

Shellfish Pathogen TMDLs for 27 303(d) listed Waters
Response to Public Comments
September 2007

I. Introduction

Notice of availability of the Draft TMDLs (on compact disk) was made available to approximately 40 local government representatives and interested parties on 18 July 2007. Additional copies of the TMDLs were also made available to 27 stakeholders including the towns of East Hampton and Southold through download and compact disk. A 30-day public review period ending on 25 August 2007 was established for soliciting written comments from stakeholders prior to the finalization and submission of the TMDL for USEPA approval. The TMDLs were public noticed in the State Environmental Notice Bulletin on 18 July 2007 as a Region 1 and statewide notice. At the request of two commenters, the comment period was extended to 14 September 2007. The TMDLs were also made available through the NYSDEC's FTP site at:

<ftp://ftp.dec.state.ny.us/dow/tmdl/shellfishtmdl.pdf>

NYSDEC held an informational meeting with stakeholders on 10 August 2007 at the NYSDEC Region-1 office in Stony Brook. Staff from NYSDEC and USEPA were present at this meeting. Engineers and scientists from NYSDEC and Battelle Inc., EPA's consultant, discussed the development of the TMDLs, the assumptions used in its preparation; the model projected waste load allocations, load allocations, the implementation plan and reasonable assurance for achieving the TMDLs.

Written comments were received from individuals representing four organizations, as identified below. Two comments were also received via e-mail. These comments addressed various aspects of TMDLs which were considered in finalizing the TMDLs.

Name	Associated Organization
Raymond A. Ribeiro, P.E	County Of Nassau, Dept. of Public Works
Eric Swenson	Hempstead Harbor Protection Committee
Keri N. Powell	Earth Justice
Kathleen McShane	Town of Smithtown

II. Summary of Comments and Responses

Comment 1: Page 7 of the TMDL document states that Stony Brook Harbor is open for shellfishing year around. This is not true. Approximately, fifty per cent of the Harbor is closed to shellfishing almost half of the year based upon the 2006 shellfish closing data.

Response 1: We have modified the TMDL document to indicate that fifty per cent of the Harbor is closed to shellfishing almost half of the year based upon the 2006 shellfish closing data.

Comment 2: The proposed TMDL relies heavily on load reductions from MS4s, but fails to allocate loads to individual outfalls as required by the Clean Water Act and federal regulations. The DEC must revise this TMDL to allocate loads to each MS4 outfall.

Response 2: These TMDLs do rely heavily on load reductions from MS4s, and they do not allocate loads to individual outfalls. EPA's Guidance on Stormwater and TMDLs states that it may be reasonable to quantify the allocations through estimates or extrapolations, based either on knowledge of land use patterns and associated literature values for pollutant loadings or on actual, albeit limited, loading information.¹ EPA recognizes that these allocations might be fairly rudimentary because of data limitations. The DEC/EPA/Battelle Inc. did not have the data concerning the location of the outfalls at the time of the initiation of the TMDL development, nor did it have information on the contributory areas that drain to the regulated MS4 stormwater conveyance systems. When such data and information become available, the DEC would consider revising these TMDLs.

However, even with better information, EPA's policy recognizes that because storm water discharges are due to storm events that are highly variable in frequency and duration and are not easily characterized, only in rare cases will it be feasible or appropriate to establish numeric limits for municipal stormwater discharges. The variability in the system and minimal data generally available make it difficult to determine with precision or certainty actual and projected loadings for individual dischargers or groups of dischargers. Therefore, EPA believes that in these situations, permit limits typically can be expressed as BMPs, and that numeric limits will be used only in rare instances. As noted in the TMDL document, a general permit condition for MS4s is that they modify their Stormwater Management Program to ensure that the pollutant reduction specified in the TMDL is achieved. Consequently, the MS4s will need to demonstrate that they will be undertaking BMPs that could achieve the specified pathogen reductions.

Despite uncertainties in establishing the magnitude of the stormwater load, it is clear that main contributor of the loading causing shellfish closures in these waterbodies is urban storm water runoff. The local governments need to focus on controlling the MS4 and NPS through the BMPs.

Comment 3: Landuse data used in computing the landside loadings for Nassau County waterbodies is based upon the inaccurate data. The Nassau County could

¹ Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Requirements Based on those WLAs. USEPA, November 22, 2002.

provide the up-to-date data to refine the landside loadings listed in the TMDL for Hempstead Harbor and Cold Spring Harbor drainage areas.

Response 3: The 2001 National Land Cover Data (NLCD) was used to characterize land use in the watersheds surrounding the two water bodies located within Nassau County: Hempstead Harbor and Cold Spring Harbor. The NLCD is of a coarser resolution than the parcel-level GIS coverages maintained by Nassau County. Either the NLCD or county parcel data will be helpful in determining the potential mitigation or corrective measures that could be applied to land-based sources during implementation. The additional detailed information available from the county parcel data will likely enable better resolution of sources, applicability of recent corrective measures and allocation of resources for future runoff mitigation.

Due to complications associated with the cost of a use license for the county parcel data, and the legal ramifications if it were to be accepted as a gift, neither Battelle nor EPA was able to obtain the most recent land parcel or land use data from Nassau County. Other means of benefiting from the data did not materialize within the timeframe required.

It should be noted that the NLCD were not used to determine the percent load reductions needed from each waterbody. Rather, the existing conditions (based on water quality data) were combined with the specific waterbody physics (e.g., volume, tidal exchange) and fecal coliform decay to determine percent load reductions.

If up-to-date land side data is used it would just refine the current loadings and its categories of the load. The refinement would not have a significant effect on the proposed coliform reductions. The proposed reductions have been estimated by calculating the loading capacity of the receiving waters and these reductions were applied uniformly against all sources except the STPs. Information such as determining which land areas and pathogen sources drain through MS4s could also allow refinement of load allocations. The refinement in the loadings may improve the calculations but it would not change the outcome - i.e., the major sources of the loading are MS4 and nonpoint sources which require significant abatement through the implementation of BMPs.

Comment 4: Contributions from septic system failure, marine vessel waste, wildlife inhabiting storm drains and sewage treatment plants were not considered as possible sources of coliform for Hempstead Harbor and Cold Spring Harbor.

Response 4: While developing the MS4 and nonpoint source load, the department did consider the loadings from the aforementioned sources. The source loads have not been divided into the various categories explicitly with the

exception of sewage treatment plants and wildlife. The loads from septic system failure, and marine vessel waste were lumped into nonpoint source loads and total loads are shown in the Table 7-1 and Table 7-5 for Hempstead Harbor and Cold Spring Harbor, respectively. There is no direct discharge of treated waste from STPs in the noted water bodies. Hence there is no need to control these point sources for the noted receiving waters.

Specific information on these source categories were not available at the time the TMDL report was developed. Additional information about these and other pathogen sources, as well as fate and transport, can likely improve the accuracy and precision of the loading allocations and priority for runoff mitigation efforts. The Watershed Treatment Model does have the ability to incorporate these potential sources directly or indirectly. Such high resolution detail was beyond the available data and scope of effort applied to deriving these TMDLs and increased resolution is not expected to change the outcome significantly

Load reduction percentages were determined for each watershed based on existing water quality conditions, water body physics, and the inherent characteristics of fecal coliform. These sources may well be contributing to the current conditions in Hempstead Harbor and Cold Spring Harbor; however, the percentage of load reductions required is not significantly affected by additional data about these potential sources.

Comment 5: We suggest that any future efforts of this sort be initiated by a meeting of at least all municipal stakeholders surrounding the waterbody in question.

Response 5: NYSDEC and USEPA acknowledge the importance of local participation in the development of TMDLs and in the future, local stakeholder groups will be informed of the plans to develop a TMDL early in the process.

Comment 6: Extensive use of assumed data rather than actual data for Hempstead Harbor and its surrounding municipalities may have resulted in the need for significant TMDL fecal coliform load re-calculations.

Response 6: The Hempstead Harbor Protection Committee (Committee) has brought to our attention the availability of additional water quality data on Hempstead Harbor that was not used in the development of the TMDL. Additional information was provided to DEC, EPA and Battelle and a careful evaluation of the data were conducted.

Our conclusion is that while the data indicate that water quality has improved, because of incompatibility issues and modeling requirements, it is not possible to calculate the reduction in coliform loading that has been achieved, in terms of a percent of the load prior to the implementation of

Best Management Practices (BMPs) that have been put in place. (See response to comment #7)

In addition to the water quality data, the Committee documented many activities that can be considered to be (BMPs) that are typical of the actions necessary to reduce the loadings. The implementation of these practices has apparently reduced loads, a reduction not reflected in this TMDL. Because the purpose of the TMDL is not to identify reductions accomplished but rather to quantify reductions needed compared to the conditions causing the impairment, the documentation of reductions is better suited for a separate report.

NYSDEC will reach out to the Committee to discuss how their efforts, to monitor water quality in the Harbor can be most effectively done so as to be compatible with the models used to develop the TMDL and to quantify reductions that may have been achieved.

Comment 7: Ambient monitoring data provided by Nassau County, Hempstead Harbor Protection Committee and the Coalition to Save Hempstead Harbor should be used in reevaluating compliance with the shellfish criteria and improvements achieved through the implementation of various BMPs, such as: wetland restoration projects, dune system, planting, volunteer monitoring in Hempstead Harbor, pet waste management, waterfowl population control program, reducing boat septic wastes, illicit discharge detection and elimination, stormwater management through wetland restoration and installation of swirl separators, retrofitting four catch basins with storm drain filters, installation of storm drain medallions, and public education program. These BMPs have been employed in various degrees in the drainage basins of Hempstead Harbor and Cold Spring Harbor.

Response 7: Fecal coliform data from the Coalition to Save Hempstead Harbor (CSHH) were received during the TMDL comment period along with the water quality sampling collection quality assurance project plan (QAPP). CSHH monitors numerous stations in Hempstead Harbor, although only two of them were located within SA classified waters: Stations CSHH-1 and CSHH-2. The remaining stations (CSHH-3 through CSHH-12) were either located in Glen Cove Creek or south of Bar Beach; both of these regions are not SA classified waters. CSHH originally provided 2004-2006 data; however, the laboratory method used to analyze the 2006 data was not the same as the method used to analyze pre-2006 data. Prior to 2006, the Nassau County laboratory measured the most probable number (MPN) of bacterial cells in a given sample, which is a statistical method based on probability theory. For the 2006 and more recent data, the laboratory measured the colony forming units (CFUs) in a given sample,

which is based on a plate count. Therefore, for data comparability reasons, the statistical analyses only included 2004 and 2005 data.

The geometric mean and 90th percentile of the 2004-2005 data from CSHH-1 and CSHH-2 were calculated and the results are provided in the table below. The results indicated that the fecal coliform concentrations at the CSHH stations were relatively consistent with the concentrations detected at the NYSDEC stations (34-21 and 34-22), but were lower than concentrations measured by the Nassau County Department of Health (NYS DOH) at Tappan Beach, Bar Beach, and Hempstead Harbor Beach. To provide for a conservative assessment of the water bodies covered in this TMDL (which is part of the implicit margin of safety), the tidal prism model was run using the most critical conditions. In the case of Hempstead Harbor, the most critical conditions were determined to be at the Tappan Beach station, where the 90th percentile for fecal coliform was 800 MPN/100mL (as shown in the table below). While the data from the two CSHH stations appear to indicate that the fecal coliform levels in those sections of the Harbor are low, the receipt of these data does not change the tidal prism model inputs and, therefore, does not change the current load estimates or resulting load reductions associated with pre-implementation conditions.

Station	Fecal coliform 90th percentile
NYSDEC 34-21	39
NYSDEC 34-22	7.3
Tappan Beach (NYS DOH)	800
Bar Beach (NYS DOH)	538
Hempstead Harbor Beach (NYS DOH)	620
CSHH-1	269
CSHH-2	83

Information on installed BMPs will be considered when reviewing the required submission of a revised Stormwater Management Program by the MS4s to address the reductions stipulated by these TMDLs.

Comment 8: Clean Water Act Section 303(d)(1)(C) explains that a TMDL “shall be established at a level necessary to implement the applicable water quality standards”. This TMDL does not appear to implement the applicable state water quality standard.

Response 8: According to the New York State Codes, Rules and Regulations, Title 6, Chapter X, the current uses for Class SA waters in New York are:

§ 701.10 - “The best usages of Class SA waters are shellfishing for market purposes, primary and secondary contact recreation and fishing. These waters shall be suitable for fish propagation and survival.”

The NYSDEC water quality standards use indicator organisms such as total coliform or fecal coliform to determine pathogen contamination. The NYSDEC water quality standard for total coliform in Class SA waters is 70 MPN per 100 ml. The standard is based on the median most probable number (MPN) value in any series of representative samples, which shall not be in excess of 70 total coliform. NYSDEC does not currently contain a water quality standard for fecal coliform for Class SA waters. The number of fecal coliform in a sample should always be less than and can never be greater than the number of total coliform in the same sample.

Since 2003, the NYSDEC has assessed the status and regulates the opening of shellfish harvest areas based on the following National Shellfish Sanitation Program (NSSP) criteria for fecal coliform: (a) a geometric mean of fecal coliform less than 14 MPN per 100 ml, and (b) a 90th percentile value of fecal coliform less than 49 MPN per 100 ml. As stated in the TMDL, “NYS water quality standard for Class SA is expressed as a median value of 70 MPN/100 ml; the same numerical value is used as geometric mean criterion for systematic random sampling (SRS) data. According to NSSP guidelines (NSSP, 2003), these two are equivalent in terms of public protection²” for total coliform.

NYSDEC has chosen to use a target based on the NSSP criteria for fecal coliform for these TMDLs, because the NSSP criteria for fecal coliform is more conservative than the NYSDEC water quality standard for total coliform, this will ensure compliance with the NYSDEC water quality standard for total coliform in Class SA waters.

As part of this TMDL analysis, data for both total and fecal coliform were reviewed for waters in this study area. The 90th percentile value of 49 MPN per 100 ml fecal coliform was shown to be the most sensitive indicator for exceedences (refer to Section 4.1.3 of the TMDL document). Therefore, the 90th percentile value of 49 MPN per 100 ml fecal coliform was used as the TMDL target and is adequate for public protection.

Comment 9: Load reductions were not assigned to [sewage treatment plants] because each is operation within their permitted discharge volumes and concentrations”. This not legally valid reason for failing to require STPs to reduce their discharge *levels*. The purpose of a TMDL is to establish more stringent restrictions on discharges when effluent limits under CWA Section 301(h)(1)(A) and (B) “are not stringent enough to implement any water quality standard applicable to such waters.” See CWA §

² Page 15 of this TMDL.

303(d)(1)(A). Dec must provide a reasoned explanation based on statutorily permissible factors for why STPs should not be required to reduce their effluent levels.

Response 9: The current TMDLs meet the requirement concerning the fecal coliform effluent limits per NYSDEC guidance document TOGS 1.3.3 established for the sewage treatment facilities – i.e., “the geometric mean of samples taken within a 30 consecutive day period shall be less than 200 *MPN* per 100 ml and geometric mean of samples taken within a 7 consecutive day period shall be less than 400 *MPN* per 100 ml”. These effluent limits/standards are technology based because they represent levels that can be consistently achieved by a properly designed and operated facility and are considered de-minimus. The effluent from the STPs is further diluted within the mixing zone assigned by the NYSDEC thus reducing the coliform levels equal or less than the shellfish standards. In view of the above, DEC believes that additional reductions are not needed.