a stretch of Gravel Run is listed based on poor ratings for fish and benthic organisms population and/or habitat)
- Toxics- PCBs, Dieldrin, Methylmercury and Fish Consumption Advisory. The presence of PCBs may relate to the fact that the Former Centreville Electric Plant (now the Centreville Police Department Building and Public Works grounds) was located directly on the Gravel Run

The Corsica was listed as being impaired by nutrients with established TMDLs for phosphorous and nitrogen. The TMDL may be found in its complete form on the MDE website at http://www.mde.state.md.us/programs/waterprograms/tmdl/approvedfinaltmdl/tmdl_corsica.asp

Abstractions from this report are made here to inform the reader of the breadth of available information on the Corsica. Specific attention is drawn to the Point Source and Nonpoint Source Technical Memoranda, the Appendix A and submitted comments found on the above captioned web pages.

On the nonpoint source side, the TMDL technical memorandum cited above, suggests the allocation of implementation strategy efforts may be prioritized on the basis of land use. Nutrient pollution or over-enrichment problems may arise from numerous sources including all types of land use and from the atmosphere as well. Adding to the problem, dredging done to improve occluded navigation channels and from near-shore clamming operations causes the resuspension of legacy sediments and their attached nutrients in the water column. Tidal influences from the Chester River mainstem further complicate the sampling and water quality monitoring as well. Residential land can be an important contributor of nutrients depending on fertilizer use, extent of lawn area, and status of septic systems. Farmers apply nutrients using different approaches, so nutrients entering waterways from crop land vary greatly depending on conservation practices. Typically, streams and other surface waters receive relatively small amounts of nutrients from forest land and relatively high amounts from land uses that involve land disturbance and application of fertilizer. The Corsica River Watershed Management Strategy amplifies this discussion in later pages relative to nutrients and sedimentation problems.

The Corsica River is impaired by nutrients, nitrogen and phosphorous, which cause excessive algal blooms and can cause "exceedances" of the dissolved oxygen standard. The water quality goal of the Corsica River TMDLs is to reduce high chlorophyll-a concentrations (a surrogate for algal blooms), and maintain dissolved oxygen standards at levels where designated uses of the Corsica River will be met. The TMDL was determined using the WASP5 water quality model. Total loading caps for nitrogen and phosphorous entering the Corsica River are established for both the low flow conditions and for annual loads. The TMDL evaluation of the pointsource of the Centreville WWTP assumed that the discharge would be extended from the existing stream location at a point at the Watson Road Bridge. This was never done as spray irrigation was selected over added direct discharge. Seasonal variations are important factors as the new Centreville WWTP utilizes land application of effluent instead of the current confined stream discharge method.

The currently established low flow TMDL for nitrogen is **1,379** lbs/month, and the low flow for phosphorous is **202** lbs/month. These TMDLs apply during the period of May 1 - October 31, and will be implemented through NPDES permits. The annual TMDL for nitrogen is **286,670** lbs/yr, and the annual TMDL for phosphorous load **22,244** lbs/yr.