DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER MONITORING AND STANDARDS

ADOPTION OF AMENDMENTS TO THE OCEAN AND TRI-COUNTY WATER QUALITY MANAGEMENT PLANS TO ESTABLISH FOURTEEN TOTAL MAXIMUM DAILY LOADS FOR TOTAL COLIFORM FOR SHELLFISH IMPAIRED WATERS THAT EXTEND INTO OCEAN COUNTY

Public Notice

Take notice that on , pursuant to the provisions of the New Jersey Water Quality Planning Act, N.J.S.A. 58:11A-1 et seq., and the Statewide Water Quality Management Planning rules, N.J.A.C. 7:15-6.4, the New Jersey Department of Environmental Protection (Department) adopted amendments to the Ocean and Tri-County Water Quality Management Plans (WQMPs). The amendments establish 14 Total Maximum Daily Loads (TMDLs) for total coliform for shellfish-impaired waters that extend into Ocean County as identified in Table 1. In the proposal notice (38 N.J.R.1232 (a)), sixteen TMDLs were listed. Upon proposal of the report, the number of TMDLs was corrected to fourteen. The amendments consist of a detailed report, entitled "Fourteen Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 13 Atlantic Coastal Water Region", that provides the technical and regulatory basis for the TMDLs. The report is available from the Department at http://www.nj.gov/dep/wms/bear/tmdls.html.

Background

A TMDL represents the assimilative or carrying capacity of a waterbody taking into consideration point and nonpoint sources of pollutants of concern, natural background and surface water withdrawals. A TMDL quantifies the amount of a pollutant a water body can assimilate without violating applicable water quality standards and allocates that loading capacity to known point sources in the form of wasteload allocations (WLAs), nonpoint sources in the form of load allocations (LAs), and includes a margin of safety and optional consideration of reserve capacity. TMDLs are required, under Section 303(d) of the Federal Clean Water Act, 33 U.S.C. 1313(d), to be developed for waterbodies that cannot meet water quality standards after the implementation of technology-based effluent limitations. TMDLs may also be established to help maintain or improve water quality in waters that are not impaired. Federal regulations concerning TMDLs are contained in United States Environmental Protection Agency's (EPA) Water Quality Planning and Management Regulations (40 CFR 130).

On September 16, 2002, the Department and the EPA Region 2 entered into a Memorandum of Agreement (MOA) creating a schedule for establishment of TMDLs for impaired waters as listed on New Jersey's approved Integrated List of Waterbodies. The Integrated List of Waterbodies classifies waterbodies into five categories to convey water quality attainment status. Impaired waterbodies are listed on Sublist 5 of the Integrated List (also known as the 303(d) list). The State of New Jersey's 2004 Integrated List of Waterbodies (see 35 N.J.R. 4920(a); 36 N.J.R. 1238(b); and 36 N.J.R. 4543(a)), identified numerous waterbodies in the Atlantic Coastal Water Region (Watershed Management Area (WMA) 13) as being impaired by pathogens, as evidenced by the presence of total coliform concentrations in excess of the National Shellfish

Sanitation Program (NSSP) standards (the Shellfish Classification can be found at http://www.nj.gov/dep/rules/rules/njac7_12.pdf and the National Shellfish Sanitation Program Guide can be found at http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/FederalStatePrograms/NationalShellfishSanitationProgram/ucm046353.htm).

The NSSP is the cooperative program between the Federal government and states for the sanitary control of shellfish produced and sold for human consumption. The purpose of the NSSP is to promote and improve the sanitation of shellfish. The NSSP includes numeric criteria for pathogen indicator organisms (fecal coliform or total coliform) as well as non-numeric considerations that are used to determine where it is appropriate to harvest shellfish. Waterbodies in New Jersey's coastal waters were evaluated and those that did not fully support shellfish designated use were included on the 2004 Integrated List of Waterbodies (2004 303(d) List).

The amendments adopted at this time establish 14 total maximum daily loads for total coliform in the shellfish-impaired waters identified in Table 1. The impaired waters and percent reduction are included in Table 1. The Department established the fourteen TMDLs being adopted at this time on September 7, 2006 and submitted them to EPA pursuant to N.J.A.C. 7:15-7.2(k) for review in accordance with 40 CFR 130.7. These TMDLs were approved by EPA on September 27, 2006. When a TMDL is approved by EPA, a waterbody which is not attaining the water quality standards is moved from the Integrated List of Waterbodies (water quality standard is not attained, TMDL required) based upon a TMDL approved or established by EPA. As a result of EPA's approval of the TMDLs, these waterbodies were delisted in 2006.

Table 1. Total coliform-impaired waters in WMA 13, identified in Sublist 5 of the 2004 Integrated List of Waterbodies for which TMDLs are being adopted

TMDL Number	2004 303(d) Listing Station Name	Listing Site ID #	Counties	Action
1	Barnegat Bay	Barnegat Bay-18, 30, eastern portion of 23	Ocean	TMDL Subgroup M 40% Reduction
2	Beaverdam Creek Estuary	1401C, 1401D, 1600, 1600A	Ocean	TMDL 41% Reduction
3	Cedar Creek Estuary-13	R12, Cedar Creek-1	Ocean	TMDL 48% Reduction
4	Cedar Run-Tidal	R17, 1709	Ocean	TMDL 75% Reduction
5	Barnegat Bay	Double Creek Estuary 1672, 1672A, 1673, 1673A	Ocean	TMDL Subgroup C 50% Reduction
6	Barnegat Bay	Forked River Estuary 1661	Ocean	TMDL Subgroup C 50% Reduction
7	Barnegat Bay	Barnegat Bay-7,10; Kettle Creek-Tidal R09, 1614	Ocean	TMDL Subgroup E 23% Reduction
8	Manahawkin Bay	Manahawkin Bay-2 (northern portion)	Ocean	TMDL Subgroup A 16% Reduction
9	Metedeconk River Estuary	Upper Metedeconk River Estuary-1	Ocean	TMDL 87% Reduction
10	Mill Creek-Tidal	1706	Ocean	TMDL 16% Reduction
11	Barnegat Bay	Oyster Creek Estuary 1663	Ocean	TMDL Subgroup C 50% Reduction
12	Toms River Estuary	Toms River Estuary-1; Toms River/Barnegat Bay-2	Ocean	TMDL 74% Reduction
13	Tuckerton Creek Estuary	1813A-H, 1928C	Ocean	TMDL 86% Reduction
14	Westecunk Creek Estuary	1712, 1713C, 1714, 1714A	Ocean	TMDL 87% Reduction

As noted above, the Department listed these waterbodies as being impaired by pathogens, as evidenced by the presence of total coliform. These fourteen TMDLs serve as a foundation for management approaches and restoration plans aimed at identifying the sources of pathogens and for setting goals for pathogen load reductions in order to attain applicable surface water quality standards. Identification and action to address sources of contamination are an ongoing process.

Fecal coliform are bacteria that live in the digestive tract of warm-blooded animals (humans, pets, farm animals, and wildlife) and are excreted in the feces. Total coliform includes both fecal coliform and bacteria that live in the soil and are not necessarily associated with fecal material. Both total and fecal coliform bacteria are used as indicators of the potential presence of disease-causing organisms, which are generally present in such minute amounts they are not easily monitored for directly. Nonpoint and stormwater sources are the primary contributor to total coliform loads in these streams and can include storm-driven loads transporting total coliform from sources such as geese, farms, and domestic pets to the receiving water. Nonpoint sources also include steady-inputs from sources such as failing sewage conveyance systems and failing or inappropriately located septic systems. Because the total source contribution from sewage treatment plants in the area of the waterbodies that are the subject of these fourteen TMDLs is an insignificant fraction of the total load, these total coliform TMDLs will not impose any change in current practices for Sewage Treatment Plants and will not result in wasteload allocations or changes to existing effluent limits for these facilities.

The TMDL percent reduction required in the waterbody was based on the difference between the calculated 90th percentile at the "worst case" monitoring station (using the FDA method specified in NSSP guidelines) and the NSSP 90th percentile criteria; or the calculated geometric mean and

the NSSP geometric mean criteria. As explained in the TMDL report, the Department conservatively selected whichever reduction was greater. Source loads were then reduced for each waterbody (or sub-group) to meet the overall percent reduction required.

The Department promulgated criteria for EPA's recommended pathogen indicators for recreational use - E. coli and Enterococcus in 2006. Since the Department had already completed a number of TMDLs to address pathogen listings on New Jersey's 303(d) list, the Department made a decision not to list E. coli and enterococcus in waters already addressed by an adopted TMDL for pathogens (total coliform or fecal coliform). These waters will continue to be assessed as not supporting the shellfish use and/or the recreational use until data indicated that the pathogen indicators met the State Surface Water Quality Standards (SWQS), N.J.A.C. 7:9B.

The TMDL report provides extensive information to assist with more specific identification of sources. The Watershed Treatment Model (WTM), successfully applied in previous coastal TMDL studies of Oyster Bay-New York and the U.S. Virgin Islands, is a series of spreadsheets that quantifies the loading of pathogen indicators based on land use distribution, stream network length in the watershed, and annual rainfall. The WTM's load duration curves, which are useful in identifying and differentiating between storm-driven and steady-input sources, are provided for stream segments for which streamflow gage information is available. The Department, in collaboration with local stakeholder groups, narrowed the scope of the potential primary sources of total coliform contamination to these waterbodies to the following:

<u>Non-Human Sources of Total Coliform</u>

- Canada geese, pest waterfowl and other wildlife

- Pet Waste
- Stormwater basins which can act as accumulation points of fecal matter (from pets, waterfowl and wildlife)
- Direct stormwater discharges to waterbodies
- Farms

Human Sources of Total Coliform

- Malfunctioning or older improperly sized septic systems
- Failing Sewerage Conveyance Systems
- Improper garbage storage and disposal
- Improper boat waste disposal

In addition, other potential sources of total coliform specific to each waterbody are identified in the TMDL report. When bacterial sources are adequately identified, best management practices (BMPs) specified in the TMDL report for each source category will be applied to reduce bacterial loading to meet the SWQS. When bacterial sources are not easily identifiable, the TMDL requires bacterial source tracking (advanced chemical, biochemical and molecular monitoring methods) to be used in conjunction with the resulting percent load reduction and load duration curves to further identify pathogen sources.

TMDLs include both short-term and long-term management strategies. Short-term management strategies include existing projects funded by the Department to address total coliform impairments to an impaired waterbody. These projects for the most part include streambank restoration projects, stormwater retrofits, implementation of BMPs and monitoring. Federal pass

through 319(h) Nonpoint Source Pollution Control and Management Implementation Grants have been awarded by the Department since 1995 to local and regional organizations for projects that implement management practices for nonpoint source control. For a list of projects addressing nonpoint source pollution in WMA 13, see http://iaspub.epa.gov/pls/grts/f?p=110:87:6622811465001:pg_R_42618487843726196:NO&pg_min_row=251&pg_max_rows=50&pg_rows_fetched=19.

While short-term management measures will begin to reduce sources of total coliform in the Atlantic Coastal Water Region, additional measures will be needed to verify and further reduce or eliminate these sources. Long-term management strategies are provided for each source category. Long-term strategies include Stormwater Management Plans and Canada Goose Damage Management Plans.

The amendments were noticed in the New Jersey Register on February 21, 2006 at 38 N.J.R. 1232(a). A public hearing was held on March 23, 2006 at the Ocean County College - Toms River Campus with six people in attendance. Comments on the amendments were received during the public comment period and are summarized below with the Department's responses.

Summary of Public Comments and Department Responses

Commenter

1. Jennifer A. Murphy, Mid-Atlantic Environmental Law Center, c/o Widener University School of Law, 4601Concord Pike, PO Box 7474, Wilmington, Delaware 19803

2. Cindy Zipf, Jennifer Samson, and Nicole Simmons, Clean Ocean Action, 18 Hartshorne Drive, PO Box 505, Sandy Hook, Highlands, NJ 07732- 0505
3. Leann Foster-Sitar, American Littoral Society, Building 18, Sandy Hook, Highlands, NJ 07732
4. William Simmons, Monmouth County Health Department, 3435 US Route 9, Freehold, NJ 07728

A summary of comments on the TMDL, and the Department's Responses to those comments follows. The number(s) in brackets at the end of each comment corresponds to the commenters listed above.

1. Comment: The Department has a duty to develop TMDLs for impaired waters in all shellfish harvest restriction areas, including those restricted based on shoreline surveys or where insufficient data or no data for a waterbody exists. The Department cannot move a waterbody from one Sublist to another without the approval of the USEPA. (1)

Response: The Department acknowledges that EPA must approve any change in status of a waterbody with respect to Sublist 5 of the Integrated List. The EPA has been involved in the development of these TMDLs and concurs with the approach for each waterbody. In the course of developing the TMDLs, all available data was gathered and analyzed and the spatial extent of each listing was assessed. For some waterbodies, it was determined that, while there was sufficient data to declare the waterbody as impaired, there was insufficient data to calculate a TMDL. These waterbodies will remain on Sublist 5 until enough data is gathered to permit

calculation of a TMDL. In some cases it was determined that a waterbody was listed as impaired in the absence of water quality data applicable to the waterbody. For example, the spatial extent used for initial assessment may have been revised as the result of more detailed assessment during TMDL development. This was the case when some waterbodies were divided into smaller sub-groups to reflect local water quality conditions, watershed characteristics and local pollution sources. Sub-groups were delineated based on several criteria, including the location of monitoring stations and data availability, the size and spatial extent of each waterbody, the location of possible pathogen sources, and other waterbody/watershed characteristics. In these cases, the resultant waterbody with no water quality data was moved to Sublist 3 until a determination as to impairment status based on data can be made. Where there was sufficient data, TMDLs were calculated for each waterbody in WMA 13 that was impaired based on the water quality data, provided an improvement in water quality would result in lifting the harvesting restriction. Where the presence of actual or potential sources (such as marinas or stormwater outfalls), rather than water quality, was the basis for non-support of the shellfish designated use, the waterbody does not qualify for a TMDL because water quality improvement would not result in full support of the shellfish use. Such closures of shellfish waters are considered administrative closures. In areas where the water quality does not conform to the criteria, but the areas would not be open even if water quality improved, the areas will be placed on Sublist 4, as the impairment is due to pollution, not pollutants. Beyond requiring compliance with the numeric water quality standards, the NSSP requires the State authority to impose precautionary restrictions based on the presence of sources that could deliver loads of pathogens unexpectedly. Sources capable of delivering such a pathogen load could include, for example, a malfunction of a sewer or septic system. Discharges can also result from behaviors that are

difficult to regulate, such as the handling of waste generated on watercraft. In order to protect human health, precautionary harvesting restrictions are required, even if ambient monitoring data conform to the standards, because ambient monitoring may not capture random, unpredictable excursions due to such sources. Waterbodies that are restricted based on such administrative precautions were not considered for TMDLs because no improvement in water quality would result in full support of the designated use. As these waterbodies are closed due to the potential for contamination, regardless of actual water quality data, waters closed for shellfishing as the result of administrative precautions were removed from Sublist 5 and placed on Sublist 4C in the 2006 and 2008 Integrated Lists of Waterbodies. As explained in both the 2006 and the 2008 Integrated Reports, Sublist 4C states that development of a TMDL is not required because non-attainment is caused by something other than a pollutant (e.g. "pollution" such as overland flow of stormwater, stream flow alterations, or habitat degradation).

2. Comment: The Department does not indicate that it developed the TMDLs with the USEPA's guidance document, "Protocol for Developing Pathogen TMDLs", First Edition, January 2001, USEPA Document Number EPA 841-R-00-002, ("Pathogen Protocol"). The Pathogen Protocol is the more specific guidance document, and should have been utilized in the development of the TMDL. (1)

Response: The USEPA guidance document "Protocol for Developing Pathogen TMDLs" establishes an organizational framework for states to utilize in the development of pathogen TMDLs. These TMDLs have been developed consistent with the protocol, even though this was not specifically stated in the document.

3. Comment: There is a blank page in the document, yet there is no explanation for whether this was intentional. (1)

Response: The Department has removed the unintentional, blank page from the document.

4. Comment: The commenter appreciates the effort put into the source assessment. (1)

Response: The Department acknowledges the commenter's support.

5. Comment: The Department does not state when the waterbodies included in the local area report were first listed as impaired, yet in some cases it relies on data from 1992. If the water bodies were not impaired when this data was gathered, then it would not reflect the impairment which this TMDL is to address. To ensure that accurate data is being used to develop this TMDL, the Department must use recent data. (1)

Response: Local area report summaries were included to provide background information on water quality conditions, pollution sources, and watershed characteristics. Recent shellfish monitoring data collected by the Department (data period: 1980-2004) and updated source information (marina locations, land use data, and other geographic information) were used to develop these TMDLs. These TMDLs, therefore, reflected the most current data that were available at the time.

6. Comment: Although the Department, in Table 8, provides the sum of the Waste Load Allocations (WLA) for each waterbody, it has failed to list the WLA for each individual point source, including New Jersey Pollutant Discharge Elimination System (NJPDES) permit holders and Tier A municipality point sources, as required by the regulations. (1)

Response: As stated in the TMDL document, wastewater discharges in the affected waterbodies (listed individually in Appendix B of the TMDL document) are considered *de minimus* sources and have each been assigned a WLA of zero, with no change in the effluent limit of 200 cfu/ml. Tier A municipalities (identified individually in Appendix C of the TMDL document) have each been assigned the percent reduction assigned to all reducible sources. This method of assigning WLAs to Municipal Separate Stormwater Sewer System (MS4) sources is accepted by EPA, as described in the document. The distinction is that the point sources receive the reduction as a WLA, while nonpoint sources receive the reduction as a LA.

7. Comment: The commenter assumes that by "malfunctioning sewage conveyance systems" the Department is referring to combined sewer overflows, which should be a point source, not a nonpoint source. (1)

Response: The term refers to broken pipes and pumping facilities, which are episodic, unplanned events that are immediately corrected and do not figure into either load or wasteload allocations.

8. Comment: The Department fails to state from where the runoff volume figures were derived. (1)

Response: The Watershed Treatment Model is a series of spreadsheets that quantifies the loading of pathogen indicators based on land use distribution, stream network length in the watershed and annual rainfall. The model calculates the annual runoff volume for each watershed based on annual average (or median) rainfall data (inches/year). Annual median rainfall estimates were derived from the rainfall data collected at National Oceanic and Atmospheric Administration weather stations (for the period of record) within or proximate to these watersheds.

9. Comment: After examination of the WTM's User Manual, the commenter was unable to reconcile the figures and land uses listed in Table 5 of the TMDL Document. (1)

Response: The bacteria loading coefficients presented in Table 5 are the default values used in the WTM. The online WTM user's manual references the WTM spreadsheet in the introductory statement and also provides a download link to the spreadsheet. A loading coefficient for barren lands was not included in the WTM; therefore, an estimated value was used for this land use category.

10. Comment: The Department does not state what the load capacity is or how such a figure was calculated. There is no way to verify the accuracy of the TMDLs. (1)

Response: The TMDL that was calculated for each waterbody defines the loading capacity, which is the amount of pollutant loading that a waterbody can receive without violating water

quality standards. TMDLs were developed based on comparing current bacteria levels to National Shellfish Sanitation Program (NSSP) criteria for total coliform. Source load reductions necessary to meet these TMDLs (i.e. loading capacity) were calculated and are presented in Table 8 and Table 9 of these reports.

11. Comment: The Department does not offer a timeframe for implementing the proposed implementation management strategies, including a timeframe for when the control measures are to be phased in under the Municipal Stormwater permitting program. The Department should fast-track the MS4 program for these waterbodies to implement the reductions through MS4 permits. (1)

12. Comment: The commenter commends the Department for setting over 48 TMDLs in 6 watershed management areas, but achievement of the needed reductions is not ensured because of the lack of detailed information on monitoring, implementation, and enforcement strategies. Because several different "potentially responsible entities" will need to implement management strategies to meet the TMDL for each waterbody, it is imperative that the Department elaborate as to the specific actions in TMDL implementation to be taken for success, including the Division of the Department that will be taking on these responsibilities. It is also essential that this program be adequately funded with a dedicated staff person. (2)

13. Comment: It appears that the TMDLs will be implemented primarily through the Municipal Stormwater Regulation Program. The rules for this program provide for "additional measures" which can be required by, among other things, a TMDL approved or established by EPA. The

TMDLs must be included in each municipal permit as an additional measure and must, therefore, include BMPs that are required to be implemented with measurable goals for each BMP, and a specific timeframe in which to complete the implementation of the BMPs. (2)

14. Comment: There are neither timelines when required reductions must be achieved, nor any enforcement provisions when a waterbody fails to achieve the required reduction. These deficiencies make it impossible for the Department to effectively manage the responsible entities and enforce these mandated fecal coliform concentration reductions. If the Department finds that enforcement is not appropriate, they must identify specific follow-up action that will be required to successfully achieve the imposed TMDLs. (2)

Response to Comments 11 through 14: New Jersey has a long history of improvement for coastal waters. Between 1978 and 2003, the area of New Jersey's harvestable shellfish waters statewide has increased 16%, from 74% to 90%. More recently, the rate of improvement over the past 10 years has been, roughly, a 0.4% per year increase in "approved" waters. The commenters are correct that, going forward, the primary means to implement the TMDLs is through the municipal stormwater regulation program. As described in the section of the TMDL entitled 7.0 Implementation, the statewide basic requirements (New Jersey Pollutant Discharge Elimination System rules, at N.J.A.C. 7:14A-25.6(b)) include various control measures that should substantially reduce bacteria loadings, including measures to eliminate "illicit connections" of domestic sewage and other waste to the MS4s, adopt and enforce a pet waste ordinance, prohibit feeding of unconfined wildlife on public property, clean catch basins, perform good housekeeping at maintenance yards, and provide related public education and employee training.

Upon implementation, these requirements are expected to be highly effective in controlling inputs of total coliform load into the waterbodies. The implementation schedule for the municipal stormwater regulation program has already been set forth in rules and can be found at http://www.nj.gov/dep/dwq/msrp_home.htm. The Department believes that this schedule is sufficiently aggressive and notes that the statewide basic requirements are currently operative. "Additional measures" (at N.J.A.C. 7:14A-25.6(e)) as provided for in the rules are those that are identified to be needed, beyond the basic requirements, to address water quality problems. No "additional measures" have been identified at this time. Effectiveness monitoring will determine whether the objectives of the TMDLs are being met. If this monitoring determines that objectives are not being met, adaptive management prescribes the consideration of additional measures.

The remaining elements of the plan for attaining the designated use will proceed over time and may be adjusted, as needed, through adaptive management, to respond to results of the shellfish waters classification monitoring program. Data is collected and assessed continually throughout the year, and will inform further development and/or refinement of management measures to implement the TMDLs. The Department is continually working through its watershed management initiative to implement nonpoint source reduction strategies within the 20 watershed management areas, consistent with established TMDLs, using available resources. The TMDL documents provide the basis upon which regulatory action can be taken to implement management strategies and to prioritize funding for water quality improvement. The Department has been and continues to target available resources, like the 319(h) nonpoint source grant program, Corporate Business Tax (CBT) revenues and USDA allied grant programs for

agricultural areas (Environmental Quality Incentives Program (EQIP), Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP)) to address sources in the impaired areas for which TMDLs were completed. Follow up monitoring will determine where efforts need to be stepped up or redirected to attain the designated use. Finally, the TMDL process and adoption of the TMDLs as amendments to the applicable areawide Water Quality Management Plans (WQMPs) is significant because it assures that plan amendments and permitting throughout the Department are consistent with the TMDLs. For example, implementation of septic management districts may be required through wastewater management plan updates where septic system sources are identified.

The overall implementation plan, while relying on monitoring, permitting and enforcement programs as well as funding sources available within and outside of the Department, is coordinated through the Division of Land Use Regulation, which has dedicated resources to this purpose.

15. Comment: The proposed amendments fail to incorporate management strategies to systematically monitor and improve TMDL compliance. Adequate and continual assessment of the implemented TMDLs must happen to ensure that loadings are reduced. Sections 6.0 and 7.0, addressing follow-up monitoring and implementation, do not explicitly require regular monitoring in all listed waterbodies or include a schedule to assess the effectiveness of the TMDLs through monitoring. It is strongly urged that the Department include in the proposed amendments the requirement to perform regular monitoring on all listed waterbodies and a

timeline for using these data in trend analyses to assess the effectiveness of the TMDL implementation. (2)

Response: The Department's Bureau of Marine Water Monitoring conducts extensive sampling in the shellfishing waterbodies addressed in this TMDL report. Trend analysis of water quality for shellfish classification is performed throughout the year and will also be used to assess effectiveness of TMDL implementation, as explained in the Reasonable Assurance section of the TMDL document (Section 8).

16. Comment: In general, the commenter strongly supports the Department's efforts to document declining water quality throughout the coastal zone, estuaries, and shellfish areas. Providing scientific evidence of water quality degradation and developing management and implementation strategies to improve the situation are needed for estuarine recovery. The data show that, over time, resources like harvestable shellfish waters can recover and the Department is applauded for this proposal which could, if forcefully implemented, lead to continued estuarine recovery. Numerical thresholds for resolving impairments are supported and integration of these standards into the Water Quality Management Planning and Stormwater Management programs is the right step toward implementation.

However, the TMDLs lack specific requirements for coordinated regulatory, regional and municipal implementation, without which land use decisions will continue to undermine plans for water quality improvement.

Studies show development and increasing impervious cover is directly linked to diminishing water quality in our bays and estuaries. Natural resource capacity is currently not reflected in permitting and planning in the coastal zone, including in establishing Coastal Centers and in the cross-acceptance/endorsed plan process. The Department must require that these TMDLs are integrated into the policies and permitting decisions made by other agencies and by all sections of the Department as scientifically verified and appropriate limits on how much growth is sustainable and where growth should go. In particular, the Land Use Regulation Program (LURP), the Division of Watershed Management, the Office of Policy and Planning and the Coastal Management Program must work collaboratively to ensure that decisions affecting coastal watersheds are consistent with capacity limits that will achieve water quality objectives. No permits should be issued for land uses that threaten shellfish waters and there should be no further extension of sewer service area to support center-based development in sensitive coastal watersheds.

Also needed is a fully funded watershed area management plan in which State-sponsored stakeholders in every coastal county are charged with integrating TMDLs into regional and local stormwater management plans and local ordinances. Additional funding for stormwater plans is needed as well. Monitoring and implementation of TMDLs at the local level could assist the Department to increase the frequency of monitoring for those waterbodies. In this way, problems could be more quickly identified, and Sublist 5 could be more quickly updated and the risks to the public health could be reduced. Regulatory requirements in both the Stormwater Management and Surface Water Quality Protection programs must also be strengthened so that

counties and municipalities can be held accountable for land use decisions that undermine the specific TMDL standards and/or the intent and purpose of this proposed shellfish water quality recovery program. Recognizing 2006 budget constraints, alternatively, funding benefits in other programs should be linked to completion of updated Plans and in so doing direct that municipalities take steps in both land use planning and stormwater management to implement these proposed TMDLs. (3)

Response: The Department acknowledges the commenter's support of its efforts to protect and improve water quality throughout the State. These efforts have led to improved water quality in many areas, such as in shellfish waters where harvest areas have increased 16%, from 74% to 90% between 1978 and 2003. More recently, the rate of improvement over the past 10 years has been, roughly, a 0.4% per year increase in "approved" waters. TMDLs are just one of the methods utilized to improve water quality in the State. In general, TMDLs have certain regulatory authority that is applied to advance implementation strategies. For example, NJPDES permits may have requirements added as specified in a TMDL to achieve load reductions. In addition, once adopted as an amendment to the applicable Water Quality Management Plan, State permits must be consistent with the findings of a TMDL. These TMDLs do not establish any capacity limitations, as it is expected that the measures identified will control new sources as well as existing sources. The suggestion that there be no further sewer service provided in coastal areas may be counter-productive, as some closure areas are so designated because of high density development served by septic systems. If these systems are failing, sewer installation may be an appropriate solution to address the problem and should not be discounted out of hand. As discussed in further detail in the TMDL document in the Implementation section (section 7),

other implementation measures require voluntary participation, encouraged and assisted by the Department's Division of Land Use Regulation and funding programs managed by the Department (CBT, 319(h), 604(b) and the Environmental Infrastructure Financing Program) and other agencies (USDA Farm Bill programs i.e. EQIP, CRP). As stated by the commenter, the Department's 2006 budget and subsequent budgets did not allow for funding beyond that which has already been provided to assist municipalities that may be used to implement the stormwater regulation requirements. However, shellfish beds continue to be opened due to such Department initiatives as the Clean Marinas Program which is now up to 44 facilities certified as using best management practices to protect New Jersey's marine resources. The Division of Land Use Regulation's Office of Policy Implementation and Watershed Restoration has resources dedicated to coordinating the Department's and other agencies' activities aimed at implementing the TMDLs, which is discussed in further detail in the TMDL implementation section.

The Department welcomes assistance provided by watershed partners, such as monitoring, and uses quality data provided by partners in assessing water quality throughout the State. Every two years, as part of the development of the Integrated List, which includes the 303 (d) list, the Department solicits data from within the Department as well as from public entities (e.g., counties, Delaware River Basin Commission, Interstate Environmental Commission, and neighboring states), academia and volunteers. The Department provides notice of the request for data in the New Jersey Register and the Department's website prior to developing each Integrated Report. As previously stated, if the implementation of identified measures is found to be inadequate to achieve support of designated uses, additional measures, which would become enforceable requirements of stormwater permits, will be considered. The TMDL is not the

vehicle for coordination among agencies, rather the objective of the TMDL is attainment of the established water quality criteria for each water body identified in Table 2 of the TMDL document.

Assessment of successful implementation of the TMDL will require an adequate monitoring program, as described in the TMDL under Section 6.0 Follow-up Monitoring. In New Jersey, TMDLs are administered under The Water Quality Management Planning rules N.J.A.C. 7:15, which, in N.J.A.C. 7:15-3, require that all projects and activities affecting water quality shall be conducted in a manner that does not conflict with a Water Quality Management Plans (WQMP). TMDLs are adopted as an amendment to the appropriate WQMP; thus no permit may be issued by the Department that is inconsistent with an adopted TMDL.

17. Comment: To enhance implementation, TMDL segments should be designated as Category 1 (C1) waters, thereby receiving larger buffer protection and more aggressive anti-degradation thresholds. Category 1 waterbody thresholds should be revised to include Cedar Creek (portions of which are already FW1 and SE1), the Mullica River (portions of which are already C1 and SE1), and the Cohansey River (portions of which are already SE1). C1 designation would allow greater control over uplands and feeder streams, development of which harms downstream and estuarine water quality. (3)

Response: The Department concurs that riparian buffers are important for water quality protection/restoration and riparian restoration is identified as one of the measures needed to implement the TMDLs. The Department periodically evaluates waters and designates C1

antidegradation designation for those that qualify through a rulemaking process. Waters designated as C1 and the mapped tributaries within the C1 subwatershed have 300-foot Special Water Resource Protection Areas within which future development is regulated. However, designation as C1 will not effect restoration of currently developed/disturbed buffers. This will be accomplished through voluntary projects undertaken with State and other resources. Furthermore, antidegradation policies apply to C2 waters as well. A lowering of water quality is only allowed if alternatives that avoid a lowering are infeasible and a socio-economic justification warrants a lowering, but water quality would not be permitted to be lowered below the Surface Water Quality Criteria. In any case, the Surface Water Quality Standards rules provide for changing a stream designation at N.J.A.C. 7:9B.

18. Comment: Regarding marina sources, the commenter urges the Department to not just encourage, but require, more marinas to engage in the Clean Marina Program. This strategy requires no additional funding by using more aggressive, perhaps mandatory, participation or compliance requirements. (3)

Response: The Department will explore options to increase funding to further encourage participation in the Clean Marina Program. Section 310 of the New Jersey Coastal Zone Management Act grant (NOAA) currently funds the Clean Marina Program. At this time there are 44 marinas enrolled in the Program. Additional funding for the Program comes from a New Jersey Department of Transportation, Office of Maritime Resources I BOAT NJ Program grant awarded to the New Jersey Marine Sciences Consortium/New Jersey SeaGrant Program. The NJMSC/NJSG also contributes funding for administration of the Program. Requiring individual

marina enrollment could be used, on a case by case basis, when impairment is directly linked to marina operation. However, there are many Clean Marina Programs nation-wide and none of them are mandatory. The cost of comprehensive state-wide marina enrollment may be prohibitively high for marina owners. Additional info about the Clean Marina Program can be found at www.njcleanmarina.org.

19. Comment: Several studies have shown that bacteria can survive and reproduce in sediment, under the right conditions, as discussed in the comment submitted by Monmouth County. Sediment should be added to the list of non-human sources. (4)

Response: These TMDLs were developed based on recent shellfish monitoring data collected by the Department. These data reflect the ambient bacteria levels and contributing sources in each waterbody. Accordingly, these TMDLs take into account all sources of bacteria that may be present. Enteric bacteria in the environment originate from humans and other warm-blooded animals. Bacteria levels in sediment are the result of contamination from stormwater, failing septic systems, malfunctioning sewer systems, agricultural runoff, and other contributing sources. Bacteria loads from these sources were quantified using best available data to help facilitate implementation activities designed to reduce bacteria levels and shellfish contamination. Sediment re-suspension and other potential sources, such as waterfowl direct deposition, could not be quantified due to lack of available data. Nevertheless, language has been added to section "3.3 Assessment of Nonpoint Sources" of the document stating that sediment may be a source of bacteria in shellfish waters. Bacteria may be present in the sediment in some areas as a result of contamination from stormwater, failing septic systems,

malfunctioning sewer systems, agricultural runoff, and other sources. For these TMDLs, the loads contributed by wildlife, sediment, and the other sources were assumed to be included in the land use loading coefficients.

20. Comment: Because public participation plays a key role in TMDL development, TMDLs should be geared towards laypeople by providing a more user friendly approach in regard to data analysis and explanations. (1)

Response: The Department endeavors to make each TMDL report understandable to the lay person by providing multiple opportunities for public participation, and through presentations of methodology and results. These efforts are made to aid public understanding and to obtain feedback on the TMDL. However, a TMDL is also, by necessity, to some extent a technical document. The TMDL must contain the necessary technical information to assure that it will function as designed when it is implemented. The Department would welcome any specific recommendations that would enhance understanding of the TMDL information.

21. Comment: The commenter is disappointed that multiple water body segments are addressed in a single TMDL and that the language within all of the proposed TMDLs is verbatim. (1)

Response: The Department aims to maximize efficiency in conveying the outcomes of TMDL studies. Where information and methodologies are the same to deal with similar problems in numerous waterbodies, it is logical to consolidate those aspects, rather than generate a large number of repetitious written materials. Wherever information is unique, it is conveyed through

means, such as separate maps, calculations, local area report information and site-specific implementation projects tailored to the applicable area. The TMDL documents are only similar where the information to be conveyed is the same, such as the introductory remarks and the description of the TMDL process, which does not vary from TMDL to TMDL.

Jill Lipoti, Ph.D., Director

Division of Water Monitoring and Standards

Department of Environmental Protection

2/13/13

Date