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

JUN 0 5 2008

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

Dear Dr. Rich Eskin:

The U.S. Environmental Protection Agency (EPA), Region III, is pleased to inform you that we are approving the biochemical oxygen demand (BOD)/Nutrients Total Maximum Daily Loads (TMDLs) for the Anacostia River Watershed. The final BOD/Nutrient TMDLs were submitted for EPA's review and approval jointly by the District's Natural Resources Administration and the Maryland Department of the Environment by letters dated May 5, 2008, and May 6, 2008, respectively. These TMDLs were established in accordance with Sections 303(d)(1)(c) and (2) of the Clean Water Act (CWA) to address impairments of water quality to the non-tidal and tidal segments of the Anacostia River. These segments were identified on the District's 1998 CWA Section 303(d) List as impaired waters due to BOD, and the Maryland's 1996 CWA Section 303(d) List as impaired due to nutrients.

In addition, these TMDLs represent revisions to the original BOD TMDLs for the District's portion of the Anacostia River established in December 2001. The District was required to revise its BOD TMDLs to include daily loads by a decision dated April 25, 2006, by the United States Court of Appeals for the District of Columbia Circuit. EPA finds that the established TMDLs are consistent with the 2006 holding of the DC Circuit Court of Appeals in Friends of the Earth v. EPA that TMDLs be expressed as daily loads.

In accordance with Federal regulations at 40 CFR §130.7 and EPA policy, 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 (WLAs) for point sources and load allocations (LAs) 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, these TMDLs considered reasonable assurance that the TMDL allocations assigned to the nonpoint sources can be reasonably met. The BOD/Nutrient TMDLs for the Anacostia River Watershed satisfy each of these requirements. A copy of EPA's Decision Rationale for approval of these TMDLs is enclosed.

If you have any questions or comments concerning this letter, please do not hesitate to contact me or have your staff contact Ms. Helene Drago at 215-814-5796.

Sincerely,

Jon M. Capacasa, Director
Water Protection Division

Enclosure

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

Decision Rationale
Total Maximum Daily Loads
For Biochemical Oxygen Demand and Nutrients
Anacostia River Basin Watershed
Montgomery and Prince George's Counties
Maryland and the District of Columbia

Jon M. Capacasa, Director
Water Protection Division

Date: June 5, 2008

Decision Rationale
Total Maximum Daily Loads
Anacostia River Basin Watershed
For Biochemical Oxygen Demand and Nutrients
Montgomery and Prince George's Counties
Maryland and the District of Columbia

I. Introduction

The Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for those waterbodies that will not attain water quality standards after application of technology-based and other required controls. A TMDL sets the quantity of a pollutant that may be introduced into a water body without causing an exceedence of the applicable water quality standard. EPA's regulations define a TMDL as the sum of the wasteload allocations (WLAs) assigned to point sources, the load allocations (LAs) assigned to nonpoint sources (NPS) and natural background, and a margin of safety. The TMDL is commonly expressed as:

TMDL = WLAs + LAs + MOS

Where:

WLA = wasteload allocation
LA = load allocation
MOS = margin of safety

This document will set forth the U.S. Environmental Protection Agency's (EPA) rationale for approving the TMDLs for the biological oxygen demand (BOD) and nutrients in the Anacostia River Watershed. EPA has determined that these TMDLs are consistent with statutory and regulatory requirements and EPA policy and guidance. Based on this review, EPA determined that the following seven regulatory requirements have been met:

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, EPA agrees that there was reasonable assurance that the Load Allocations for the NPSs in the TMDLs would be met.

II. Background

A TMDL for BOD and nutrients was established as annual loads for the District of Columbia's (DC or the District) portion of the Anacostia River by EPA in December 2001. Following the establishment of this TMDL, an appeal was filed in the District of Columbia Court

of Appeals by Friends of the Earth (FOE), contending, among other things, that the Clean Water Act requires TMDLs to be expressed in terms of a daily load and that the BOD TMDL failed to include daily allocations. The Court of Appeals agreed and remanded the TMDLs to the District Court with instructions to vacate. (Friends of the Earth v. EPA, 446 F.3d 140 (D.C. Cir. 2006)) The appeals court acknowledged that the district court retains some remedial discretion and said that the FOE and EPA may move to stay the District Court's vacature order on remand to give the District of Columbia a reasonable opportunity to establish daily load limits for these TMDLs and/or EPA a chance to amend its regulation concerning pollutants that are appropriate for TMDL development. The FOE and EPA did request that the existing TMDL not be vacated and negotiated a stay of vacature of the BOD TMDL until June 7, 2008, which the District Court approved.

While EPA was litigating the BOD TMDL for the District portion of the Anacostia River, Maryland was beginning to develop a model for the Maryland portion of the Anacostia River in order to establish TMDLs for Maryland's portion of the Anacostia River. The portion of the drainage area of the Anacostia River in Maryland is about 80% of the entire drainage, with the remaining 20% in the District. This TMDL was to be completed on the same basic timeframe as that established for the District's revision to its BOD TMDL.

Following discussions between EPA, Maryland, and the District, it was agreed to complete a watershed-based BOD and nutrient TMDL for the entire Anacostia River Watershed. Although the original BOD TMDL included only a gross allocation for Maryland's portion of the Anacostia River, Maryland recognized the importance of uniformity with respect to the way the TMDL's allocations are expressed and agreed to join EPA and the District in completing a watershed-based BOD and nutrient TMDL for the Anacostia River with daily loads.

Maryland and the District agreed to develop and submit jointly revised BOD and nutrient TMDLs for the Anacostia River Watershed to EPA for review and approval. An advisory group was established that included the District, Maryland, EPA Region III, EPA Headquarters, the Inter-State Commission on the Potomac River Basin (ICPRB) and Washington Area Sewer Authority (WASA). Under the agreement, much of the technical work, such as the model development and allocation model runs, would be completed by ICPRB under contract with Maryland. In addition, EPA would provide support by contracting with LimnoTech, a consulting engineering firm that would assist in the development of the technical approach for establishing daily loads.

These TMDLs were established to address impairment of water quality as identified in the District's 1998 Section 303(d) List of impaired waters and Maryland's 1996 Section 303(d) List of impaired waters. The District of Columbia Department of the Environment (DDOE) Water Quality Division and the Maryland Department of the Environment (MDE) jointly submitted the *Total Maximum Daily Loads of Nutrients/Biochemical Oxygen Demand for the Anacostia River Basin, Montgomery and Prince George's Counties, Maryland, and the District of Columbia,* dated April 2008, (TMDL report), to EPA for final review by letters (a separate letter was included by the District and Maryland) dated May 5, 2008 and May 6, 2008, respectively. The TMDL Report includes two Technical Memoranda, *Significant Biochemical Oxygen Demand, Nitrogen, and Phosphorus Nonpoint Sources in the Anacostia Watersheds* and *Significant Biochemical Oxygen Demand, Nitrogen, and Phosphorus Point Sources in the*

Anacostia River Watershed. EPA considers the two Technical Memoranda as part of the TMDL submittal.

The TMDL report as submitted by the District and Maryland (MD) establishes TMDLs for BOD and nutrients that: (1) are protective of aquatic life and recreational uses in the tidal and non-tidal waters of the Anacostia; (2) meet Maryland's and the District's dissolved oxygen (DO) water quality standards in their respective portions of the river; and (3) meet DC's and MD's nutrient-related water quality standards in their respective portions of the river, including the numeric criteria for water clarity and chlorophyll *a* (Chla).

III. Impairments Identified by the District and Maryland

MDE has identified the Anacostia River on the State's Section 303(d) List as impaired by the following (listing years in parentheses): nutrients (1996); sediments (1996); fecal bacteria (2002); impacts to biological communities non-tidal waters (2002); toxics: polychlorinated biphenyls (PCBs) and heptachlor epoxide non-tidal waters (2002); trash/debris (2006); and PCBs in fish tissue in tidal waters (2006). Recent monitoring data show that the non-tidal portion of the Anacostia River is not impaired for nutrients, but high levels of nutrients, chlorophyll, and turbidity characterize the tidal portion of the river. Fecal bacteria TMDLs for MD tidal and non-tidal areas of the Anacostia were submitted in 2006 and subsequently approved by EPA. Inter-jurisdictional TMDLs addressing MD's sediment and tidal PCBs listings were submitted in 2007 and approved by EPA.

DC's Section 303(d) List divides the tidal Anacostia within the District's borders into two segments. The lower Anacostia is identified as that portion of the river extending from the mouth of the river to the John Philip Sousa Bridge and Pennsylvania Avenue and the upper Anacostia from the bridge to the Maryland border. The upper and lower segments of the Anacostia were listed on DC's 1998 Section 303(d) List as impaired by biochemical oxygen demand (BOD), bacteria, organics, metals, total suspended solids (TSS), and oil and grease. TMDLs were previously developed to address all of these impairments in its portion of the Anacostia. However, a 2006 court decision required the development of new BOD and TSS TMDLs for the Anacostia that include maximum daily load expressions in addition to longer-term (average annual) loads. A watershed wide TMDL for sediment/TSS, addressing the listings for those impairments to the Anacostia in their respective jurisdictions, was submitted jointly by DC and MD in 2007, and subsequently approved by EPA. A multi-jurisdictional TMDL for PCBs in the tidal portions of the Potomac and Anacostia Rivers was submitted jointly in 2007 by MD, DC, and the State of Virginia, and subsequently approved by EPA.

This TMDL addresses the impairments to the Anacostia River due to nutrients and BOD.

IV. Summary of EPA's Decision

EPA agrees that the DC and MD have established TMDLs for nutrients and BOD that: (1) are protective of aquatic life and recreational uses in the tidal and non-tidal waters of the Anacostia; (2) meet MD's and DC's DO water quality standards in their respective portions of the river; and (3) meet MD's and DC's nutrient-related water quality standards in their respective portions of the river including the numeric criteria for water clarity and chlorophyll *a*. In

addition, EPA finds that the established TMDLs are consistent with the 2006 holding of the DC Circuit Court of Appeals in Friends of the Earth v. EPA that TMDLs be expressed as daily loads.

EPA finds that these TMDLs designed to restore and maintain the uses in their respective waters are in accordance with the Clean Water Act's Section 303(d) requirements to resolve the listed impairment and achieve the applicable water quality standards. EPA also agrees that the TMDLs, once implemented, will profoundly improve the water quality of the Anacostia River so that the aquatic life designated use will be protected. Finally, EPA also agrees with the District's and Maryland's conclusion that the significant reductions in nutrients and BOD required for attainment will substantially diminish algal growth such that the designated uses of recreation and aesthetic quality will all also be protected. EPA agrees with the plan of Maryland and the District to perform post-TMDL monitoring and take additional steps, as necessary, to address any additional concerns.

Tables 1, 2, and 3[1] below provide the annual load allocations developed in this TMDL. Tables 4, 5 and 6[2] provide corresponding maximum daily loads for each of the constituents, based on the average annual TMDLs developed. Maryland's allocations are based on meeting the District's applicable water quality standards. In addition to the following summary tables, two Technical Memoranda were included with the TMDL that contain more specific allocations by source. These allocations are part of the TMDL and will be discussed in later sections of this Decision Rationale.

[1] Tables 1 - 3 in this Decision Rationale are identified as Tables 22 - 24 in the final TMDL report.
[2] Tables 4 - 6 in this Decision Rationale are identified as Tables 25 – 27 in the final TMDL report.

Table 1. Summary of Average Annual BOD TMDLs for the Anacostia Watershed (lbs/year)

MD Non-Tidal Anacostia

Upstream Load from DC	MD Non-Tidal WLA	MD Non-Tidal LA	MOS	MD Non-Tidal TMDL
16,300[1]	855,456	18,857	Implicit	890,614

MD Tidal Anacostia

Upstream Load	MD Tidal WLA	MD Tidal LA	MOS	MD Tidal TMDL (does not include non-tidal loads from Watts Br & LBC)
746,939[2]	76,576	179	Implicit	823,694

DC Tidal Upper Anacostia

Upstream Load (all MD loads including Watts Br & LBC)	DC Upper Anacostia MS4/Other SW WLA	DC Upper Anacostia CSO WLA	DC Upper Anacostia PS WLA	DC Upper Anacostia LA	MOS	DC Tidal Upper TMDL
967,369[3]	205,854[4]	52,472	501	66,548	Implicit	1,292,744

DC Tidal Lower Anacostia

Upstream Load	DC Lower Anacostia MS4/Other SW WLA	DC Lower Anacostia CSO WLA	DC PS WLA	DC Lower Anacostia LA	MOS	TOTAL TMDL
1,292,744	114,154	56,801	1,005	29,704	Implicit	1,494,409

[1]This load drains to MD waters from DC's portion of the NWB sub watershed

[2]Does not include MD non-tidal loads from Watts Branch (14,082) and Lower Beaverdam Creek (129,593). Because these drain to DC tidal waters, they are included in the upstream load to the DC Tidal Upper Anacostia.

[3]Upstream load comprises all MD tidal and non-tidal loads, including MD loads from Watts Branch (14,082) and Lower Beaverdam Creek (129,593).

[4]Includes loads from DC non-tidal waters in Watts Branch (14,252) and Lower Beaverdam Creek (403).

MS4: municipal separate storm sewer system
CSO: Combined Sewer Overflows
SW: Storm water

Table 2. Summary of Average Annual Total Nitrogen TMDLs for the Anacostia Watershed (lbs/year)

MD Non-Tidal Anacostia				
Upstream Load from DC	**MD Non-Tidal WLA**	**MD Non-Tidal LA**	**MOS**	**MD Non-Tidal TMDL**
1,986[1]	119,827	24,588	7,705	154,107

MD Tidal Anacostia				
Upstream Load	**MD Tidal WLA**	**MD Tidal LA**	**MOS**	**MD Tidal TMDL (does not include non-tidal loads from Watts Br & LBC)**
131,235[2]	5,345	98	7,194	143,871

DC Tidal Upper Anacostia					
Upstream Load (all MD loads including Watts Br & LBC)	**DC Upper Anacostia MS4/Other SW WLA**	**DC Upper Anacostia CSO WLA**	**DC Upper Anacostia LA**	**MOS**	**DC Tidal Upper TMDL**
151,844[3]	12,692[4]	5,061	4,123	9,143	182,863

DC Tidal Lower Anacostia					
Upstream Load	**DC Lower Anacostia MS4/Other SW WLA**	**DC Lower Anacostia CSO WLA**	**DC Lower Anacostia LA**	**MOS**	**TOTAL TMDL**
173,719	5,882	5,479	1,868	9,839	196,788

[1]This load drains to MD waters from DC's portion of the NWB sub watershed

[2]Does not include MD non-tidal loads from Watts Branch (1,631) and Lower Beaverdam Creek (13,536). Because these drain to DC tidal waters, they are included in the upstream load to the DC Tidal Upper Anacostia.

[3]Upstream load comprises all MD tidal and non-tidal loads, including MD loads from Watts Branch (1,631) and Lower Beaverdam Creek (13,536).

[4]Includes loads from DC non-tidal waters in Watts Branch (1,731) and Lower Beaverdam Creek (45).

MS4: municipal separate storm sewer system
CSO: Combined Sewer Overflows
SW: Storm water

Table 3. Summary of Average Annual Total Phosphorus TMDLs for the Anacostia Watershed (lbs/year)

MD Non-Tidal Anacostia				
Upstream Load from DC	**MD Non-Tidal WLA**	**MD Non-Tidal LA**	**MOS**	**MD Non-Tidal TMDL**
166[1]	13,584	888	770	15,408

MD Tidal Anacostia				
Upstream Load	**MD Tidal WLA**	**MD Tidal LA**	**MOS**	**MD Tidal TMDL (does not include non-tidal loads from Watts Br & LBC)**
12,782[2]	521	4	700	14,007

DC Tidal Upper Anacostia					
Upstream Load (all MD loads including Watts Br & LBC)	**DC Upper Anacostia MS4/Other SW WLA**	**DC Upper Anacostia CSO WLA**	**DC Upper Anacostia LA**	**MOS**	**DC Tidal Upper TMDL**
15,162[3]	1,266[4]	1,047	361	939	18,776

DC Tidal Lower Anacostia					
Upstream Load	**DC Lower Anacostia MS4/Other SW WLA**	**DC Lower Anacostia CSO WLA**	**DC Lower Anacostia LA**	**MOS**	**TOTAL TMDL**
17,837	587	1,134	162	1,038	20,757

[1]This load drains to MD waters from DC's portion of the NWB sub watershed

[2]Does not include MD non-tidal loads from Watts Branch (210) and Lower Beaverdam Creek (1,646). Because these drain to DC tidal waters, they are included in the upstream load to the DC Tidal Upper Anacostia.

[3]Upstream load comprises all MD tidal and non-tidal loads, including MD loads from Watts Branch (210) and Lower Beaverdam Creek (1,646).

[4]Includes loads from DC non-tidal waters in Watts Branch (248) and Lower Beaverdam Creek (6)

MS4: municipal separate storm sewer system
CSO: Combined Sewer Overflows
SW: Storm water

Table 4. Summary of Annually Based Maximum Daily Loads of BOD for the Anacostia River Watershed (lbs/day)

MD Non-Tidal Anacostia River

Flow Range (m^3/s)	Upstream (max : avg)	MD Non-Tidal MS4-WLA	MD Non-Tidal Oher PS-WLA	MD Non-Tidal LA	MOS	Non-Tidal TMDL (max : avg)
< 0.89	4.37 : 3.419	303	209	0.652	Implicit	517 : 239
0.89 - 2.34	14.2 : 6.22	1,629	225	12.6	Implicit	1,881 : 394
2.34 - 3.48	29.0 : 12.0	6,931	225	24.8	Implicit	7,210 : 712
3.48 - 10.75	189 : 31.8	12,525	225	121	Implicit	13,060 : 1,812
> 10.75	1,216 : 304	77,499	225	2,832	Implicit	81,772 : 16,455

MD Tidal Anacostia River

Flow Range (m^3/s)	Upstream (max : avg)	MD Tidal MS4-WLA	MD Tidal LA	MOS	TMDL to MD/DC Border (max : avg)
All	81,772 : 2,438	6,797	34.0	Implicit	88,603 : 2,648

DC Tidal Upper Anacostia River

Non-Tidal Lower Beaverdam Creek

Flow Range (m^3/s)	Upstream (max : avg)	DC LBC MS4-WLA (max : avg)	DC LBC LA (max : avg)	MOS	Total TMDL (max : avg)
All	10,163 : 355	32.3 : 1.10	- : -	Implicit	10,195 : 356

Non-Tidal Watts Branch

Flow Range (m^3/s)	Upstream (max : avg)	DC WB MS4-WLA (max : avg)	DC WB LA (max : avg)	MOS	Total TMDL (max : avg)
All	1,213 : 38.5	1125 : 39.0	- : -	Implicit	2,338 : 77.5

DC Tidal Upper Anacostia

Flow Range (m^3/s)	Upstream (max : avg)	DC Upper Anacostia MS4-WLA (max : avg)	DC Upper Anacostia Other PS-WLA	DC Upper Anacostia CSO-WLA (max : avg)	DC Upper Anacostia LA (max : avg)	MOS	TMDL to Upper / Lower Boundary (max : avg)
All	88,603 : 2,648	18,330 : 564	125	49,674 : 14,311	6,212 : 182	Implicit	162,944 : 17,830

DC Tidal Lower Anacostia River

Flow Range (m^3/s)	Upstream (max : avg)	DC Lower Anacostia MS4-WLA (max : avg)	DC Lower Anacostia Other PS-WLA	DC Lower Anacostia CSO-WLA (max : avg)	DC Lower Anacostia LA (max : avg)	MOS	TOTAL TMDL (max : avg)
All	162,944 : 17,830	9,588 : 312	8.56	34,334 : 15,491	2,644 : 81.3	Implicit	209,519 : 33,717

Table 5. Summary of Annually-Based Maximum Daily Loads of Total Nitrogen for the Anacostia River Watershed (lbs/day)

Non-Tidal Anacostia River

Flow Range (m^3/s)	Upstream (max : avg)	MD Non-Tidal MS4-WLA	MD Non-Tidal Other PS-WLA	MD Non-Tidal LA	MOS	Non-Tidal TMDL (max : avg)
< 0.89	0.775 : 0.331	41.9	27.4	5.74	3.99	79.8 : 51.7
0.89 - 2.34	3.34 : 1.32	182	27.4	29.0	12.7	254 : 109
2.34 - 3.48	5.64 : 2.39	703	27.4	50.4	41.4	828 : 187
3.48 - 10.75	25.1 : 4.80	1,367	27.4	142	82.2	1,644 : 375
> 10.75	215 : 30.8	13,919	27.4	3,604	935	18,700 : 2,331

MD Tidal Anacostia River

Flow Range (m^3/s)	Upstream (max : avg)	MD Tidal MS4-WLA	MD Tidal LA	MOS	TMDL to MD/DC Border (max : avg)
All	17,765 : 401	397	9.96	956	19,128 : 438

DC Tidal Upper Anacostia River

Non-Tidal Lower Beaverdam Creek

Flow Range (m^3/s)	Upstream (max : avg)	DC LBC MS4-WLA (max : avg)	DC LBC LA (max : avg)	MOS	Total TMDL (max : avg)
All	1,082 : 37.1	3.57 : 0.124	- : -	57.1	1,143 : 39.2

Non-Tidal Watts Branch

Flow Range (m^3/s)	Upstream (max : avg)	DC WB MS4-WLA (max : avg)	DC WB LA (max : avg)	MOS	Total TMDL (max : avg)
All	145 : 4.46	138 : 4.74	- : -	14.9	298 : 9.68

DC Tidal Upper Anacostia

Flow Range (m^3/s)	Upstream (max : avg)	DC Upper Anacostia MS4-WLA (max : avg)	DC Upper Anacostia CSO-WLA (max : avg)	DC Upper Anacostia LA (max : avg)	MOS	TMDL to Upper / Lower Boundary (max : avg)
All	18,172 : 416	964 : 34.7	4,791 : 1,380	334 : 11.3	1,277	25,538 : 1,939

DC Tidal Lower Anacostia River

Flow Range (m^3/s)	Upstream (max : avg)	DC Lower Anacostia MS4-WLA (max, avg)	DC Lower Anacostia CSO-WLA (max : avg)	DC Lower Anacostia LA (max : avg)	MOS	TOTAL TMDL (max : avg)
All	24,261 : 1,842	433 : 16.1	3,312 : 1,494	141 : 5.11	1,481	29,628 : 3,534

Table 6. Summary of Annually-Based Maximum Daily Loads of Total Phosphorus for the Anacostia River Watershed (lbs/day)

Non-Tidal Anacostia River

Flow Range (m^3/s)	Upstream (max : avg)	MD Non-Tidal MS4-WLA	MD Non-Tidal Other PS-WLA	MD Non-Tidal LA	MOS	Non-Tidal TMDL (max : avg)
< 0.89	0.0309 : 0.00900	3.57	2.05	0.0698	0.301	6.02 : 2.83
0.89 - 2.34	0.192 : 0.0421	18.6	2.05	0.401	1.12	22.4 : 5.01
2.34 - 3.48	0.403 : 0.0857	85.0	2.05	0.853	4.65	93 : 9.2
3.48 - 10.75	2.26 : 0.238	162	2.05	5.47	9.04	181 : 22.8
> 10.75	30.2 : 3.51	3,119	2.05	375	186	3,712 : 316

MD Tidal Anacostia River

Flow Range (m^3/s)	Upstream (max : avg)	MD Tidal MS4-WLA	MD Tidal LA	MOS	TMDL to MD/DC Border (max : avg)
All	3,526 : 40.0	43.4	0.515	187.9	3,758 : 43.6

DC Tidal Upper Anacostia River

Non-Tidal Lower Beaverdam Creek					
Flow Range (m^3/s)	**Upstream (max : avg)**	**DC LBC MS4-WLA (max : avg)**	**DC LBC LA (max : avg)**	**MOS**	**Total TMDL (max : avg)**
All	152.2 : 4.50	0.470 : 0.0160	- : -	8.04	160.7 : 4.75
Non-Tidal Watts Branch					
Flow Range (m^3/s)	**Upstream (max : avg)**	**DC WB MS4-WLA (max : avg)**	**DC WB LA (max : avg)**	**MOS**	**Total TMDL (max : avg)**
All	18.8 : 0.576	20.1 : 0.678	- : -	2.047	40.9 : 1.32

DC Tidal Upper Anacostia

Flow Range (m^3/s)	Upstream (max : avg)	DC Upper Anacostia MS4-WLA (max : avg)	DC Upper Anacostia CSO-WLA (max : avg)	DC Upper Anacostia LA (max : avg)	MOS	TMDL to Upper / Lower Boundary (max : avg)
All	3,570 : 41.4	104.2 : 3.46	991 : 286	31.6 : 0.989	247	4,944 : 349

DC Tidal Lower Anacostia River

Flow Range (m^3/s)	Upstream (max : avg)	DC Lower Anacostia MS4-WLA (max, avg)	DC Lower Anacostia CSO-WLA (max : avg)	DC Lower Anacostia LA (max : avg)	MOS	TOTAL TMDL (max : avg)
All	4,697 : 332	47.6 : 1.61	685 : 309	13.7 : 0.443	286	5,730 : 677

MS4: municipal separate storm sewer system
CSO: Combined Sewer Overflows
SW: Storm water

V. Description of the Anacostia River Watershed

The Anacostia River Watershed covers 173 square miles in the District of Columbia and Maryland. The watershed includes the highly urbanized DC area with old and newly developed suburban neighborhoods that surround the District. Croplands and pastures at the U.S. Department of the Agriculture's Beltsville Agricultural Research Center and forested parklands are also part of the watershed. The Anacostia and its tributaries cross interstate boundaries with 145 square miles (84%) lying in MD and 28 square miles (16%) in DC.

The main channel of the Anacostia is 8.4 miles (13.5 kilometers) in length, extending from the confluence of its two largest tributaries, the Northwest Branch (NWB) and the Northeast Branch (NEB), in Bladensburg, MD, to the location where the Anacostia discharges into the Potomac River in DC. The main channel of the Anacostia is an estuary with a variation in water level of approximately three feet over a tidal cycle. Tidal influence extends into the lower reaches of the river's tributaries to approximately the locations of the U.S. Geological Survey (USGS) gage stations, 01649500, on the NEB; and 01651800, on Watts Branch, and to the bridge at U.S. Route 1 (Rhode Island Avenue) on the NWB. Approximately 70% of the watershed is drained by the two largest tributaries, the NWB and the NEB. The other two major tributaries of the Anacostia, Lower Beaverdam Creek (LBC) and Watts Branch, drain highly urbanized areas in Prince George's County and DC.

As Table 7 shows, the land use in the Anacostia River Watershed is highly urban with about 75% of land occupied by urban/suburban landscape followed by 20% forested and 5% agricultural.

Table 7. Land Use in the Anacostia River Watershed (acres)

	Urban	**Agricultural**	**Forest**	**Total**
Northwest Branch NWB	27,276	1,103	5,332	33,711
Northeast Branch NEB	28,326	3,756	14,210	46,291
Lower Beaverdam Creek LBC	7,580	85	1,966	9,631
Watts	1,823	28	269	2,119
Tidal	19,155	0	166	19,321
Total	84,160	4,971	21,943	111,073
%Total	75%	5%	20%	100%

VI. Technical Approach

When models are used to develop TMDLs, the model selection depends on many factors, including but not limited to, the complexity of the system being modeled, available data, and the impact/importance/significance of the pollutant loading. In the development of the Anacostia BOD and nutrient TMDLs, a set of linked water quality models was developed to simulate the delivery, transport and fate of BOD, total nitrogen (TN) and total phosphorus (TP) throughout the watershed to the non-tidal and tidal Anacostia River in Maryland and the District. The Tidal Anacostia Model/Water Analysis Simulation Program (TAM/WASP) was used as the computer

modeling framework to develop the nutrient and BOD TMDLs for the tidal Anacostia River water bodies and is described in detail in the document "*The TAM/WASP Modeling Framework for Development of Nutrient and BOD TMDLs in the Tidal Anacostia River"* dated February 2008. The TAM/WASP modeling framework was developed for use in DC's original BOD and TSS TMDLs and DC Washington Area Sewer Authority (WASA) Long Term Compliance Plan. It was most recently used to develop the joint MD-DC sediment TMDL for the Anacostia approved by EPA in July 2007. The modeling framework has the following three components: (1) the Tidal Anacostia Model (TAM), a continuous hydrodynamic model of tidal Anacostia River first developed by Metropolitan Washington Council of Governments (MWCOG); (2) a modified version of TOXIWASP that simulates sediment transport; and (3) a modified version of EUTROWASP, with enhanced capabilities of simulating Sediment Oxygen Demand and light extinction.

Observed flows and tidal heights are input into the TAM hydrodynamics model. The output of the TAM model is used to simulate the flows and segment depths in both the TOXIWASP and EUTRO components of WASP. Daily sediment loads based on Estimator Hydrologic Simulation Program – Fortran (HSPF), MOUSE, and other sources are used in the modified TOXIWASP model to simulate the fate and transport of sediment. Hourly sediment concentrations, along with daily nutrient and BOD loads based on Estimator, HSPF, and MOUSE, and other sources, are used to simulate eutrophication, dissolved oxygen dynamics, and light extinction in the modified EUTRO model. The output of the EUTRO model includes simulated daily average dissolved oxygen (DO) and chlorophyll *a* concentrations, simulated Secchi depths, and nutrient concentrations for each model segment.

The WASP models are continuous simulation models with a long history of successful employment and were recommended by EPA for use in the original Anacostia TMDLs. The TMDL report provided a list of modifications that were made to the 5.0 WASP modeling package to strengthen the linkage between input loads and predicted water quality response. The models were calibrated for the years 1995-2002. This is the most recent period for which observed data was available for development of the sediment TMDLs and provides a wide and representative range of hydrologic conditions.

Nutrient and BOD loads in the Anacostia River basin come from a variety of sources, including: stormwater runoff; subsurface drainage; erosion and in-stream scour; industrial and municipal point sources; and combined sewer overflows. Loadings of TN, TP, and BOD from these sources to impaired waters in the Anacostia were estimated by the following methods:

1. Northeast and Northwest Branches: The USGS software Estimator was used to determine the overall TN, TP, and BOD loads, based on available monitoring data collected at the USGS gages, 01651000 and 01649500. The contribution by land use was determined using HSPF models of the Northeast and Northwest Branches, calibrated to monthly loads determined with Estimator.

2. Lower Beaverdam Creek and Watts Branch: HSPF models of Lower Beaverdam Creek and Watts Branch were used to determine overall loads and loads by land use in these two watersheds.

3. Storm sewers drainage and direct drainage to the tidal Anacostia River in MD and DC: Flows were estimated based on the Watts Branch HSPF Model. Loads were determined from modeled flows and average event mean concentrations (EMCs) of stormwater monitoring data collected in the Anacostia Watershed under the municipal separate storm sewer system (MS4) program in DC and Maryland.

4. Combined Sewer Overflows (CSOs): Loads from CSOs were determined using simulated flows from DCWASA's MOUSE Model of the DC combined sewer system and average EMCs determined for monitoring performed for DCWASA's Long-term Control Plan (LTCP).

5. Municipal and Industrial Point Sources: There are two municipal wastewater treatment plants (WWTPs) in the Anacostia River watershed permitted to discharge nutrients and BOD, the USDA West Side WWTP (MD0020851); and the USDA East Side WWTP (MD0020842), both located in MD. One industrial facility in MD, NASA-Goddard Space Flight Center (MD0067482), is permitted to discharge BOD from landfill leachate. In DC, there are two industrial facilities, Super Concrete (DC0000175) and CTIDC (DC0000191), permitted to discharge wastewater from concrete manufacturing processes. A PEPCO facility in DC (DC0000094) is permitted to discharge BOD from a hydrostatic testing tank. Discharges from the tank only occur, at most, once or twice a year; in the last two years, no discharges have occurred.

6. Other: MD NPS contributions of nutrients and BOD attributable to sanitary sewer overflows (SSOs), broken sanitary lines, illicit connections, etc., are included in the overall nutrients and BOD baseline loads calculated from monitoring data for the upper portion of the watershed (above the NEB and NWB monitoring gages). Additional loadings from this source in the lower watershed are considered to be non-significant. Total loads from this source are estimated to be less than 1% of the corresponding baseline loads for TN, TP, and BOD. Sanitary sewer overflows (SSOs) and associated infiltration of pollutants from broken or leaking infrastructure and illicit connections were not assigned an allocation, since they are prohibited by facility permits.

Daily Load Determination

Tables 4-6 and 18-21 provide maximum daily loads for each of the constituents for the Anacostia River. In addition, Appendix D of the TMDL report documents the technical approach used to define maximum daily loads for BOD, TP and TN consistent with the average annual TMDLs which, when met, are protective of water quality standards in the Anacostia River over the entire year. The overall approach for development of daily loads was based upon the following factors:

- **Daily time-series loadings developed for this nutrient and BOD TMDL:** This nutrient and BOD TMDL employed continuous simulation modeling to determine compliance with the applicable water quality standard(s), producing a time series of daily loads for each contributing source category for the 3-year period (1995-97) that was simulated.

- **Draft U.S. EPA guidance dated 2007 on *Options for Expressing Daily Loads in TMDLs*:** The EPA guidance on daily loads in TMDLs provides options for defining maximum daily loads when using TMDL approaches that generate daily output.

EPA guidance for developing daily loads does not specify a single allowable approach for developing daily loads but rather contains a range of options. Selection of a specific method for translating a time-series of allowable loads into expression of a TMDL requires decisions regarding both the level of resolution (single daily load for all conditions vs. loads that vary with environmental conditions) and level of probability (i.e. critical condition, central tendency or a predefined probability) associated with the TMDL. In establishing the process for developing daily loads, the TMDLs considered both the level of resolution and the probability level. The respective approaches for Maryland and the District of Columbia sources are provided in detail in Appendix D, Technical Approach Used to Generate Maximum Daily Loads of the TMDL document. The District and Maryland chose somewhat different approaches to developing daily loads, depending on tidal influences and the type of source.

It is important to note that daily loads based on critical (worst case) conditions are meant to allow infrequent, high concentration events that can occur while still maintaining water quality standards. The critical conditions do not represent persistent loading conditions. The maximum daily loads used in conjunction with the average annual loads as provided in the TMDL report represent the allocations that must be met to consistently meet water quality standards. EPA believes that the approaches selected by each jurisdiction are consistent with each of their water quality standards and EPA regulations, policy and guidance and result in equally protective maximum daily loads.

VII. Discussions of Regulatory Requirements

EPA has determined that these TMDLs are consistent with statutory and regulatory requirements and EPA policy and guidance. EPA's rationale for approval is set forth according to the regulatory requirements listed below.

1. The TMDLs are designed to implement the applicable water quality standards.

This TMDL is designed to reduce nutrients and BOD so that MD and DC's water quality criteria for DO, water clarity and Chla are met. The water quality criteria in questions are listed below.

Chlorophyll *a*

MD's regulation provides General Water Quality Criteria, which prohibit pollution of waters of the State by any material in amounts sufficient to create a nuisance or directly or indirectly interfere with designated uses (COMAR 26.08.02.03B(2)). In addition, MD has adopted a narrative criterion for Chla in tidal waters. MD's narrative Chla criterion for tidal waters "Concentrations of chlorophyll *a* in free-flowing microscopic aquatic plants (algae) shall not exceed levels that result in ecologically undesirable consequences that would render tidal waters unsuitable for designated uses" (COMAR 26.08.02.03-3 C (10)). MDE has determined that maintaining Chla concentrations below a maximum of 100 µg/l and, with some flexibility,

maintaining a 30-day rolling average of no more than 50 µg/l is compatible with the tidal Chla narrative criterion.

Since monitoring data show all observed Chla concentrations in non-tidal waters within the last ten years are less than 10 µg/l, there is no evidence that MD's General Water Quality Criteria are violated by Chla concentrations in non-tidal waters. The nutrient impairment in the Anacostia as identified in the 1996 Section 305(b) Report was based on the impact of nutrient loads on the tidal waters at station ANA0082. Resolution of the violation of the tidal narrative criteria for Chla will address the nutrients listing in non-tidal waters, and the tidal water TMDL Chla endpoint will serve as the endpoint for the non-tidal waters as well.

DC has numerical Chla criteria applicable to the tidal Class C waters. The DCMR (1104.8) specifies that the average Chla concentration in a segment, July 1 through September 30, is not to exceed 25 µg/l.

Water Clarity

Both MD and DC have adopted numeric water quality criteria for water clarity in tidal waters for aquatic life use protection, based on 2003 U.S. EPA Chesapeake Bay Program (CBP) guidance document, "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll *a* for the Chesapeake Bay and its Tidal Tributaries (EPA 903-R-03-002)" and the "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll *a* for the Chesapeake Bay and its Tidal Tributaries 2004 Addendum (EPA 903-R-04-005)." In DC, the average Secchi depth in a segment should be no less than 0.8 meters over the growing season, April 1 through October 31. In MD, the average Secchi depth should not be less than 0.4 meters, May 1 through October 31, averaged over a three-year period, in waters less than 0.5 meters deep.

DC's turbidity water quality standard is not applicable to this TMDL. The standard states that turbidity shall not be increased by 20 NTU above the ambient turbidity level. The standard is designed to prevent short-term localized increases to the water body from sources such as construction or dredging activities and does not provide a standard for the base ambient level.

Dissolved Oxygen

Table 9 provides the DO criteria associated with each designated use in the Anacostia. It is important to note that MD's non-tidal waters are not listed for DO impairments, and there are no monitoring data that indicate that there are violations of water quality standards for DO. Both MD's and DC's definitions of tidal designated uses and their associated DO criteria are based on the 2003 CBP guidance, and have been formally incorporated into MD and DC regulations. According to the CBP guidance, a percentage of DO concentrations in space and time can be below the criteria without interfering with the designated uses they are supposed to protect. CBP recommends the development of biologically based "reference curves" which show the extent to which the DO criteria can be "exceeded" for each designated use.

Table 9. DO Criteria for Designated Uses in the Anacostia Watershed

Designated Use	Period Applicable	DO Criteria
MD Use I-P	Year round	≥ 5 mg/l (instantaneous)
MD Use II: Migratory Fish Spawning and Nursery Subcategory	2/1 – 5/31	≥ 5.0 mg/l (instantaneous) ≥ 6.0 mg/l (7-day average)
MD Use II: Open Water Fish and Shellfish Subcategory	6/1 – 1/31	≥ 3.2 mg/l (instantaneous) ≥ 4.0 mg/l (7-day average) ≥ 5.5 mg/l (30-day average)* ≥ 4.3 mg/l (instantaneous for water temperature > 29 C for protection of Short nose Sturgeon)
MD Use III	Year-round	≥ 5 mg/l (instantaneous) ≥ 6 mg/l (1-day average)
MD Use IV	Year-round	≥ 5 mg/l (instantaneous)
DC Class C	2/1 – 5/31	≥ 5.0 mg/l (instantaneous) ≥ 6.0 mg/l (7-day average)
	6/1 – 1/31	≥ 3.2 mg/l (instantaneous) ≥ 4.0 mg/l (7-day average) ≥ 5.5 mg/l (30-day average) ≥ 4.3 mg/l (instantaneous for water temperature > 29 C for protection of Short nose Sturgeon)

*Applies year round

Impairments

MDE identified the Anacostia River as being impaired by nutrients on its 1996 Section 303(d) list. The DDOE identified the Anacostia River as being impaired by BOD on its 1998 Section 303(d) List. This TMDL addresses those impairments. The nutrient and BOD impairments primarily impact the aquatic life uses of the Anacostia by causing low dissolved oxygen (DO). The decay of organic material in the water column, expressed as BOD, is a primary cause of low DO concentrations that fail to support aquatic life. Other causes of low DO include the decay of deposited organic material in the sediments causing sediment oxygen demand (SOD), nitrification of ammonia, and eutrophication. Eutrophication is the over-enrichment of aquatic systems by excessive inputs of nutrients, especially nitrogen and/or phosphorus. The nutrients act as fertilizer, leading to excessive growth of algae and aquatic plants, which eventually die and decompose, contributing to SOD. Excessive algal biomass also reduces the amount of light reaching aquatic plants and can cause a decline or disappearance of communities of submerged aquatic vegetation (SAV), a key component of tidal ecosystems. The nutrient and BOD TMDL is designed to consider these complex interactions and maintain DO, water clarity and Chla at levels that meets water quality standards and supports the aquatic life use in the Anacostia River.

Additionally, even though the primary goal of the TMDL is to ensure that the aquatic life use is met, the BOD and nutrient reductions identified in this TMDL will also result in

attainment of the recreational uses of the Anacostia River. Recreational uses in the Anacostia River include primary contact recreation, secondary contact recreation and aesthetic enjoyment in DC and water contact recreation in Maryland. Because a determination that these recreational uses are met is, to a large extent, inherently subjective, EPA has of necessity applied its best professional judgment to determine that the BOD and nutrient reductions called for by this TMDL will cause those uses to be met. The water quality goal of the nutrient TMDL is to reduce high Chla concentrations in the Anacostia River, thereby reducing excessive algal blooms and increasing water clarity so that sunlight penetration meets water quality criteria. This TMDL calls for an overall 61% reduction in BOD, an overall 79% reduction in Total Nitrogen and an overall 80% reduction in Total Phosphorus from the respective baseline loads determined for the TMDL analysis period of 1995-1997. These reductions will result in significant reductions of algal growth and increased water clarity. In addition, the already-approved TSS TMDL calls for an 85% overall reduction of TSS from the baseline loads determined from its TMDL analysis period of 1995-1997. Those TSS reductions will further improve water clarity. Finally, the previously approved Bacteria TMDL for the Anacostia River provides fecal coliform reductions that will protect the primary and secondary recreational uses of the waterbody. EPA believes that these combined BOD, nutrient, TSS and bacteria reductions will have a significant positive impact on the recreational uses and aesthetic quality of the Anacostia River. Based on these reductions, EPA believes that the BOD and nutrient TMDLs as presented are adequate to protect of the States' recreational and aesthetic uses of the Anacostia River. MD and DC will continue their monitoring programs to measure attainment of the aquatic life and recreational uses of the Anacostia River. After implementation of the TMDL, if it is determined that additional reductions are needed to attain aesthetic or recreational uses, the TMDL will be revised to address any residual impairment.

The TMDLs for nitrogen, phosphorus, and BOD resolve violations of DO criteria associated with BOD and excessive nutrient enrichment of the tidal Anacostia River in DC and ensure that MD's DO standards are met in its portion of the tidal Anacostia. Appendix C of the TMDL report provides a detailed explanation how each of the DO criteria were met, including the instantaneous and 7-day DO water quality criteria. Continuous simulation modeling was used to demonstrate that TMDL loadings will result in compliance with the 7-day DO standard. The instantaneous DO standard was also addressed by utilizing daily DO predictions from the continuous simulations. Observed continuous DO data was used to define the difference between the daily average and daily minimum DO. This difference was used as an adjustment to the predictions to estimate minimum daily DO concentrations. The TMDL represents a simulation in which all DO standards are met each day in each segment without exceptions. Figures C.1 through C.15 in Appendix C of the TMDL report compare the simulated DO minimum, seven-day average, and 30-day average time series with their corresponding criteria at different monitoring stations and demonstrate that the TMDL will maintain compliance with all DO standards at all times and locations throughout the Anacostia River.

The TMDLs also resolve violations of MD's Chla narrative criteria and ensure that DC's Chla criteria are met in its portion of the tidal Anacostia; and ensure that both DC and MD's water clarity criteria are met under the load allocations for the approved Anacostia sediment/TSS TMDLs. EPA has approved joint MD-DC sediment TMDLs in 2007 that address MD's and DC's water clarity standards. Those TMDLs implicitly assumed that algal concentrations, as represented by Chla concentrations, would not increase under sediment TMDL loading rates.

The nutrient TMDLs for the tidal Anacostia confirm that water clarity standards are met under nutrient allocations, assuming the sediment TMDL allocations determined in the previous sediment TMDLs.

Based on the above, EPA finds that the allocations were properly developed to attain and maintain existing applicable water quality standards.

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

The allocations established in this TMDL were developed to attain and maintain the water quality standards related to DO, Chla and water clarity for the Anacostia River in both Maryland and the District. In response to the District of Columbia Court of Appeals decision in Friends of the Earth v. EPA, the allocations in this TMDL are in expressed in variety of ways. These varied loading expressions not only satisfy all potential requirements of the Clean Water Act, they also are intended to facilitate a variety of implementation scenarios. Tables 1 through 6 of this Decision Rationale provide the final daily and annual loading allocations in this TMDL.

The final average annual BOD TMDL for all MD and DC non-tidal and tidal waters of the Anacostia River is **1,491,715 lbs/year**. The loading cap constitutes a 61% overall reduction of BOD from the baseline loads determined for the TMDL analysis period, 1995-1997.

The final average annual nitrogen TMDL for all MD and DC non-tidal and tidal waters of the Anacostia River is **196,788 lbs/year.** The loading cap constitutes a 79% overall reduction of nitrogen from the baseline loads determined for the TMDL analysis period, 1995-1997.

The final average annual phosphorus TMDL for all MD and DC non-tidal and tidal waters of the Anacostia River is **20,757 lbs/year**. The loading cap constitutes an 80% overall reduction of phosphorus from the baseline loads determined for the TMDL analysis period, 1995-1997.

The TMDLs are distributed between: (1) WLAs to National Pollutant Discharge Elimination System (NPDES) municipal and industrial PS discharges, MS4s and other NPDES-regulated storm water (SW), and DC CSOs; (2) LAs to forest and agricultural lands; and (3) a 5% margin of safety (MOS) for nutrients, and an implicit MOS for BOD.

As Tables 1-6 of this Decision Rationale indicate, TMDLs have been developed for each of the four listed segments: the MD non-tidal and MD tidal portions of the river, and DC's Tidal Upper Anacostia and Tidal Lower Anacostia segments (although analysis of recent monitoring data shows that MD's water quality standards are met in the State's non-tidal waters, MD non-tidal TMDLs are required to ensure that applicable standards are met in the tidal waters). Each upstream segment's overall load (minus the MOS in the TN and TP TMDLs) is added into the succeeding downstream segment as an "upstream load," resulting in a cumulative, watershed-wide TMDL.

The average annual TMDLs were calculated to meet all applicable water quality standards in the Anacostia for the three constituents, BOD, TN, and TP, including: the defined

spawning season (February through May) when stricter DO criteria are in effect; the period of the Open Water Designated Use subcategory (June through January); and the specific seasonal standards for chlorophyll *a* (July through September) and water clarity (April through October).

The document entitled "The TAM/WASP Modeling Framework for Development of Nutrient and BOD TMDLs in the Tidal Anacostia River" developed by the Interstate Commission on the Potomac River Basin provides a detailed description of how loads were determined for all of sources, including descriptions of the use of Estimator and HSPF to determine nutrient and BOD loads. Tables 10–12 below give the BOD, TN, and TP loads by source and watershed for the baseline period for determining the TMDLs. The contribution by land use includes loads from both surface and subsurface drainage. Over 80% of the BOD load comes from developed land, 17% from CSOs, and negligible loads from other sources. About 80% of the TN load also comes from developed land, 9% from agriculture, and 7% from CSOs. For TP, developed land is again the dominant source, accounting for 67% of the load; instream scour accounts for 14%, CSOs account for 13%, agriculture accounts for 3%, and other sources account for 2% or less of the overall load. The tables reflect that instream scour is a source of TP, but not to any significant degree of TN or BOD.

Table 10. Average Annual BOD Baseline Loads, 1995-1997 (lbs/yr)

Waterbody	Forest	Agriculture	Developed	Point Sources	CSOs	Total
NEB	12,654	20,556	990,390	3,597		1,027,197
NWB	3,142	5,253	585,595			593,990
LBC	2,890		305,666			308,556
Watts	403		33,124			33,528
MD Nontidal	*19,089*	*25,809*	*1,914,775*	*3,597*		*1,963,270*
MD Tidal	427		182,324			182,751
DC Upper			648,576		330,662	979,238
DC Lower			342,519		327,623	670,142
Total	19,516	25,809	3,088,194	3,597	658,285	3,795,400
% of Total	0.5%	0.7%	81.4%	0.1%	17.3%	100%

Table 11. Average Annual Total Nitrogen Baseline Loads, 1995-1997 (lbs/yr)

Waterbody	Forest	Agriculture	Developed	Point Sources	CSOs	Total
NEB	31,898	72,051	273,647	4,189		381,785
NWB	6,644	17,731	240,091			264,466
LBC	1,655		70,025			71,680
Watts	230		8,405			8,635
MD Nontidal	*40,428*	*89,782*	*592,167*	*4,189*		*726,565*
MD Tidal	517		28,305			28,822
DC Upper			89,043		31,894	120,936
DC Lower			41,042		31,601	72,642
Total	40,945	89,782	750,556	4,189	63,494	948,966
% of Total	4.3%	9.5%	79.1%	0.4%	6.7%	100%

Table 12. Average Annual Phosphorus Baseline Loads, 1995-1997 (lbs/yr)

Waterbody	Forest	Agriculture	Developed	Scour	Point Sources	CSOs	Total
NEB	957	3,187	26,836	6,841	2,164		39,984
NWB	240	207	17,857	7,757			26,061
LBC	108		8,260	369			8,737
Watts	17		1,076	24			1,117
MD Nontidal	*1,322*	*3,394*	*54,030*	*14,990*	*2,164*		*75,899*
MD Tidal	19		2,766	0			2,785
DC Upper			8,623	15		6,600	15,238
DC Lower			3,975	0		6,539	10,514
Total	1,340	3,394	69,394	15,005	2,164	13,139	104,436
% of Total	1.3%	3.2%	66.4%	14.4%	2.1%	12.6%	100%

Wasteload Allocations

EPA regulations require that an approvable TMDL include individual WLAs for each point source. According to 40 CFR §122.44(d)(1)(vii)(B), "Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with assumptions and requirements of any available WLA for the discharge prepared by the State and approved by EPA pursuant to 40 CFR §130.7." Furthermore, EPA has authority to object to the issuance of any NPDES permit that is inconsistent with the WLAs established for that point source.

Tables 1 through 6 provide the annual and daily WLAs for the Anacostia, allocating the TMDLs for TN, TP, and BOD among all sources. In addition, to the above gross loadings, the TMDL report included a *Technical Memorandum – Significant Biochemical Oxygen Demand, Nitrogen and Phosphorus Point Sources in the Anacostia River Watershed* which provides wasteload allocations to NPDES-regulated municipal and industrial wastewater treatment plants, municipal separate storm sewer system (MS4) discharges, and CSOs in the Anacostia watershed. Loads from urban land uses are broken down by MS4 jurisdiction. EPA considers the Technical Memorandum as part of the TMDL submittal and the allocations identified therein as covered by this approval. Although the Tables in the Technical Memorandum identify the various WLAs as "loads attributed" to MD and DC point sources, EPA interprets these WLAs as "allocations" to those point sources consistent with its regulations at 130.2(h). These WLAs are shown in the following Tables 13 through 17.[3]

[3] Tables 13 - 17 in this Decision Rationale are identified as Tables 1 – 5 in the *Technical Memorandum – Significant Biochemical Oxygen Demand, Nitrogen and Phosphorus Point Sources in the Anacostia River Watershed* of the TMDL report.

Table 13. Wasteload Allocations Attributed to MD Point Sources

MD Point Source Name	Permit Number	BOD (lbs/year)	TN (lbs/year)	TP (lbs/year)
BARC East Side WWTP	MD0020842	44,348	7,554	567
Beltsville USDA West WWTP	MD0020851	14,705	2,437	183
NASA Goddard Center	MD0067482	7,311		
Montgomery County MS4 – NWB	MD0068349	126,176	26,394	2,279
Other Mont. Co. SW– NWB		39,643	6,700	788
Montgomery County MS4 – NEB	MD0068349	62,707	12,565	1,668
Other Mont. Co. SW– NEB		25,460	3,682	322
Prince George's County MS4 – NWB	MD0068284	55,234	9,065	1,388
Other PG Co. SW-NWB		9,784	1,193	204
Prince George's County MS4 – NEB	MD0068284	226,639	25,116	3,461
Other PG Co. SW-NEB		101,158	10,311	893
Prince George's County MS4 – LBC	MD0068284	109,434	11,598	1,485
Other MD SW-LBC		18,946	1,625	140
Prince George's Co. MS4–Watts Br	MD0068284	12,765	1,490	199
Other MD SW-Watts		1,147	97	8
Total MD Non-tidal PS Loads		**855,457**	**119,827**	**13,584**
Prince George's County MS4 – Tidal	MD0068284	62,613	4,173	433
Other MD SW-Tidal		13,963	1,172	88
Total MD PS Loads		**932,033**	**125,172**	**14,105**

NWB = Northwest Branch; NEB = Northeast Branch; LBC = Lower Beaverdam Creek; Watts Br = Watts Branch

Table 14. Loads Attributed to DC Point Sources

DC Point Source Name	Permit Number	BOD (lbs/year)	TN (lbs/year)	TP (lbs/year)
Aggregate Super Concrete Industries	DC0000175	1,188		
CTIDC	DC0000191	1,005		
PEPCO	DC0000094	501		
Total DC Industrial PS Loads		**2,694**		
DC MS4 - NWB	DC0000221	14,421	1,955	162
Other DC SW NWB		692	31	3
DC MS4 – LBC	DC0000221	403	45	6
DC MS4 - Watts Br	DC0000221	14,252	1,731	248
DC MS4 – Tidal Upper	DC0000221	181,841	10,493	966
Other DC SW Tidal Upper		9,358	423	46
DC MS4 – Tidal Lower	DC000221	98,435	5,172	509
Other DC SW Tidal Lower		15,720	710	78
Total DC MS4/SW Loads		**335,121**	**20,560**	**2,018**
DC CSO Loads – Tidal Upper	DC0021199	52,472	5,061	1,047
DC CSO Loads – Tidal Lower	DC0021199	56,801	5,479	1,134
Total CSO Loads		**109,274**	**10,540**	**2,181**
Total DC PS Loads		**447,089**	**31,100**	**4,199**

Table 15. Average Monthly BOD Loads for Municipal and Industrial Facilities (lbs/mo)

Month	BARC-East	BARC-West
January	4,812	1,552
Feb	4,346	1,402
March	4,812	1,552
April	2,639	1,001
May	2,727	1,035
June	2,639	1,001
July	2,727	1,035
August	2,727	1,035
September	2,639	1,001
October	4,812	1,035
November	4,657	1,502
December	4,812	1,552
Annual	**44,348**	**14,705**
February – May	14,524	4,991
June – January	29,824	9,714
April –October	20,909	7,144
July –September	8,092	3,071

Table 16. Average Monthly TN Loads for Municipal and Industrial Facilities (lbs/mo)

Month	BARC-East	BARC-West
January	642	207
Feb	580	187
March	642	207
April	621	200
May	642	207
June	621	200
July	642	207
August	642	207
September	621	200
October	642	207
November	621	200
December	642	207
Annual	**7,554**	**2,437**
February – May	2,484	801
June – January	5,071	1,636
April –October	4,429	1,429
July –September	1,904	614

Table 17. Average Monthly TP Loads for Municipal and Industrial Facilities (lbs/mo)

Month	BARC-East	BARC-West
January	48	16
Feb	43	14
March	48	16
April	47	15
May	48	16
June	47	15
July	48	16
August	48	16
September	47	15
October	48	16
November	47	15
December	48	16
Annual	**567**	**183**
February – May	186	60
June – January	380	123
April –October	332	107
July –September	143	46

The TMDL submitted by MD and DC did not identify daily loads for each of the seven individually-permitted MD and DC facilities and provided waterbody daily loads for the three MS4 permits discharging into the Anacostia. The TMDL report identified information and methods by which the daily loads for the individual permits could be calculated. Based on the information provided in the point source technical memorandum, EPA calculated maximum daily loads for the permitted facilities in Maryland and DC and provided them in Table 18. These loads were determined by EPA applying the procedures described in Appendix D of the TMDL report. In addition, based on the daily loads for tidal and non-tidal areas provided in Tables 4 -6 of this Decision Rationale and the percent load contribution from each County, EPA calculated maximum daily loads for the three MS4 permittees in the Anacostia River Watershed including Montgomery County (MD0068349), Prince George County (MD0068284) and DC (DC0000221). The daily loads for the three MS4 permits are represented in Tables 19 through 21 of this Decision Rationale. EPA recognizes that, where there is not enough detailed data and information currently available to determine WLAs for each individual stormwater source or outfall in the Anacostia watershed, it is permissible to combine pollutant discharges into an aggregate allocation according to an EPA memorandum *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on those WLAs*, dated November 22, 2002. EPA finds that the daily and annual WLAs for the MS4 permits as provided in the TMDL report (which includes the Technical Memorandum) and this Decision Rationale are a reasonable approach. EPA has calculated daily WLAs for the MD and DC point source found in Tables 18 through 21.

Table 18. Maximum Daily Loads for Point Sources in Maryland and DC

MD Point Source Name	Permit Number	BOD (lbs/day)	TN (lbs/day)	TP (lbs/day)
BARC East Side WWTP	MD0020842	378	64	5
Beltsville USDA West WWTP	MD0020851	125	21	2
NASA Goddard Center	MD0067482	30		
DC Point Source Name				
Aggregate Super Concrete Industries	DC0000175	3.25		
CTIDC	DC0000191	125.1		
PEPCO	DC0000094	2.75		

Table 19. Maximum Daily Loads of BOD for MS4 permittees in Maryland and DC

Permittee		Flow Range m^3/s	Max Daily Load (lbs/day)
Montgomery County MD0068349	Non-tidal	< 0.89	87.87
		0.89 – 2.34	472.41
		2.34 – 3.48	2009.99
		3.48 – 10.75	3632.25
		> 10.75	22474.71
Prince George's County MD0068284	Non-tidal	< 0.89	215.13
		0.89 – 2.34	1156.59
		2.34 – 3.48	4921.01
		3.48 – 10.75	8892.75
		> 10.75	55024.29
	Tidal	All	6797
District of Columbia DC0000221	Non-tidal Lower Beaverdam Creek	All	32.3 (maximum) 1.10 (average)
	Non-tidal Watts Branch	All	1125 (maximum) 39 (average)
	Tidal Upper Anacostia	All	18,330 (maximum) 564 (average)
	Tidal Lower Anacostia	All	9588 (maximum) 312 (average)

Table 20. Maximum Daily Loads of Total Nitrogen for MS4 permittees in Maryland and DC

Permittee		Flow Range m^3/s	Max Daily Load (lbs/day)
Montgomery County MD0068349	Non-tidal	< 0.89	18.017
		0.89 – 2.34	78.26
		2.34 – 3.48	302.29
		3.48 – 10.75	587.81
		> 10.75	5985.17
Prince George's County MD0068284	Non-tidal	< 0.89	23.883
		0.89 – 2.34	103.74
		2.34 – 3.48	400.71
		3.48 – 10.75	779.19
		> 10.75	7933.83
	Tidal	All	397
District of Columbia DC0000221	Non-tidal Lower Beaverdam Creek	All	3.57(maximum) 0.124 (average)
	Non-tidal Watts Branch	All	138 (maximum) 4.74 (average)
	Tidal Upper Anacostia	All	964 (maximum) 34.7 (average)
	Tidal Lower Anacostia	All	433 (maximum) 16.1 (average)

Table 21. Maximum Daily Loads of Total Phosphorus for MS4 Permittees in Maryland and DC

Permittee		Flow Range m^3/s	Max Daily Load (lbs/day)
Montgomery County MD0068349	Non-tidal	< 0.89	1.2852
		0.89 – 2.34	6.696
		2.34 – 3.48	30.6
		3.48 – 10.75	58.32
		> 10.75	1122.84
Prince George's County MD0068284	Non-tidal	< 0.89	2.2848
		0.89 – 2.34	11.904
		2.34 – 3.48	54.4
		3.48 – 10.75	103.68
		> 10.75	1996.16
	Tidal	All	43.4
District of Columbia DC0000221	Non-tidal Lower Beaverdam Creek	All	0.47 (maximum) 0.016 (average)
	Non-tidal Watts Branch	All	20.1(maximum) 0.68 (average)
	Tidal Upper Anacostia	All	104.2 (maximum) 3.46 (average)
	Tidal Lower Anacostia	All	47.6 (maximum) 1.61 (average)

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 loading. Wherever possible, natural and NPS loads should be distinguished. Tables 1 through 6 of this Decision Rationale provide the annual and daily load allocations for NPSs.

The TMDL report included the *Technical Memorandum –Significant Biochemical Oxygen Demand, Nitrogen and Phosphorus Nonpoint Sources in the Anacostia Watershed*. EPA considers the Technical Memorandum as part of the TMDL submittal and covered by this approval. The memorandum provided the NPS loads that were used in the development of the BOD, TN, and TP TMDLs and account for all sources, including both natural and human-induced components.

Annual average NPS loads were estimated using a combination of results from the USGS Estimator model and the HSPF model. The HSPF model was used to simulate the fate and transport of BOD, TN, and TP in the non-tidal drainage areas of the Anacostia's main tributaries, the Northwest Branch, the Northeast Branch, Lower Beaverdam Creek, and Watts Branch.

HSPF was used as well to provide a breakdown of the constituent loads by source (agriculture, forest, or urban) or, in the case of TP, from stream bank erosion.

In Maryland's portion of the Anacostia, all developed land and stream bank erosion contributions are included in the point sources technical memorandum as MS4 or other regulated stormwater loads. In DC, all loads from developed land except the direct drainage to the Anacostia are treated as MS4 or other regulated storm water loads. Atmospheric deposition to land surfaces is included in the loads attributed to mixed agriculture, forest and other herbaceous and urban land uses.

Table 22[4] provides the LAs for the distribution of the annual BOD NPS loads between forest and agricultural land, the significant land use categories in the non-tidal Anacostia watershed. Tables 23 and 24[4] provide the LAs for the distribution of annual TN and TP NPS loads, respectively between different land use categories. Table 25[4] shows the NPS loads attributed to forest in the MD Tidal TMDLs and the direct drainage in the DC Upper and Lower Anacostia TMDLs. Other developed land and stream bank erosion contributions in DC and MD are treated as MS4 or other regulated storm water loads and are included in the point sources technical memorandum.

Table 22. Annual NPS Loads Attributed to Significant Land Uses for Non-tidal Anacostia BOD TMDLs (lbs/year)

Land use Category	NWB	NEB	LBC	Watts Br	Total	% of Non-tidal NPS Loads
Mixed Agricultural	2,206	8,633	0	0	10,840	57%
Forest and Other Herbaceous	1,320	5,315	1,214	169	8,017	43%
Total	**3,526**	**13,948**	**1,214**	**169**	**18,857**	**100%**

NWB = Northwest Branch; NEB = Northeast Branch; LBC = Lower Beaverdam Creek; Watts Br = Watts Branch

Table 23. Annual NPS Loads Attributed to Significant Land Uses for Non-tidal Anacostia TN TMDLs (lbs/year)

Land use Category	NWB	NEB	LBC	Watts Br	Total	% of Non-tidal NPS Loads
Mixed Agricultural	3,348	13,606	0	0	16,954	69%
Forest and Other Herbaceous	1,255	6,023	313	43	7,634	31%
Total	**4,603**	**19,629**	**313**	**43**	**24,588**	**100%**

NWB = Northwest Branch; NEB = Northeast Branch; LBC = Lower Beaverdam Creek; Watts Br = Watts Branch

[4] Tables 22 - 25 in this Decision Rationale are identified as Tables 1 – 4 in the *Technical Memorandum – Significant Biochemical Oxygen Demand, Nitrogen and Phosphorus Nonpoint Sources in the Anacostia River Watershed* of the TMDL report.

Table 24. Annual NPS Loads Attributed to Significant Land Uses for Non-tidal Anacostia TP TMDLs (lbs/year)

Land use Category	NWB	NEB	LBC	Watts Br	Total	% of Non-tidal NPS Loads
Mixed Agricultural	39	600	0	0	639	72%
Forest and Other Herbaceous	45	180	20	3	249	28%
Total	**84**	**780**	**20**	**3**	**888**	**100%**

Table 25. Annual NPS Loads Attributed to Sources in the Tidal Anacostia (lbs/year)

TMDL	Source	BOD	TN	TP
Maryland Tidal	Forest	179	98	4
Upper Anacostia	Direct Drainage	66,548	4,123	361
Lower Anacostia	Direct Drainage	29,704	1,868	162

EPA finds that the proposed TMDLs meet the requirement to include total loads as well as wasteload allocations and load allocations.

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

All loads of BOD, TN and TP within the Anacostia River watershed were considered in this TMDL. Loads flowing into the Anacostia River outside of the modeling domain were considered as background loads to the model. These loads were identified in the allocation tables as allocations to upstream. Each upstream segment's overall load (minus the MOS in the TN and TP TMDLs) is rolled into the succeeding downstream segment as an "upstream load," resulting in a cumulative, watershed-wide TMDL. For example, all upstream loads from Watts Branch, Lower Beaverdam Creek and Maryland were identified in DC's Tidal Anacostia River TMDL and given a separate load in the TMDL.

EPA finds that the proposed TMDLs appropriately considered impacts of background pollutant contributions.

4. The TMDLs consider critical environmental conditions.

According to EPA's regulation 40 CFR §130.7 (c)(1), TMDLs are required to take into account critical conditions for stream flow, loading, and water quality parameters. The intent of this requirement is to ensure that the water quality of the Anacostia is protected during times when it is 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. Generally, summers are the time of year when the Anacostia River is most vulnerable to water quality exceedances of DO, Chla and water clarity. The TMDL Report considers critical environmental conditions by modeling the watershed using daily simulations for three years. Baseline loads and loading caps were calculated using the simulation period 1995-1997. The critical condition and seasonality were accounted for in the TMDL analysis by the choice of this simulation period, which includes a wet year (1996), a dry year (1995), and an average year (1997), thus taking into account a wide variety of hydrological conditions.

EPA finds that the proposed TMDLs meet the requirement to consider the critical environmental conditions.

5. The TMDLs consider seasonal environmental variations.

Seasonal variations involve changes in stream flow and loadings as a result of hydrologic and climatological patterns. In the continental United States, seasonally high flows normally occur in early spring from snow melt and spring rain, while seasonally low flows typically occur during the warmer summer and early fall drought periods. Generally, summers are the time of year when the Anacostia River is most vulnerable to water quality exceedances of DO, Chla and water clarity.

The TMDL Report considers seasonal variations by modeling the watershed using daily simulations for three years (1995-1997) with seasonal data as appropriate. The season variations were accounted for in the TMDL analysis by the choice of this simulation period, which includes a wet year (1996), a dry year (1995), and an average year (1997); thus taking into account a wide variety of hydrological conditions.

EPA finds that the proposed TMDLs meet the requirement to consider seasonal environmental variations.

6. The TMDLs include a Margin of Safety.

The CWA and EPA's TMDL regulations require TMDLs to include a MOS to take into account any lack of knowledge concerning the relationship between effluent limitations and water quality. EPA guidance suggests two approaches to satisfy the MOS requirement. First, it can be met implicitly by using conservative model assumptions to develop the TMDL and its allocations. Alternately, it can be met explicitly by allocating a portion of the allowable load to the MOS. Tables 1 through 6 provide the specific annual and daily MOS for the TMDLs for each constituent.

Maryland and the District have adopted an explicit MOS for the nutrient TMDLs. The reserved load allocated to the MOS was computed as 5% of the total loads for nitrogen and phosphorus. TMDLs across the nation have been approved with explicit MOS's ranging from 1% to 10% of the total TMDL, depending on the level of uncertainty concerning the relationship between effluent limitations and water quality. While every TMDL has a level of uncertainty,

the level of uncertainty in the Anacostia nutrient TMDL was reduced by using: (1) a large volume of monitoring data collected by Maryland, DC, USGS, and MWCOG that includes daily storm water and base stream flow as input; and (2) a sophisticated model, "Tidal Anacostia Model/Water Analysis Simulation Program", developed specifically for the Tidal Anacostia TMDLs. EPA finds that setting aside 5% of the total loads for phosphorus and nitrogen provides an adequate margin of safety.

An implicit MOS was adopted for the BOD TMDL. Both DC's and MD's water quality standards incorporate by reference the 2003 U.S. EPA Chesapeake Bay Program (CBP) guidance document, "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and its Tidal Tributaries (EPA 903-R-03-002)" and the "Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll *a* for the Chesapeake Bay and its Tidal Tributaries 2004 Addendum (EPA 903-R-04-005)" and is part of DC and MD's water quality standards. This document provides recommendations to model information to assess future criteria attainment under various nutrient and sediment scenarios to support decisions on load reductions and caps. The guidance recognizes that DO levels in a waterbody can be below the DO criteria to a limited extent in both space and time with no discernible impact to designated uses. Based on this, TMDLs could be developed using those allowed exceedances of the DO criteria as long as the use remained protected. However, the Anacostia BOD TMDL was conservatively determined by not using the "allowed" exceedance of the DO criteria in either space or time in its modeling of the allocations. The TMDL is stricter than necessary to protect the designated uses.

EPA finds that the proposed TMDLs meet the requirement to include a margin of safety.

7. The TMDLs have been subject to public participation.

Stakeholders in the Anacostia River were informed of the planned nutrients/BOD TMDL by a February 2007, MDE mailing of a notice of intent. A follow-up notification was mailed in early February 2008, to announce the release of the TMDL documents for public review and the scheduled public meeting. A public notice of intent to establish the nutrients/BOD TMDL was published in the DC Register in the District, and in the Montgomery County Gazette and Prince George's County Enquirer-Gazette in MD. The notice was also sent to MD and DC stakeholders. The draft TMDL documents were placed for public review in certain public libraries located in the District and in each of the two MD Counties. In addition, the draft TMDL documents were available on MDE's and DDOE's websites.

A public meeting on the nutrients/BOD TMDL was held in Washington, D.C., on March 14, 2008. The meeting was facilitated by EPA, Region III, and included staff from MDE, DDOE, and technical support contractors. Attendees were invited to send formal written comments to MDE and/or DDOE before the close of the public comment period. Maryland and DC received comments from six commentors. All written comments received by the close of the comment period have been recorded and formally responded to in a Comment Response Document (CRD), included in the TMDL report.

EPA finds that the proposed TMDL meets the requirement to provide adequate opportunity for public participation.

VIII. There is reasonable assurance that the LAs will be met.

The TMDL report provides an adequate discussion of practicable implementation measures and strategies for achieving the TMDLs' NPS allocations. Maryland envisions TMDL implementation for NPSs as a partnership between the State and local governments, with stakeholder involvement and public participation. Maryland and the District intend for the required reduction to be implemented in an iterative process that first addresses those sources with the largest impact to water quality, with consideration given to ease and cost of implementation. Given the significant nutrient reductions required by the TMDL, this approach is well-suited to the magnitude of the task by allowing stream monitoring to track water quality improvements following best management practice (BMP) implementation; providing a mechanism for developing public support through periodic updates on BMP implementation; and helping to ensure that the most cost-effective practices are implemented first.

Below are a just a few implementation measures and assurances for LA's that are discussed in the TMDL report.

- MD's Water Quality Improvement Act of 1998 requires that comprehensive and enforceable nutrient management plans be developed, approved and implemented for all agricultural lands throughout MD. This act specifically required such plans for nitrogen be developed and implemented by 2002, and plans for phosphorus be completed by 2005. Funding will continue to be provided under Section 319 of the CWA for NPS control. Other potential funding sources for implementation include MD's Agricultural Cost Share Program (MACS) which provides grants to farmers to help protect natural resources, and the Environmental Quality and Incentives Program, which focuses on implementing conservation practices and BMPs on land involved with livestock and production.

- The District is implementing a NPS management plan through its Nonpoint Source Management and Chesapeake Bay Implementation programs, and has developed a tributary strategy as part of the Bay's restoration efforts. The strategy provides the framework for implementation efforts for achieving nutrient reduction goals. The tributary strategy allocations were established through the 2000 Chesapeake Bay Agreement process. DDOE is also committed to ongoing monitoring and assessment of the tidal Anacostia River.

- In January 2005, MD's Section 319 Nonpoint Source Program was transferred from Maryland Department of Natural Resources (DNR) to MDE to focus resources on the implementation of TMDLs. The grant associated with the 319 Program is used to fund a small number of targeted stream restoration and protection projects each year. The Anacostia River is classified as a priority watershed within MDE's Integrated Project Priority System, which is used for selecting grant and loan requests. This status will help to assure implementation in the Anacostia watershed.

- Prince George's County, in partnership with DNR has developed a Watershed Restoration Action Strategy for the Anacostia watershed.

- The District and the States of MD, Pennsylvania, and Virginia, the Chesapeake Bay Commission, and the EPA joined in a partnership to restore the Chesapeake Bay. The revised 2000 Chesapeake Bay Agreement includes a specific commitment to reduce pollutant loads to the Anacostia River. MD and the District, together with Montgomery County and Prince George's County, EPA Region III, and the U.S. Army Corps of Engineers, Baltimore District, have formed the Anacostia Watershed Leadership Council, which leads the reformed Anacostia Watershed Restoration Partnership (AWRP). The AWRP has reaffirmed the AWRC Six-Point Action Plan, which includes (1) reducing pollutant loads (including nutrients and BOD); (2) protecting and restoring the ecological integrity of Anacostia River watershed; (3) restoring natural range of resident and andromonous fish; (4) increasing tidal and non-tidal wetlands; (5) protecting and expanding forest cover; and (6) increasing public usage, stewardship, and advocacy. The reduction of nutrient loads will most directly be address by storm water management retrofits and increased use of low impact development under the first goal, but stream restoration under the second goal, as well as increased forest and wetland cover, are also likely to help reduce nutrient loads.

In addition Montgomery County, Prince George's County and the District of Columbia have a number of planned and ongoing Anacostia Watershed restoration activities which are listed below.

Montgomery County:

1. Conducts NPDES MS4 permit monitoring in Lower Paint Branch.
2. Funds flow gages and water quality monitoring by USGS in Anacostia watershed.
3. Monitors and evaluates the effectiveness of selected storm water practices.
4. Conducts monthly street sweeping.
5. Plans and develops new and enhanced storm water management retrofits, LID (low impact development) retrofits, and stream restoration projects.

Prince George's County:

1. Conducts NPDES MS4 permit monitoring in Lower Beaverdam Creek.
2. Funds flow gages and water quality monitoring by USGS in Anacostia watershed.
3. Conducts routine storm drain-inlet cleaning, pipe cleaning and street sweeping.
4. Planning and/or implementing stream restoration, bioretention, and LID at sites in Beaverdam Creek, Lower Beaverdam Creek, and Sligo Creek watersheds; participating in construction of wetlands downstream of Bladensburg Marina for mitigation of Wilson Bridge Project.

District of Columbia:

1. Develops and implements a range of storm water management and LID retrofits.
2. Monitors and evaluates the effectiveness of selected stormwater practices.
3. Funds flow gages and water quality monitoring by USGS in Anacostia watershed.
4. Conducts routine catch basin cleaning and street sweeping.
5. Develops and implements stream restoration projects.
   Protects and restores wetlands.

Neither the Clean Water Act nor the EPA implementing regulations, guidance or policy requires a TMDL to include an implementation plan. However, several activities are taking place or are planned that are important to note. For point sources, Federal regulations at 40 CFR 122.44(d)(1)(vii)(B), require effluent limitations for an NPDES permit to 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 authority to object to issuance of an NPDES permit that is inconsistent with the WLAs established for that point source. Additionally, according to 40 CFR 130.7(d)(2), approved TMDL loadings shall be incorporated into the states' current water quality management plans. These plans are used to direct implementation and draw upon water quality assessments to identify priority point and NPS water quality problems, consider alternative solutions, and recommend control measures. The municipal and industrial facilities permitted to discharge nutrients and BOD in the Anacostia watershed are assigned WLAs in this TMDL. The water quality-based effluent limitations in the NPDES permits that are issued, reissued, or modified after the TMDL approval date must be consistent with those WLAs. The District of Columbia Water and Sewer Authority (WASA) has established a Long Term Control Plan (LTCP) for the reduction of CSOs and the nutrient and BOD loads associated with them. The goal of the LTCP is to reduce CSOs by 98% within 20 years. Under its MS4 NPDES permit, the District is implementing a storm water management plan to control the discharge of pollutants from separate storm sewer outfalls. The MS4 permit requires the implementation of available waste load allocations. It is expected that the Maryland MS4 permits will also include requirements to fully consider the wasteload allocation requirements of this TMDL. In the State's NPDES storm water permits, MD uses the watershed approach for achieving water quality because it is comprehensive and efficient. Stormwater BMPs and programs implemented as required by MS4 permits shall be consistent with available WLAs developed under the TMDL.

In 2004, the United States and the State of Maryland brought suit against WSSC in the U.S. District Court for the District of Maryland to remedy recurrent SSOs from the WSSC system (*United States et al. v. Washington Suburban Sanitary Commission,* C.A. No. PJM 04-3679 (Greenbelt Division). A consent decree was negotiated among the United States, Maryland, several intervener citizen groups and WSSC, and lodged on July 26, 2005. WSSC has entered into a "Clean Water Partnership" with several environmental and watershed advocacy groups and developed a 12-year plan to carry out the requirements of the Consent Decree, which include maintaining, identifying, and repairing problem areas within a 5,200-mile sewer system. WSSC already reports overflows to MDE as required by Environment Article, Section 9-331.1, Annotated Code of Maryland, and COMAR 26.08.10.

EPA finds that there is reasonable assurance that the LAs will be met.