UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ONE CONGRESS STREET SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

May 12, 2009

Laurie Burt, Commissioner
Department of Environmental Protection
1 Winter Street
Boston, MA 02108

Re: Approval of Nantucket Harbor Embayment System Total Maximum Daily Loads For Total Nitrogen

Dear Commissioner Burt:

Thank you for submission of the Total Maximum Daily Loads (TMDLs) for total nitrogen in Nantucket Harbor and the work that went into these analyses.

The U.S. Environmental Protection Agency (EPA) has reviewed the document entitled "Nantucket Harbor Embayment System Total Maximum Daily Loads for Total Nitrogen (Report # 97-TMDL-2 Control #249.0)" and approves these two TMDLs. EPA has determined, as set forth in the enclosed review document, that these TMDLs meet the requirements of Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 Code of Federal Regulations (CFR) part 130.

My staff and I look forward to continued cooperation with the MassDEP in exercising our shared responsibility of implementing the requirements under Section 303(d) of the CWA. If you have questions regarding this approval, please contact Steve Silva at (617) 918-1561 or Mary Garren at (617) 918-1322.

Sincerely,

/s/

Ken Moraff, Acting Director
Office of Ecosystem Protection

Enclosure

cc: Glenn Haas, MassDEP
Rick Dunn, MassDEP

Brian Dudley, MassDEP
Steve Silva, EPA
Mary Garren, EPA

EPA NEW ENGLAND'S TMDL REVIEW

DATE: May 12, 2009

TMDL: Nantucket Harbor Embayment System TMDL for Total Nitrogen (Report # MA97-TMDL-2, Control #249.0)

STATUS: Final

IMPAIRMENT/POLLUTANT: 2 TMDLs for Total Nitrogen (See Attachment 1)

BACKGROUND:

The Massachusetts Department of Environmental Protection (MassDEP) released a draft TMDL on September 25, 2007 for public review. Key stakeholders received copies of the document in the mail. The draft TMDL was posted on the Department's web site on that date as well. In addition, a public meeting was held in the Town of Nantucket, Veteran's Community Center on October 9, 2007. The public comment period was extended and comments accepted until November 2, 2007. MassDEP prepared a response to public comment which was submitted along with the final TMDL to EPA. All comments from the public were taken into account in the Response to Comments and the final TMDL submission. MassDEP notes that the public meeting was for Nantucket Harbor and Polpis Harbor. As such their response to comments document includes responses to issues and concerns raised for both embayments. The final submission to EPA was sent on February 3, 2009. In addition to the TMDL itself, the submittal included, either directly or by reference, the following additional documents:

- Response to Comments for Draft TMDL Report for the Nantucket Harbor System. (Report dated September 12, 2007)
- Massachusetts Year 2008 Integrated List of Waters, Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 303(d) and 305(b) of the Clean Water Act (CN 282.1), December, 2008. http://www.mass.gov/dep/water/resources/2008il1.pdf
- Howes B., S. W. Kelley, J. S. Ramsey, R. Samimy, D. Schlezinger, and E. Eichner (2006). Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for Nantucket Harbor, Town of Nantucket, Nantucket Island, MA. Massachusetts Estuaries Project, Massachusetts Department of Environmental Protection. Boston, MA. http://www.oceanscience.net/estuaries/Nantucket.htm
- Massachusetts Estuaries Project Embayment Restoration and Guidance for Implementation Strategies, MassDEP 2003. http://www.mass.gov/dep/water/resources/mepmain.pdf

The following review explains how the TMDL submission meets the statutory and regulatory requirements of TMDLs in accordance with §303(d) of the Clean Water Act and EPA's implementing regulations in 40 CFR Part 130.

REVIEWER: Mary Garren, telephone number 617-918-1322,
email: garren.mary@epa.gov

REVIEW ELEMENTS OF TMDLs

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. § 130 describe the statutory and regulatory requirements for approvable TMDLs. The following information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation.

1. Description of Waterbody, Pollutant of Concern, Pollutant Sources and Priority Ranking

The TMDL analytical document must identify the waterbody as it appears on the State/Tribe's 303(d) list, the pollutant of concern and the priority ranking of the waterbody. The TMDL submittal must include a description of the point and nonpoint sources of the pollutant of concern, including the magnitude and location of the sources. Where it is possible to separate natural background from nonpoint sources, a description of the natural background must be provided, including the magnitude and location of the source(s). Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation. The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as: (1) the assumed distribution of land use in the watershed; (2) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources; (3) present and future growth trends, if taken into consideration in preparing the TMDL; and, (4) explanation and analytical basis for expressing the TMDL through surrogate measures, if applicable. Surrogate measures are parameters such as percent fines and turbidity for sediment impairments, or chlorophyl a and phosphorus loadings for excess algae.

The document for the Nantucket Harbor Embayment System TMDL for Total Nitrogen adequately describes the water body segment, nature and cause or threat of the impairments. Impairments include loss of eelgrass beds. Approximately 38% of eelgrass beds have been lost since a survey completed in 1951. There are healthy or slightly impaired conditions relative to dissolved oxygen, macro-algae, and benthic fauna. The TMDL identifies excess total nitrogen originating primarily from sediments and atmospheric deposition. Septic systems, runoff, and fertilizers are lesser causes of the impairments.

The TMDL document identifies two water body segments needing TMDLs for total nitrogen (Nantucket Harbor and Polpis Harbor). These water bodies are listed as impaired for nutrients on the Massachusetts' 2008 Clean Water Act (CWA) §303(d) list. Nantucket Harbor and Polpis Harbor are identified as waterbody segment number MA97-01_2004 and MA97-26_2004, respectively.

The TMDL document provides a good overview of the description and priority ranking of the water bodies, pollutants of concern and pollutant sources (pages 2-6). The companion Massachusetts Estuaries Project final report (November 2006) presents detailed information on the Nantucket Harbor Embayment System, Nantucket Island, and the Town of Nantucket. MassDEP has determined that all nutrient impaired segments in the Commonwealth are a high priority. See the Massachusetts 2008 Integrated List of Waters at:
http://www.mass.gov/dep/water/resources/2008il1.pdf

Assessment:

EPA New England concludes that the TMDL document meets the requirements for describing water body segment, pollutant of concern, identifying and characterizing sources of impairment, and priority ranking.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribe water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy. Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation. A numeric water quality target for the TMDL (a quantitative value used to measure whether or not the applicable water quality standard is attained) must be identified. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, usually site specific, must be developed from a narrative criterion and a description of the process used to derive the target must be included in the submittal.

The TMDL document identifies several provisions of the Commonwealth's water quality standards that are relevant to the cultural eutrophication in these waters, including numeric criteria for dissolved oxygen and narrative criteria for nutrients, and aesthetics. As stated on page 8 of the TMDL document and in EPA guidance, individual estuarine and coastal marine waters tend to have unique characteristics and therefore, individual water body criteria are typically required. For example, the loading of nitrogen that a specific water body can handle without becoming impaired varies. Factors that influence the effect of nitrogen include: flow velocity, tidal hydraulics, dissolved oxygen, and sediment adsorption and desorption of nitrogen.

The Massachusetts Estuaries Project analytical method is the Linked Watershed-Embayment Management Model (Linked Model) and is discussed on pages 8 - 14 of the TMDL document. It links watershed inputs with embayment circulation and nitrogen characteristics, and:

- requires site-specific measurements within each watershed and embayment;
- uses realistic "best-estimates" of nitrogen loads from each specific type of land-use;
- spatially distributes the watershed nitrogen loading to the embayment;
- accounts for nitrogen attenuation during transport to the embayment;
- includes a 2D or 3D embayment circulation model depending on embayment structure;
- accounts for basin structure, tidal variations, and dispersion within the embayment;
- includes nitrogen regenerated within the embayment;
- is validated by both independent hydrodynamic, nitrogen concentration, and ecological data; and
- is calibrated and validated with field data prior to generation of "what if" scenarios.

Sentinel locations were identified in the embayment system as locations at which restoration will necessarily result in high quality habitat throughout the system and attainment of water quality standards (page 12 and Appendix A, Figure A of the TMDL document). These sentinel locations

are located within the lower Head of the Harbor basin and in the eastern basin of Polpis Harbor and are based on eelgrass loss.

Attaining the modeled nitrogen target at the sentinel locations through implementation of the TMDL will lead to restoration of eelgrass and infaunal habitats in each of the sub-embayments. The target threshold nitrogen concentrations which have been determined to be protective for each embayment system are 0.35 mg/L at the Head of the Harbor sentinel station and 0.36 mg/L at the Polpis Harbor sentinel station (Table 2, page 12 of the TMDL document). These concentrations, which represent the average water column concentrations of nitrogen, will restore or maintain high habitat quality in these embayments.

Assessment:

The use of the Linked Model, the description of the process in the TMDL document, and the companion Technical Report to this TMDL document adequately demonstrate the basis for deriving the target nitrogen loads and demonstrating that the targets will achieve water quality standards. EPA concludes that Massachusetts has properly presented its numeric water quality standards and has made a reasonable and appropriate interpretation of its narrative water quality criteria for the designated uses of the Nantucket Harbor embayment system.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

As described in EPA guidance, a TMDL identifies the loading capacity of a waterbody for a particular pollutant. EPA regulations define loading capacity as the greatest amount of loading that a water can receive without violating water quality standards (40 C.F.R. § 130.2(f)). The loadings are required to be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. § 130.2(i)). The TMDL submittal must identify the waterbody's loading capacity for the applicable pollutant and describe the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In most instances, this method will be a water quality model. Supporting documentation for the TMDL analysis must also be contained in the submittal, including the basis for assumptions, strengths and weaknesses in the analytical process, results from water quality modeling, etc. Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation.

In many circumstances, a critical condition must be described and related to physical conditions in the waterbody as part of the analysis of loading capacity (40 C.F.R. § 130.7(c)(1)). The critical condition can be thought of as the "worst case" scenario of environmental conditions in the waterbody in which the loading expressed in the TMDL for the pollutant of concern will continue to meet water quality standards. Critical conditions are the combination of environmental factors (e.g., flow, temperature, etc.) that results in attaining and maintaining the water quality criterion and has an acceptably low frequency of occurrence. Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards.

The Linked Model, as stated in the TMDL document is a robust and fairly complicated model that determines an embayment's nitrogen sensitivity, nitrogen threshold loading levels (TMDL) and response to changes in the loading rate. A key feature of the approach involves the selection of sentinel sub-embayments that have the poorest water quality in the embayment system. If these degraded areas come into compliance with the TMDL, other areas will also achieve water quality standards for nitrogen in the system. This approach captures the critical targets needed to address the impaired segments.

The percent reductions of existing nitrogen loads necessary to meet the target thresholds are: 58% at Head of Harbor, 46% at Quaise Basin, 12% at Town Basin, and 38% at Polpis Harbor (page 15 of the TMDL document). These loads represent one scenario using the Linked Model. The TMDL loading capacity value for each sub-embayment represents the sum of the calculated target threshold load, atmospheric deposition load, and benthic flux load from sediment sources. For example at Head of Harbor, the TMDL is calculated by adding the target threshold load of 0.79 kg/day, the atmospheric load of 22.24 kg/day and the benthic input which is 0 kg/day. The TMDLs for Nantucket Harbor embayment system are 23 kg/day at Head of Harbor, 64 kg/day at Quaise Basin, 25 kg/day at Town Basin, and 31 kg/day at Polpis Harbor (page 19 and Appendix D of the TMDL document). See also Tables 4 and 5 below taken from MassDEP's TMDL document.

TABLE 4: Present Watershed Nitrogen Loading Rate, Target Threshold Nitrogen Loading Rate, and the Percent Reduction of the Existing Load Necessary to Achieve the Target Threshold Load
(taken from page 15 of the TMDL document)

Embayments	Present Watershed Load [1] (kg/day)	Target Threshold Watershed Load[2] (kg/day)	Percent Watershed Load Reductions Needed to Achieve Threshold Loads
Head of Harbor	1.86	0.79	58 %
Quaise Basin	2.12	1.14	46 %
Town Basin	12.22	10.71	12 %
Polpis Harbor	3.52	2.18	38 %

[1] Composed of combined fertilizer, runoff, septic system loadings, and atmospheric deposition to freshwater lakes and natural surfaces

[2] Target threshold watershed load is the load from the watershed needed to meet the target threshold N concentrations identified in Table 2 above

TABLE 5: The Total Maximum Daily Load (TMDL) for Nantucket Harbor Embayment System, Represented as the Sum of the Calculated Target Threshold Load (from Watershed Sources), Atmospheric Deposition, and Benthic Input
(taken from page 19 of the TMDL document)

Sub-embayment	Target Threshold Watershed Load [1] (kg/day)	Atmospheric Deposition (kg/day)	Benthic Input (kg/day)	TMDL [2] (kg/day)
Head of Harbor	0.79	22.24	0	23
Quaise Basin	1.14	20.13	43.01	64
Town Basin	10.71	13.89	0	25
Polpis Harbor	2.18	2.19	26.45	31

[1] Target threshold watershed load is the load from the watershed needed to meet the embayment threshold concentrations identified in Table 2

[2] Sum of target threshold watershed load, atmospheric deposition load, and the benthic input load

Assessment:

The TMDL document explains and EPA concurs with the approach for applying the Linked Model to specific embayments for the purpose of developing target nitrogen loading rates and in identifying sources of needed nitrogen load reduction. EPA believes that this approach is reasonable because the factors influencing and controlling nutrient impairment were well justified.

4. Load Allocations (LAs)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity allocated to existing and future nonpoint sources and to natural background (40 C.F.R. § 130.2(g)). Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. § 130.2(g)). Where it is possible to separate natural background from nonpoint sources, load allocations should be described separately for background and for nonpoint sources.

If the TMDL concludes that there are no nonpoint sources and/or natural background, or the TMDL recommends a zero load allocation, the LA must be expressed as zero. If the TMDL recommends a zero LA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero LA implies an allocation only to point sources will result in attainment of the applicable water quality standard, and all nonpoint and background sources will be removed.

Using the Linked Model, Mass DEP has identified the portion of the loading capacity allocated to existing and future non-point sources necessary to meet water quality standards. These non-point sources are primarily on-site subsurface wastewater disposal systems (i.e. septic systems), runoff (stormwater) and fertilizer. Because there are no NPDES-regulated sources and there is

an implicit Margin of Safety (see Section 6 below), the LA in this TMDL is equal to the TMDL loading capacity in Section 3 above [TMDL (loading capacity) = LA + WLA + MOS; where the WLA and MOS are respectively zero and implicit in this case].

Assessment:

EPA concludes that the TMDL document sufficiently addresses the calculation of the load allocations.

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to existing and future point sources (40 C.F.R. § 130.2(h)). If no point sources are present or if the TMDL recommends a zero WLA for point sources, the WLA must be expressed as zero. If the TMDL recommends a zero WLA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero WLA implies an allocation only to nonpoint sources and background will result in attainment of the applicable water quality standard, and all point sources will be removed.

In preparing the wasteload allocations, it is not necessary that each individual point source be assigned a portion of the allocation of pollutant loading capacity. When the source is a minor discharger of the pollutant of concern or if the source is contained within an aggregated general permit, an aggregated WLA can be assigned to the group of facilities. But it is necessary to allocate the loading capacity among individual point sources as necessary to meet the water quality standard.

The TMDL submittal should also discuss whether a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. In such cases, the State/Tribe will need to demonstrate reasonable assurance that the nonpoint source reductions will occur within a reasonable time.

As discussed in Section 4 above, there are no NPDES-regulated sources in the watershed, therefore, the WLA which is the load from NPDES permit regulated discharges (CWA point sources) is zero. MassDEP has provided, for informational purposes, an estimated (non-CWA) "WLA" in Appendix C of the TMDL document based on the impervious cover in each sub-embayment. Appendix C illustrates the relative amount of impervious cover and associated stormwater runoff between the sub-embayments.

Assessment:

EPA concludes that the TMDL document sufficiently addresses the determination of the waste load allocation which is zero in this TMDL because there are no NPDES regulated point sources.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA § 303(d)(1)(C), 40 C.F.R. § 130.7(c)(1)). EPA guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

The implicit margin of safety is set out in the TMDL document on pages 17 - 18. There are several factors that contribute to the margin of safety inherent in the approach used to develop this TMDL including:

1) **Use of conservative data in the Linked Model as follows**:
   - Nitrogen concentrations in the watershed that were used in the model were higher and more conservative than those actually measured in the streams;
   - Agreement between the modeled and observed values has been approximately 95%;
   - Attenuation factors used were lower and more conservative than those that were actually measured;
   - Lawn fertilization rates were based on actual survey. These rates represent a conservative estimate of the nitrogen load;
   - Loading calculations assumed that 90% of water used is converted to wastewater, which is a conservative assumption; and
   - Loading calculations for homes that do not have metered water use were made conservatively;

2) **Conservative sentinel station/target threshold nitrogen concentrations**
Sites were chosen that had stable eelgrass or benthic (infaunal) communities. Selection of sites that were starting to show impairment would have resulted in higher nitrogen concentrations; and

3) **Conservative approach**
Target loads were based on averaged nitrogen concentrations on the outgoing tide. This is the worst case scenario because this is when the nitrogen concentrations are highest. Nitrogen concentrations will be lower on the flood tides, due to dilution from the incoming tide.

Assessment:

EPA concludes that the implicit margin of safety for the TMDL is acceptable.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The method chosen for including seasonal variations in the TMDL must be described (CWA § 303(d)(1)(C), 40 C.F.R. § 130.7(c)(1)).

The TMDL for the water body segment identified in the document are based on achieving the nitrogen loads during the most critical time period, i.e., the summer growing season. Since the other seasons are less sensitive to nitrogen loading, the TMDL is protective of all seasons throughout the year. Seasonal variation is addressed on page 19 of the TMDL document.

Assessment:

Since the other seasons are less sensitive to nitrogen loading, EPA concludes that the TMDL is protective of all seasons throughout the year.

8. Monitoring Plan for TMDLs Developed Under the Phased Approach

EPA's 1991 document, Guidance for Water Quality-Based Decisions: The TMDL Process (EPA 440/4-91-001), and EPA's 2006 guidance, Clarification Regarding "Phased" Total Maximum Daily Loads, recommend a monitoring plan when a TMDL is developed using the phased approach. The guidance indicates that a State may use the phased approach for situations where TMDLs need to be developed despite significant data uncertainty and where the State expects that the loading capacity and allocation scheme will be revised in the near future. EPA's guidance provides that a TMDL developed under the phased approach should include, in addition to the other TMDL elements, a monitoring plan that describes the additional data to be collected and a scheduled timeframe for revision of the TMDL.

Because this TMDL is not a "phased" TMDL, a monitoring plan is not required in order to assure that data is available for updating the TMDL in the near future. Nevertheless, in order to assess the progress in obtaining the TMDLs' water quality goals, MassDEP has recommended that the Town of Nantucket track implementation progress as approved in the Town Comprehensive Wastewater Management Planning (CWMP) and monitor ambient water quality conditions at the sentinel stations (pages 21-22 of the TMDL document). MassDEP presents suggested guidelines for water quality, benthic habitat and community, and eelgrass bed monitoring.

Assessment:

EPA New England concludes that the anticipated monitoring by and in cooperation with MassDEP is sufficient to evaluate the adequacy of the TMDL and attainment of water quality standards, although not a required element for TMDL approval.

9. Implementation Plans

On August 8, 1997, Bob Perciasepe (EPA Assistant Administrator for the Office of Water) issued a memorandum, "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)," that directs Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired solely or primarily by nonpoint sources. To this end, the memorandum asks that Regions assist States/Tribes in developing implementation plans that include reasonable assurances that the nonpoint source load allocations established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. The memorandum also includes a discussion of renewed focus on the public participation process and recognition of other relevant watershed management processes used in the TMDL process. Although implementation plans are not approved by EPA, they help establish the basis for EPA's approval of TMDLs.

The implementation plan for the total nitrogen TMDL for the Nantucket Harbor Embayment System is described on pages 20 and 21 of the TMDL document. EPA concludes that the approach taken by MassDEP is reasonable because of the resources available to the towns to address nitrogen, such as the CWMP, additional linked model runs at nominal expense, assessment of cost-effective options for reducing loadings from individual on-site subsurface wastewater disposal systems, land use planning and controls, water conservation, and stormwater control and treatment. MassDEP advised the town to incorporate the nitrogen loading reduction

strategies outlined in the Massachusetts Estuaries Implementation Guidance report http://www.mass.gov/dep/water/resources/restore.htm into the implementation plan.

Assessment:

MassDEP has addressed the implementation plan, although it is not required. EPA is taking no action on the implementation plan.

10. Reasonable Assurances

EPA guidance calls for reasonable assurances when TMDLs are developed for waters impaired by both point and nonpoint sources. In a water impaired by both point and nonpoint sources, where a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur, reasonable assurance that the nonpoint source reductions will happen must be explained in order for the TMDL to be approvable. This information is necessary for EPA to determine that the load and wasteload allocations will achieve water quality standards.

In a water impaired solely by nonpoint sources, reasonable assurances that load reductions will be achieved are not required in order for a TMDL to be approvable. However, for such nonpoint source-only waters, States/Tribes are strongly encouraged to provide reasonable assurances regarding achievement of load allocations in the implementation plans described in section 9, above. As described in the August 8, 1997 Perciasepe memorandum, such reasonable assurances should be included in State/Tribe implementation plans and "may be non-regulatory, regulatory, or incentive-based, consistent with applicable laws and programs."

The Commonwealth has statutory and regulatory authority to encourage implementation of this TMDL. Nitrogen loading reductions are currently being required through a consent decree and the CWMP. In addition, Nantucket has demonstrated its commitment to implement this TMDL through the comprehensive wastewater planning that they initiated well before the generation of this TMDL. The town expects to use the information in this TMDL to generate support from their citizens to take the necessary steps to remedy existing problems related to nitrogen loading from septic systems, stormwater, and runoff (including fertilizers), and to prevent any future degradation of these valuable resources. Enforcement of local, state, and federal programs for pollution control contribute to the level of reasonable assurance. There are also financial incentives to encourage the community to follow through with its plans and prevent further degradation to water quality.

Assessment:

Reasonable assurance is not necessary for this TMDL to be approvable, since the point sources are not given less stringent wasteload allocations based on projected nonpoint source load reductions. MassDEP has provided reasonable assurance that water quality standards will be met.

11. Public Participation

EPA policy is that there must be full and meaningful public participation in the TMDL development process. Each State/Tribe must, therefore, provide for public participation consistent with its own continuing planning process and public participation requirements (40 C.F.R. § 130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval must describe the State/Tribe's public participation process, including a summary of significant comments and the State/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. § 130.7(d)(2)).

Inadequate public participation could be a basis for disapproving a TMDL; however, where EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

MassDEP publicly announced the draft TMDL on September 25, 2007 and copies were distributed to all key stakeholders. The draft TMDL was also posted on the Department's web site for public review on that date. A public meeting was held at the Town of Nantucket, Veteran's Community Center on October 9, 2007 for information and solicitation of comments. The public comment period was extended until November 2, 2007. MassDEP submitted a response to comments to EPA along with the final submission on February 3, 2009.

Assessment:

EPA concludes that MassDEP has involved the public during the development of the TMDL, has provided adequate opportunities for the public to comment on the TMDL, and has provided reasonable responses to the public comments.

12. Submittal Letter

A submittal letter should be included with the TMDL analytical document, and should specify whether the TMDL is being submitted for a technical review or is a final submittal. Each final TMDL submitted to EPA must be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final submittal, should contain such information as the name and location of the waterbody, the pollutant(s) of concern, and the priority ranking of the waterbody.

On February 3, 2009, MassDEP submitted a final TMDL for total nitrogen in the Nantucket Harbor Embayment System for EPA approval. The final TMDL contained revisions based upon public comments. The TMDL document contained all of the elements necessary to approve the TMDL.

Assessment:

MassDEP's letter of February 3, 2009 states that the TMDL is being formally submitted for EPA review and approval.

Attachment 1

2 Total Nitrogen TMDLs

Embayment	Description	Sub-Embayment	TMDL (kg/day)
Nantucket Harbor Water Body Segment # MA97-01_2004	Determined to be impaired for nutrients, pathogens, and noxious aquatic plants by MassDEP.	Head of Harbor	23
		Quaise Basin	64
		Town Basin	25
Polpis Harbor Water Body Segment # MA97-26_2004	Determined to be impaired for nutrients, other habitat alterations, and pathogens by MassDEP.		31

Data for entry in EPA's National TMDL Tracking System	
TMDL Name *	Nantucket Harbor Bay System
Number of TMDLs*	2
Type of TMDLs*	Nutrients (Nitrogen)
Number of listed causes (from 303(d) list)	2
Information/prevention TMDLs, Y/N? (#)	No
Lead State	Massachusetts
TMDL Status	Final

Individual TMDLs listed below

TMDL sub-embayments systems and segment names	***TMDL Segment ID #***	***TMDL Pollutant ID# & name***	***TMDL Impairment Cause(s)***	***Pollutant endpoint***	***Unlisted?***	***NPDES Point Source & ID#***	***Listed for something else?***
Nantucket Harbor: Head of Harbor [See note below]	MA97-01_2004	511 (total nitrogen)	Nutrients	0.35 mg/L Total Nitrogen	No		Yes Pathogens, noxious aquatic plants
Polpis Harbor	MA97-26_2004	511 (total nitrogen)	Nutrients	0.36 mg/L Total Nitrogen	No		Yes Pathogens, Other habitat alterations

TMDL Type	Nonpoint Source (Stormwater)
Establishment Date (approval)*	May 12, 2009
EPA Developed	No
Towns affected*	Nantucket

Note: Nantucket Harbor has 3 sentinel locations within one segment for purposes of the TMDL: Head of Harbor, Quaise Basin, and Town Basin