

APPENDIX B

Department of Natural Resources and Environmental Control

Division of Water Resources

Statutory Authority: 7 Delaware Code, Chapter 60

**Total Maximum Daily Loads (TMDLs) for Little Assawoman Bay Watershed,
Delaware**

A. INTRODUCTION and BACKGROUND

Intensive water quality monitoring performed by the State of Delaware, the federal government, various university and private researchers, and citizen monitoring groups has shown that surface waters of the Inland Bays Watershed including the Little Assawoman Bay are highly enriched with the nutrients nitrogen and phosphorous. Although nutrients are essential elements for both plants and animals, their presence in excessive amounts cause undesirable conditions. Symptoms of nutrient enrichment in the Inland Bays have included excessive macroalgae growth (sea lettuce and other species), phytoplankton blooms (some potentially toxic), large daily swings in dissolved oxygen levels, loss of Submerged Aquatic Vegetation (SAV), and fish kills. These symptoms threaten the future of the Inland Bays - very significant natural, ecological, and recreational resources of the State - and may result in adverse impacts to the local and State economies through reduced tourism, a decline in property values, and lost revenues. Hence, excessive nutrients pose a significant threat to the health and well being of people, other animals, and plants living within the watershed.

A reduction in the amount of nitrogen and phosphorous reaching the Inland Bays is necessary to reverse the undesirable effects. These nutrients enter the Bays and its tributaries and ponds from several sources including point sources, nonpoint sources, and from the atmosphere. Point sources of nutrients are end-of-pipe discharges coming from municipal and industrial wastewater treatment plants and other industrial uses. Nonpoint sources of nutrients include runoff from agricultural and urban areas, seepage from septic tanks, and ground water discharges. Atmospheric deposition comes from both local and regional sources, such as motor vehicle exhausts and emissions from power plants that burn fossil fuels.

Section 303(d) of the Federal Clean Water Act (CWA) requires States to develop a list (303(d) List) of waterbodies for which existing pollution control activities are not sufficient to attain applicable water quality standards and to develop Total Maximum Daily Loads (TMDLs) for pollutants or stressors causing the impacts. A TMDL sets a limit on the amount of a pollutant that can be discharged into a waterbody and still protect water quality. TMDLs are composed of three components, including Waste Load Allocations (WLAs) for point source discharges, Load Allocations (LAs) for nonpoint sources, and a Margin of Safety (MOS).

The Delaware Department of Natural Resources and Environmental Control (DNREC) listed the Little Assawoman Bay and several tributaries and ponds of the Inland Bays on the State's

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303(d) Lists and proposes the following Total Maximum Daily Loads regulation for nitrogen and phosphorous.

B. Total Maximum Daily Loads (TMDLs) Regulation for the Little Assawoman Bay, Delaware

- Article 1. The nonpoint source nitrogen load in the Little Assawoman Bay Watershed shall be reduced by 40 percent. For the 3-year period of 1998 through 2000, this would result in reduction of total nitrogen load in the Watershed from 594 pounds per day to 357 pounds per day.
- Article 2. The nonpoint source phosphorous load in the Little Assawoman Bay Watershed shall be reduced by 40 percent. For the 3-year period of 1998 through 2000, this would result in reduction of total phosphorous load in the Watershed from 49 pounds per day to 30 pounds per day.
- Article 3. Implementation of this TMDL Regulation shall be achieved through development and implementation of a Pollution Control Strategy. The Strategy will be developed by DNREC in concert with the Inland Bays Tributary Action Team, other stakeholders, and the public.