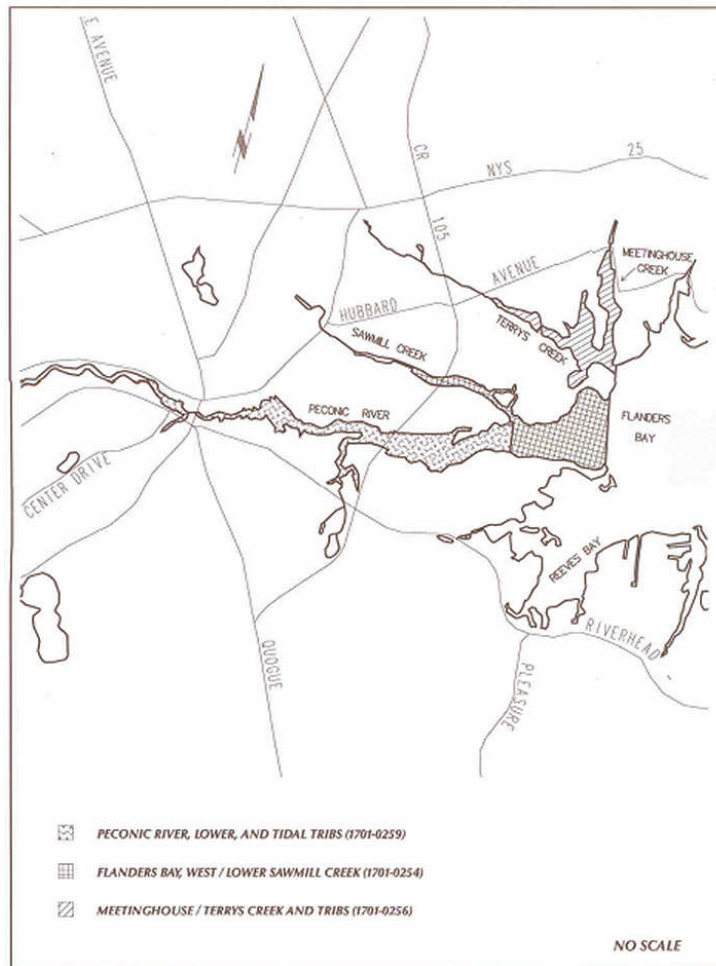


**Total Maximum Daily Load for Nitrogen in the Peconic Estuary
Program Study Area, Including Waterbodies Currently Impaired Due
to Low Dissolved Oxygen: the Lower Peconic River and Tidal
Tributaries; Western Flanders Bay and Lower Sawmill Creek; and
Meetinghouse Creek, Terrys Creek and Tributaries**

September 2007



Total Maximum Daily Load for Nitrogen in the Peconic Estuary Program Study Area, Including Waterbodies Currently Impaired Due to Low Dissolved Oxygen: the Lower Peconic River and Tidal Tributaries; Western Flanders Bay and Lower Sawmill Creek; and Meetinghouse Creek, Terrys Creek and Tributaries

September 2007

Acknowledgements

The preparation of this report was possible due to the collaborative efforts of many committed organizations and individuals. The Peconic Estuary Program would like to thank the following for their contributions and guidance:

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Walter Dawydiak, P.E., J.D., Suffolk County Department of Health Services

U.S. Environmental Protection Agency: Felix Locicero, Rosella O'Connor and Rick Balla

Suffolk County Department of Health Services: Martin Trent, Mac Waters, Kim Paulsen and Laura Bavaro

New York State Department of Environmental Conservation: Ron Entringer, Aslam Mirza, Tony Leung, Karen Chytalo, and Laura Stephenson

Tetra Tech, Inc.: Mike Morton



The preparation of this document was supported in part by the United States Environmental Protection Agency, with funding provided to the Peconic Estuary Program, under assistance agreements nos. CE992002 and CE992066, to the Suffolk County Department of Health Services, the and New York State Department of Environmental Conservation, respectively.

Contractor support was provided by Tetra Tech Inc., Contract No. 68-C-02-108, Task Order 120.

The Peconic Estuary Program (PEP) is a partnership of governments, environmental groups, businesses, industries, academic institutions, and citizens. The PEP's mission is to protect and restore the Peconic Estuary system. Learn more at www.peconicestuary.org.

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Total Maximum Daily Load for Nitrogen in the Peconic Estuary Program Study Area, Including Waterbodies Currently Impaired Due to Low Dissolved Oxygen: the Lower Peconic River and Tidal Tributaries; Western Flanders Bay and Lower Sawmill Creek; and Meetinghouse Creek, Terrys Creek and Tributaries

September 2007

Executive Summary

Pursuant to Section 303(d) of the Federal Clean Water Act (CWA), this document contains nitrogen discharge loads for three sewage treatment plants (STPs), one other wastewater treatment plant, and for municipal stormwater facilities in the Peconic Estuary System. These loads will form the basis for regulatory permit requirements. It also contains target loads for other sources of nitrogen to the Estuary, including atmospheric deposition, groundwater, and tributaries.

The CWA creates a process where States establish meaningful uses and appropriate standards for waterbodies. States must also periodically assess waters to see if these standards and uses are being attained. If standards are not being met, States must determine what must be done to achieve standards. This includes considering pollution from point sources discharges (such as outfall pipes) and pollution sources that are diffuse (termed “nonpoint sources”). The combined pollutant load from both the point and nonpoint sources cannot exceed that amount required to achieve or maintain water quality standards. This combined pollutant load (called a Total Maximum Daily Load or TMDL) needs to also include a margin of safety to account for uncertainties, and consider seasonal variation, future development and growth.

Estuaries are areas where fresh water from the land and salt water from the oceans mix. They are among the most important ecosystems on the earth, serving as important nursery and spawning areas for finfish and shellfish. These coastal areas are also highly valued by humans. The Peconic Estuary System of eastern Suffolk County, NY has been designated an “Estuary of National Significance” under the Clean Water Act. In order to address both problems and threats facing the Peconic Estuary and its watershed, a Comprehensive Conservation and Management Plan has been prepared.

Like many other estuaries, nutrient over-enrichment (in the form of excess nitrogen loadings) is a priority management topic for the Peconic Estuary. Nitrogen comes from many sources, both natural and as a result of human activities. Sources include wet and dry atmospheric deposition, sewage treatment plants, stormwater runoff, and groundwater that becomes enriched as a result of excess fertilizer being applied to lawns, landscaping, and agricultural crops, as well from on-site waste water disposal systems (“septic systems”).

While nitrogen is an important nutrient for a healthy ecosystem, excess nitrogen can lead to problems. Too much nitrogen can cause too much algae to grow. When algae blooms and then dies, the decomposition process consumes oxygen. Aquatic plants, including algae, also use oxygen at night through respiration. The combined effect of plant decomposition and respiration can cause dissolved oxygen to drop to low levels, especially in the early morning hours and during the warm weather months. Aquatic animals need dissolved oxygen to live. When conditions become stressful due to low dissolved oxygen levels, some organisms may suffocate and die, while others may flee the area.

Based upon data that has been submitted by the Suffolk County Department of Health Services (SCDHS), the New York State Department of Environmental Conservation has determined that three waterbodies of the Peconic Estuary System are not meeting dissolved

oxygen standards. They are: the Lower Peconic River and Tidal Tributaries; Western Flanders Bay and Lower Sawmill Creek; and Meetinghouse Creek, Terrys Creek and Tributaries. It is important to note that in order to achieve dissolved oxygen standards in these waters both now and in the future, it is necessary to look at the nitrogen contributions from not only their contributing watersheds, but nitrogen loads from the entire Peconic Estuary Watershed.

A sophisticated water quality model has been developed through the efforts of the Peconic Estuary Program which can accurately predict water quality conditions based on current conditions and nitrogen loadings as well as changes that can be expected as nitrogen loadings change in the future. An important consideration was the nonpoint source load from various land uses. Loads from any individual land parcel can be estimated to increase, decrease or stay the same, depending on land preservation efforts or residential or commercial development, as well as the effectiveness of implementing applicable management practices such as at agricultural operations, existing development, and new development. Factored into this analysis is the nationwide and local implementation of controls under Clean Air Act laws, which are projected to have an important positive impact on water quality. Limitations on point source discharges (including sewage treatment plants and regulated stormwater areas) are important locally in improving water quality.

This TMDL effort has resulted in the identification of a “practical load reduction scenario” which includes a reasonable cumulative full build-out scenario for the watershed, addressing farmland preservation, preservation of open space and developed but further subdividable land parcels, and future residential and commercial development both inside and outside of sewer districts. It also establishes achievable nitrogen loading rates groundwater from agricultural operations, golf courses, and existing and new development, including the need for greater management in watersheds of currently impaired waterbodies. Reductions in the nitrogen loading from atmospheric deposition are also taken into account. Finally, this TMDL establishes nitrogen wasteload allocations for point sources discharges from the Riverhead, Sag Harbor and Shelter Island Heights STPs, and Atlantis Marine World. Discharges from STPs at Brookhaven National Laboratory, the Naval Weapon Industrial Reserve Plant and Plum Island are also discussed. Wasteload Allocations for stormwater loads are included, which will affect entities subject to the Phase II Stormwater Permits (including Suffolk County, the Town of Brookhaven, Riverhead and Southampton, and the Villages of Sag Harbor and North Haven). Other areas may become subject to municipal stormwater permits in the future.

Even the aggressive wasteload allocations for point sources and management goals in the form of load allocations for nonpoint sources will not be enough to meet existing or proposed water quality standard for dissolved oxygen. Mechanical aeration has been added to the scenario to specific locations to bring the dissolved oxygen levels into compliance with the both existing and proposed New York water quality standards.

The Peconic Estuary Program seeks to have this TMDL fully implemented within 15 years from approval, based upon current expectations for full build-out and land acquisition programs, development and implementation of education and outreach programs, full participation in the agricultural stewardship and environmental management program, and other necessary efforts. The SCDHS also will continue its monitoring efforts in the Peconic Estuary to further document water quality conditions and trends. The Peconic Estuary Program plans to track and report on progress in implementing and achieving this TMDL at five-year intervals. Full implementation of this TMDL is expected to result in water quality standards for dissolved oxygen being met where they are not currently attained and ensure continued compliance where these standards are presently achieved.