



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

3/18/2011

Richard Eskin, Ph.D., Director  
Technical and Regulatory Service Administration  
Maryland Department of the Environment  
1800 Washington Blvd., Suite 540  
Baltimore, Maryland 21230-1718

Dear Dr. Eskin:

The U.S. Environmental Protection Agency (EPA) is pleased to approve the *Total Maximum Daily Loads of Bacteria for Duck Neck Beach of Chester River in the Upper Chester River Basin in Kent and Queen Anne's Counties, Maryland*. The TMDL report was submitted by the Maryland Department of the Environment's letter dated September 22, 2009, and received by EPA for review and approval on September 25, 2009. The TMDL was established and submitted in accordance with Section 303(d)(1)(c) and (2) of the Clean Water Act to address impairments of water quality as identified in Maryland's Section 303(d) List.

In accordance with Federal regulations at 40 CFR §130.7, a TMDL must comply with the following requirements: (1) be designed to attain and maintain the applicable water quality standards; (2) include a total allowable loading and as appropriate, wasteload allocations for point sources and load allocations for nonpoint sources; (3) consider the impacts of background pollutant contributions; (4) take critical stream conditions into account (the conditions when water quality is most likely to be violated); (5) consider seasonal variations; (6) include a margin of safety (which accounts for uncertainties in the relationship between pollutant loads and instream water quality); and (7) be subject to public participation. In addition, the TMDL considered reasonable assurance that the TMDL allocations assigned to the nonpoint sources can be reasonably met. The enclosure to this letter describes how the bacteria TMDL for the Duck Neck Beach of Chester River satisfies each of these requirements.

As you know, all new or revised National Pollutant Discharge Elimination System permits must be consistent with the TMDL wasteload allocation pursuant to 40 CFR §122.44 (d)(1)(vii)(B). Please submit all such permits to EPA for review as per EPA's letter dated October 1, 1998.

If you have any questions or comments concerning this letter, please do not hesitate to contact María García, Maryland TMDL coordinator, at 215-814-3199.

Sincerely,

Jon M. Capacasa, Director  
Water Protection Division

Enclosure

cc: Lee Curry, MDE-TARSA  
Melissa Chatham, MDE-TARSA



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**Decision Rationale**  
**Total Maximum Daily Loads of**  
**Bacteria for Duck Neck Beach of Chester River**  
**Upper Chester River Basin**  
**Kent and Queen Anne's Counties, Maryland**

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**Jon M. Capacasa, Director**  
**Water Protection Division**

Date: 3/18/11

**Decision Rationale**  
**Total Maximum Daily Loads of**  
**Bacteria for Duck Neck Beach of Chester River**  
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## **I. Introduction**

The Clean Water Act (CWA) requires that a Total Maximum Daily Load (TMDL) be developed for those waterbodies identified as impaired by the State where technology based and other controls will not provide for the attainment of water quality standards. A TMDL is a determination of the amount of a pollutant from point, nonpoint, and natural background sources, including a Margin of Safety (MOS), that may be discharged to a water quality limited waterbody.

This document sets forth the U.S. Environmental Protection Agency's (EPA) rationale for approving the TMDL for bacteria in Duck Neck Beach of Chester River in the Upper Chester River Basin. The TMDL was established to address impairments of water quality, caused by *enterococci*, as identified in Maryland's 2008 Section 303(d) List for water quality limited segments. The Maryland Department of the Environment (MDE) submitted the report, *Total Maximum Daily Loads of Bacteria for Duck Neck Beach of Chester River in the Upper Chester River Basin in Kent and Queen Anne's Counties, Maryland*, dated July 2009, to EPA for final review on September 25, 2009. The basin identification for the Upper Chester River Basin is MD-02130510.

EPA's rationale is based on the TMDL Report and information contained in the computer files provided to EPA by MDE. EPA's review determined that the TMDL meets the following seven regulatory requirements pursuant to 40 CFR Part 130.

1. The TMDL is designed to implement applicable water quality standards.
2. The TMDL includes a total allowable load as well as individual wasteload allocations (WLAs) and load allocations (LAs).
3. The TMDL considers the impacts of background pollutant contributions.
4. The TMDL considers critical environmental conditions.
5. The TMDL considers seasonal environmental variations.
6. The TMDL includes a MOS.
7. The TMDL has been subject to public participation.

In addition, the TMDL considered reasonable assurance that the TMDL allocation assigned to nonpoint sources can be reasonably met.

## **II. Summary**

The TMDL specifically allocates the allowable loading to the known sources of bacteria in Duck Neck Beach of Chester River in the Upper Chester River Basin. There are two permitted point sources of bacteria which were included in the WLA of the TMDL: Millington Waste Water Treatment Plant (WWTP) and Sudlersville WWTP. The fact that the TMDL does not assign WLAs to any other source in the watershed should not be construed as a determination by either EPA or MDE that there are no additional sources in the watershed that are subject to the National Pollutant Discharge Elimination System (NPDES) program. In addition, the fact

that EPA is approving this TMDL does not mean that EPA has determined whether some of the sources discussed in the TMDL, under appropriate conditions, might be subject to the NPDES program.

Table 1 presents the bacteria TMDL for Duck Neck Beach of Chester River in the Upper Chester River Basin. The TMDL allocation is presented in counts per day and is based on geometric mean data collected during steady-state, dry weather conditions during the beach season.

**Table 1. Bacteria TMDL for Duck Neck Beach of Chester River in the Upper Chester River Basin (counts per day)**

<b>TMDL</b>	=	<b>LA</b>	+	<b>WLA</b>	+	<b>MOS</b>
4.75x10 <sup>12</sup>		4.75 x 10 <sup>12</sup>		4.64 x 10 <sup>8</sup>		Implicit

This TMDL is a written plan and analysis established to ensure that a waterbody will attain and maintain water quality standards. The TMDL is a scientifically based strategy that considers current and foreseeable conditions, the best available data, and accounts for uncertainty with the inclusion of a MOS value. The option is always available to refine the TMDL for resubmittal to EPA for approval if environmental conditions, new data, or the understanding of the natural processes change more than what was anticipated by the MOS.

### III. Background

Duck Neck Beach is a public beach located on the southern bank of the Upper Chester River Basin in Kent and Queen Anne’s Counties, Maryland. Duck Neck Beach is approximately 22 meters in length and is surrounded by Duck Neck Campground, a location for summer visitors who dwell in trailers. The drainage area of Duck Neck Beach is approximately 15,901 acres, and is comprised primarily of cropland (69.5%) and forest (23.6%), with lesser amounts of urban (3.8%), feedlot (0.3%), wetlands (2.0%), pasture (0.2%) and water land uses (0.5%). The drainage area of the Upper Chester River Basin is similar to the drainage area of the public beach, with 63 percent of the area being cropland and 24 percent forest. The dominant tide in the Upper Chester River Basin is the lunar semi-diurnal (M<sub>2</sub>) tide, which has a tidal range of 0.64 meters and a tidal period of 12.42 hours (NOAA 2006)<sup>1</sup>.

The Upper Chester River Basin was identified on Maryland’s Section 303(d) List as impaired by sediments (1996), nutrients (1996), *enterococci* in the tidal portions of the basin (Duck Neck Beach) (1996, 2008), impacts to biological communities (2006), and methylmercury in fish tissue in one of the basin’s impoundments (Millington Wildlife Management Ponds) in 2004. This TMDL addresses the *enterococci* listing in Duck Neck Beach only. The *enterococci* listing is a clarification of the fecal coliform listing originally identified in the Upper Chester River Basin on Maryland’s 1996 Section 303(d) List. The listings for sediments, impacts to biological communities and methylmercury in fish tissue within the Upper Chester River Basin will be addressed at a future date. A nutrient TMDL was completed in 2006 for this basin.

<sup>1</sup> NOAA (National Oceanic and Atmospheric Administration). 2006. *Tides Online*. <http://tidesonline.nos.noaa.gov/> (Accessed August, 2006).

The Surface Water Use Designation for Duck Neck Beach is Use I: *Water Contact Recreation and Protection of Nontidal Warmwater Aquatic Life* (COMAR 26.08.02.02)<sup>2</sup>. Duck Neck Beach was listed on Maryland's 2008 Section 303(d) List as impaired by *enterococci*, due to elevated bacteria concentrations detected at the water quality monitoring station QADUCKNECK. Table 2 presents the station identification and the observations recorded at QADUCKNECK. Table 3 presents the specific water quality criterion used to assess the monitoring data collected in Duck Neck Beach.

**Table 2. Bacteria Monitoring Station in Duck Neck Beach**

Station Location	Monitoring Station	Observation Period for TMDL	Total Observations Collected	Latitude deg-min-sec	Longitude deg-min-sec
Duck Neck Beach	QADUCKNECK	2005 - 2008	141	39-12-17	76-3-6.1

**Table 3. Water Quality Criterion for Duck Neck Beach**

Indicator (Salt Water)	Steady-state Geometric Mean Indicator Density
Enterococci	35 cfu/100 ml

CWA Section 303(d) and its implementing regulations require that TMDLs be developed for waterbodies identified as impaired by the State where technology based and other required controls do not provide for the attainment of water quality standards. In the impaired segment of Duck Neck Beach, a TMDL was developed through computer modeling based on data collected throughout the watershed. The purpose for developing the TMDL is to reduce bacteria loadings under existing conditions so that water quality standards can be met. Refer to Table 1 above for a summary of allowable loads.

For this TMDL analysis, data were collected from the entire Chester River in order to account for the bacteria transport from the upstream and downstream portions of the Duck Neck Beach. Table A-4 of the TMDL Report presents the data collected in the Chester River. These data were then used to calibrate the Environmental Fluid Dynamics Code (EFDC) model. The EFDC model simulates density, spatial and temporal distributions of salinity, temperature, suspended sediment concentration, conservative tracers, eutrophication processes, fecal bacteria, and topographically induced circulation as well as tidal and wind-driven flow (Hamrick 1992a; Shen et al., 1999)<sup>3</sup>. The inverse modeling approach was built on to the EFDC model in order to estimate the baseline bacteria loadings currently being discharged into the Chester River. The purpose of the inverse modeling approach is to estimate long-term daily loads that will correspond to the geometric mean concentration of a water body.

The allowable load for the Chester River was calculated using the water quality criterion of a geometric mean bacteria density (35 cfu/100 ml) and the EFDC model. The EFDC model computed the allowable load for the Chester River by reducing the baseline loads in each subwatershed of the river until the bacteria concentrations in the receiving waters of the river met

<sup>2</sup> COMAR (Code of Maryland Regulations). 2006. 26.08.02.03-3C(2). <http://www.dsd.state.md.us/comar/26/26.08.02.03-3.html> (Accessed August, 2006).

<sup>3</sup> Hamrick, J.M. 1992a. Estuarine Environmental Impact Assessment Using a Three-Dimensional Circulation and Transport Model. In *Estuarine and Coastal Modeling, Proceedings of the 2<sup>nd</sup> International Conference*, edited by M.L. Spaulding, K. Bedford, and A.F. Blumberg. New York: American Society of Engineers.

the appropriate water quality standard. In the final TMDL allocation, the loads from the subwatersheds that had no direct impact on Duck Neck Beach were excluded. The required load reduction for Duck Neck Beach was calculated based on the equation below. The load reduction for the watershed is presented in Table 4.

$$\text{Load Reduction} = \frac{\text{Current Load} - \text{Allowable Load}}{\text{Current Load}} \times 100\%$$

**Table 4. Geometric Mean Analysis of Loads and Estimated Load Reduction**

Location	Geometric Mean Criterion (cfu/100 ml)	Allowable Load (counts/day)	Existing Load (counts/day)	Required Reduction (%)
Duck Neck Beach	35	$4.750 \times 10^{12}$	$9.554 \times 10^{12}$	50.28

#### IV. Discussion of Regulatory Conditions

EPA finds that MDE has provided sufficient information to meet all seven of the basic requirements for establishing a bacteria TMDL for Duck Neck Beach of Chester River in the Upper Chester River Basin. EPA, therefore, approves the bacteria TMDL for Duck Neck Beach. This approval is outlined below according to the seven regulatory requirements.

##### *1) The TMDLs are designed to implement applicable water quality standards.*

TMDLs are established to achieve and maintain water quality standards. In the State of Maryland, water quality standards consist of two components: (1) designated uses and (2) the water quality criteria designed to protect those uses. The Surface Water Use Designation for Duck Neck Beach is Use I: *Water Contact Recreation and Protection of Nontidal Warmwater Aquatic Life* (COMAR 26.08.02.02). The water quality criterion designed to protect the Use I waters of Duck Neck Beach is presented in Table 3.

Duck Neck Beach was listed as impaired by *enterococci* on Maryland's 2008 Section 303(d) List due to elevated concentrations of bacteria monitored at the station QADUCKNECK. The bacteria impairment in Duck Neck Beach was identified based on monitoring data collected by Queen Anne's County Health Department. In Maryland, county health departments have been delegated the authority to monitor beach water quality and notify the public of beach advisories and closures. The beaches are monitored from at least two weeks before Memorial Day through Labor Day. In Queen Anne's County, the water quality of Duck Neck Beach was monitored on a weekly basis.

The monitoring data collected at QADUCKNECK between June 2005 to August 2008 was used to determine the steady-state geometric mean concentration of *enterococci* in Duck Neck Beach. According to the water quality standards for Use I waters, the computation of a TMDL for bacteria requires an analysis of the steady-state geometric mean from a two to five year period of data. The data collected at QADUCKNECK from 2005 to 2008 was collected during dry weather conditions, which represents a steady-state condition during the beach season. Figure 2.2.2 of the TMDL Report provides the observations recorded at the beach monitoring station during this time period. Table 5 presents the geometric mean values detected during the water quality monitoring conducted in Duck Neck Beach.

**Table 5. Data Collected from Duck Neck Beach during the Summers of 2005 through 2008**

Area Name	Period	Geometric Mean (MPN/100 ml)
Duck Neck Beach	2008 – 2007	64.5
	2007 – 2006	98.2
	2006 – 2005	46.1

The maximum geometric mean concentration of *enterococci* in Duck Neck Beach was estimated to be 98.2 MPN/100 ml, based on water quality monitoring data collected at QADUCKNECK from 2005 to 2008. For conservative purposes, the maximum geometric mean concentration of *enterococci* was selected to estimate the current concentration of bacteria in Duck Neck Beach. The inverse modeling approach used this endpoint to compute the baseline condition of bacteria in Duck Neck Beach, as indicated in Section III of this Decision Rationale.

The goal of this TMDL is to determine an allowable load for the watershed that will ensure the attainment of the water quality standard. In Duck Neck Beach, the allowable load for the watershed was computed using the water quality criterion for *enterococci* (Table 3) and the Environmental Fluid Dynamics Code model. Appendix A of the TMDL Report provides a detailed description of the modeling procedures used for this TMDL. Refer to Table 1 above for a summary of allowable loads.

**2) *The TMDLs include a total allowable load as well as individual wasteload allocations and load allocations.***

Total Allowable Load

EPA regulations at 40 CFR §130.2(i) state *that the total allowable load shall be the sum of individual WLAs for point sources, LAs for nonpoint sources, and natural background concentrations.* The TMDL for bacteria in Duck Neck Beach of Chester River in the Upper Chester River Basin is consistent with 40 CFR §130.2(i), because the total loads provided by MDE equal the sum of the individual WLAs for point sources and the land based LAs for nonpoint sources.

Load Allocations

According to Federal regulations at 40 CFR §130.2(g), LAs are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. Wherever possible, natural and nonpoint source loadings should be distinguished.

The load allocation of Duck Neck Beach was assigned to the nonpoint sources of bacteria in the watershed. Table 1 presents the load allocation assigned to the nonpoint sources in Duck Neck Beach. In order to better identify the specific nonpoint sources of bacteria in Duck Neck Beach, MDE conducted a Pollution Source Shoreline Survey (PSSS). Based on the PSSS results, the major source of bacteria in the watershed was identified as wildlife. Appendix B of the TMDL Report provides the detailed results of the PSSS. The PSSS may be used as a tool by MDE during initial implementation efforts.



## Wasteload Allocations

There are two WWTPs permitted to regulate the discharge of bacteria in Duck Neck Beach of Chester River in the Upper Chester River Basin: Millington WWTP and Sudlersville WWTP. Their permitted flows are 0.140 and 0.075 MGD, respectively. The following equation was used to convert their permitted values from fecal coliform to *enterococci* (VADEQ 2003)<sup>4</sup>:

$$\log_2(C_{\text{ent}}) = 1.2375 + 0.59984 * \log_2(C_{\text{fc}}) = 1.2375 + 0.59984 * \log_2(200) = 5.8226$$
$$C_{\text{ent}} = 57 \text{ MPN/100 ml}$$

Table 6 presents the wasteload allocations for the two permitted point sources in Duck Neck Beach.

**Table 6. Summary of Permitted Point Sources**

Facility Name	NPDES Permit Number	Design Flow (MGD)	Permitted Enterococci Concentration (MPN/100 ml)	Permitted Enterococci loads (counts per day)
Millington WWTP	MD0020435	0.14	57	3.02E+08
Sudlersville WWTP	MD0020559	0.075	57	1.62E+08
Total				4.64E+08

Federal regulations at 40 CFR §122.44(d)(1)(vii)(B) require that, for an NPDES permit for an individual point source, the effluent limitations must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the State and approved by EPA.

There is no express or implied statutory requirement that effluent limitations in NPDES permits necessarily be expressed in daily terms. The CWA definition of “effluent limitation” is quite broad (effluent limitation is “any restriction...on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources...”). See CWA 502(11). Unlike the CWA’s definition of TMDL, the CWA definition of “effluent limitation” does not contain a “daily” temporal restriction. NPDES permit regulations do not require that effluent limits in permits be expressed as maximum daily limits or even as numeric limitations in all circumstances, and such discretion exists regardless of the time increment chosen to express the TMDL. For further guidance, refer to Benjamin H. Grumbles memo (November 15, 2006) titled *Establishing TMDL Daily Loads in Light of the Decision by the U.S. Court of Appeals for the D.C. Circuit in Friends of the Earth, Inc. v. EPA, et al., No. 05-5015 (April 25, 2006) and implications for NPDES Permits.*

EPA has authority to object to the issuance of an NPDES permit that is inconsistent with WLAs established for that point source. It is expected that MDE will require periodic monitoring of the point source(s) for bacteria, through the NPDES permit process, in order to monitor and determine compliance with the TMDL’s WLAs. Based on the foregoing, EPA has determined that the TMDLs are consistent with the regulations and requirements of 40 CFR Part 130.

<sup>4</sup> VADEQ (Virginia Department of Environmental Quality). 2003. *VA-DEQ 2003. HSPF Model Calibration and Verification for Bacteria TMDLs.* ([http://www.townhall.virginia.gov/GetFile.cfm?File=E:%5Ctownhall%5Cdocrroot%5CGuidanceDocs%5CGDoc\\_DEQ\\_3322\\_vl.pdf](http://www.townhall.virginia.gov/GetFile.cfm?File=E:%5Ctownhall%5Cdocrroot%5CGuidanceDocs%5CGDoc_DEQ_3322_vl.pdf)) (Accessed April, 2008).

**3) *The TMDLs consider the impacts of background pollutant contributions.***

The TMDL considers the impact of background pollutants by considering the bacteria loads from natural background sources, such as wildlife.

**4) *The TMDLs consider critical environmental conditions.***

EPA regulations at 40 CFR §130.7(c)(1) require TMDLs to account for critical conditions for stream flow, loading, and water quality parameters. The intent of the regulations is to ensure that (1) the TMDLs are protective of human health, and (2) the water quality of the waterbodies is protected during the times when they are most vulnerable. 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<sup>5</sup>. Critical conditions are a combination of environmental factors (e.g., flow, temperature, etc.), which have an acceptably low frequency of occurrence. In specifying critical conditions in the waterbody, an attempt is made to use a reasonable worst-case scenario condition.

In Duck Neck Beach, the critical condition was accounted for in the TMDL allocation. The TMDL allocation was developed based on the worst-case scenario in which the greatest reduction was needed to meet the water quality standard. According to MDE, the scenario using the maximum geometric mean concentration of *enterococci* required the greatest reduction. This scenario was selected for the calculation of the baseline load for the watershed. Therefore, the critical conditions requirement is met for the TMDL development in Duck Neck Beach.

**5) *The TMDLs consider seasonal environmental variations.***

In the bacteria TMDL for Duck Neck Beach of Chester River in the Upper Chester River Basin, seasonality is implicitly included in the data used for the TMDL analysis. The data used in the development of the TMDL was collected during the beach season (Memorial Day through Labor Day) and during steady-state, dry weather, which is the time period when maximum water contact is expected.

**6) *The TMDLs include a Margin of Safety.***

The requirement for a MOS is intended to add a level of conservatism to the modeling process in order to account for uncertainty. Based on EPA guidance, the MOS can be achieved through two approaches. One approach is to reserve a portion of the loading capacity as a separate term, and the other approach is to incorporate the MOS as part of the design conditions.

MDE has adopted an implicit MOS for this TMDL. A decay rate of 0.7 per day was used as a conservative estimate in the TMDL calculation. The decay rate is one of the most sensitive parameters in the model. For a given system, the higher the decay rate, the higher the assimilative capacity. Further literature review supports this assumption as a conservative

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<sup>5</sup> EPA memorandum regarding EPA Actions to Support High Quality TMDLs from Robert H. Wayland III, Director, Office of Wetlands, Oceans, and Watersheds to the Regional Management Division Directors, August 9, 1999.

estimate of the decay rate (MDE 2004)<sup>6</sup>. The value of the decay rate varies from 0.7 to 3.0 per day in salt water. Therefore, the MOS is implicitly included in the TMDL calculation.

#### **7) *The TMDLs have been subject to public participation.***

MDE provided an opportunity for public review and comment on the bacteria TMDL for Duck Neck Beach of Chester River in the Upper Chester River Basin. The public review and comment period was open from August 6, 2009 through September 4, 2009. MDE received no written comments.

A letter was sent to the U.S. Fish and Wildlife Service pursuant to Section 7(c) of the Endangered Species Act, requesting the Service's concurrence with EPA's findings that approval of this TMDL does not adversely affect any listed endangered and threatened species, and their critical habitats.

### **V. Discussion of Reasonable Assurance**

The bacteria TMDL for Duck Neck Beach of Chester River in the Upper Chester Basin provides reasonable assurance that the maximum allowable load will be achieved and maintained. The appropriate measures to reduce bacteria levels at the public beach include, where appropriate, the use of better treatment technology or the installation of best management practices. MDE intends for these required reductions to be implemented in an iterative process that first addresses those sources with the greatest impact on water quality, with consideration given to the ease of implementation and cost. The identification of the potential source contributions from the PSSS (which identified wildlife as a significant source of bacteria in the watershed) may be used as a tool to target and prioritize initial implementation efforts.

Due to the significant contribution of bacteria from wildlife sources in the watershed, managing the overpopulation of wildlife remains an option for State and local stakeholders. The reduction of wildlife or the changing of a natural background condition is not the intended goal of this TMDL, however. MDE, therefore, will address the controllable sources of bacteria (human, livestock, pets) first because it is expected that the best management practices applied to the controllable sources will also result in the reduction of some wildlife sources. If water quality standards can not be attained after this approach, wildlife sources may need to be controlled. A Use Attainability Analysis is also an option to reflect the presence of naturally high bacteria levels from uncontrollable sources.

In Duck Neck Beach of Chester River, MDE also expects to see reductions in bacteria loads from the requirement that all marinas in the State of Maryland must have a pumpout station. Any public or private marina that does not have a pumpout station will be eligible to apply up to \$15,000.00 in grant funds to install a pumpout station through the Maryland Department of Natural Resources. Additionally, although not directly linked, it is assumed that the nutrient management plans from the Water Quality Improvement Act of 1998 (WQIA) will result in some reduction of bacteria from manure application practices.

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<sup>6</sup> Maryland Department of the Environment. 2004. *Technical Memorandum: Literature Survey of Bacteria Decay Rates*. Baltimore, MD: Maryland Department of the Environment.

MDE plans on utilizing the following funding sources to implement the TMDL: Maryland's Agricultural Cost Share Program (MACS), Environmental Quality and Incentives Program, MDE's Linked Deposit Program, the Bay Restoration Fund, State Water Quality Revolving Loan Fund, and the Stormwater Pollution Cost Share Program. Details on these programs and additional funding sources can be found at <http://www.dnr.state.md.us/bay/services/summaries.html>.

WLAs will be implemented through the NPDES permit process. According to 40 CFR §122.44(d)(1)(vii)(B), the effluent limitations for an NPDES permit must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the State and approved by EPA. Furthermore, EPA has the authority to object to issuance of an NPDES permit that is inconsistent with WLAs established for that point source.

Following the initial stage of implementation in Duck Neck Beach, MDE expects to re-assess the water quality to determine if the designated use is being attained. MDE will continue to assess the success of the TMDL's implementation through its beach monitoring program.