

Appendix – Watersheds

Watershed Name	General Description of Contents
<ul style="list-style-type: none"> - Antietam Creek - Back River Tidal - Back River Upper - Casselman River - Corsica River - Lower Jones Falls - Lower Monocacy River - Middle Gwynns Falls - Sassafras River - Upper Choptank River 	<p>Each watershed listed is eligible for 319(h) Grant implementation funding. The appendix contents for each watershed addresses several topics:</p> <ul style="list-style-type: none"> - Water Quality Monitoring Activity Summary - Water Quality Conditions / Trends - Completed NPS grant projects prior to 2014 - Activity by NPS grant projects during 2014 - Watershed Plan implementation status reported by the lead plan implementer

Appendix Watershed Eligible for 319(h) Grant Implementation Funding

Antietam Creek in Washington County, Maryland¹

Contents

- Water Quality Monitoring Activity
- Water Quality Overall Condition
- Water Quality Trends
- Completed grant projects 1994-2013
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring Activity

In the Antietam Creek watershed in Washington County, Maryland water quality monitoring is conducted by the State. Long term monitoring stations are part of the state's nutrient and sediment load monitoring network (see map). One station near the state boundary with Pennsylvania (ANT0366) is located to track loads entering Maryland. The other station near the confluence with the Potomac River (ANT0047) tracks loads for essentially the entire Antietam Creek watershed. Small watershed synoptic monitoring was conducted for several years by the 319-funded MDE Targeted Watershed project. Targeted Watershed FFY13 #4 project final report is anticipated to include analysis.

Water Quality Overall Condition²

In the eastern portion of the basin, sediment loadings increased but nitrogen and phosphorus loadings decreased. Nitrogen levels increased in Conococheague Creek and Antietam Creek but decreased in the lower Monocacy River and in the main river at Point of Rocks. Phosphorus levels decreased throughout the basin, and sediment levels decreased in Conococheague Creek and Antietam Creek.

Water Quality Trends³

Maryland DNR summarized trends 1999-2012 as is shown in Table 1 (Antietam Creek watershed monitoring stations are yellow highlighted). Antietam stations ANT0044 and ANT0047 are included in Figures 19, 20, 21 that graph the average annual pollutant loads from 2002 thru 2011 for nitrogen, phosphorus and sediment. The graphs in Figure 22 show annual mean concentrations from 1986 thru 2012 for the same pollutants at Antietam stations ANT0203, ANT0366 and ANT0044.

¹ Watershed Plan does not encompass portions of the Antietam Creek watershed in Pennsylvania.

² Maryland Department of Natural Resources. *Potomac River Water Quality and Habitat Assessment Overall Condition 2011-2013*. Complete report is available: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

³ Maryland Department of Natural Resources. *Potomac River Water and Habitat Assessment*. Complete report is available: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

Map: Water Quality Monitoring Station Locations³

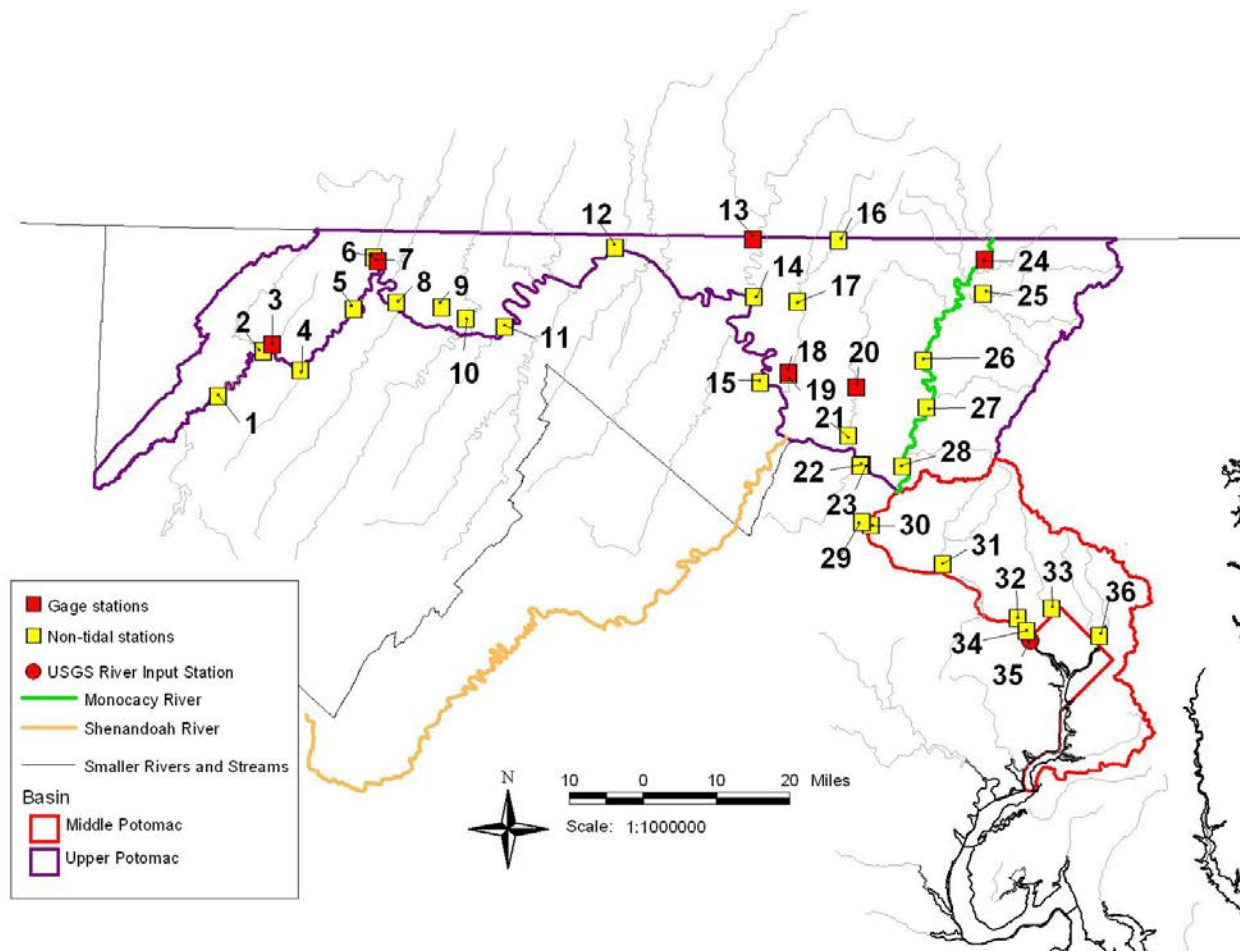


Figure 17. Long-term non-tidal water quality monitoring stations.

Stations are: 1) NBP0689, 2) NBP0534 and SAV0000, 3) **GEO0009** (USGS gage 01599000) , 4) NBP0461, 5) NBP0326, 6) BDK0000, 7) **WIL0013** (USGS gage 01601500), 8) NBP0103, 9) NBP0023, 10) TOW0030, 11) POT2766, 12) POT2386, 13) **CON0180** (UGSG gage 01614500), 14) CON0005, 15) POT1830, 16) **ANT0366**, 17) **ANT0203**, 18) **ANT0047** (USGS gage 01619500), 19) **ANT0444**, 20) **CAC0148** (USGS Gage 01637500), 21) CAC0031, 22) POT1596, 23) POT1595, 24) **MON0528** (UGSG gage 01639000), 25) BPC0035, 26) MON0269, 27) MON0155, 28) MON0020, 29) POT1472, 30) POT1471, 31) SEN0008, 32) CJB0005, 33) RCM0111, 34) POT1184, 35) USGS RIM station 01646580), 36) ANA0082. Stations in **BOLD** are USGS gage stations (red squares). See Appendix 3 for station description and information.

Table 1. Summary of trends for non-tidal loadings (WY2002-2011) and non-tidal water quality parameters trends (1999-2012).

Map # corresponds to Figure 17 in main report. Annual trends either ‘Increase’ or ‘Decrease’ if significant at $p \leq 0.01$ or ‘Maybe Increase’ or ‘Maybe Decrease’ at $0.01 < p < 0.05$; blanks indicate no significant trend. Improving trends are in green, degrading trends are in red. Gray boxes indicate there is no data to evaluate that component.

	map#	Station	Loadings			Water Quality		
			Nitrogen	Phosphorus	Sediments	Nitrogen	Phosphorus	Sediments
Western Upper Potomac	1	NBP0689				INCREASE		INCREASE
	2	SAV0000						INCREASE
	2	NBP0534						INCREASE
	3	GEO0009			INCREASE	DECREASE		INCREASE
	4	NBP0461				DECREASE	DECREASE	
	5	NBP0326				DECREASE	DECREASE	
	6	BDK0000				DECREASE		
	7	WIL0013	DECREASE	INCREASE		DECREASE		
	8	NBP0103				DECREASE	DECREASE	
	9	NBP0023				DECREASE	DECREASE	
	10	TOW0030				DECREASE		
	11	POT2766				DECREASE		
12	POT2386				DECREASE		DECREASE	
Eastern Upper Potomac	13	CON0180		DECREASE		INCREASE	DECREASE	Maybe Decrease
	14	CON0005				INCREASE	DECREASE	DECREASE
	15	POT1830					DECREASE	
	16	ANT0366				INCREASE		DECREASE
	17	ANT0203				INCREASE	DECREASE	DECREASE
	18	ANT0044				INCREASE	DECREASE	
	20	CAC0148		DECREASE			DECREASE	
	21	CAC0031					DECREASE	Maybe Decrease
	22	POT1596				DECREASE	DECREASE	
23	POT1595					DECREASE		
Monocacy River	24	MON0528	DECREASE	DECREASE		Maybe Decrease	DECREASE	Maybe Decrease
	25	BPC0035					DECREASE	
	26	MON0269					DECREASE	
	27	MON0155				DECREASE	DECREASE	
	28	MON0020				DECREASE	DECREASE	
Middle Potomac	29	POT1472				Maybe Decrease	DECREASE	
	30	POT1471					DECREASE	
	31	SEN0008				DECREASE	DECREASE	
	32	CJB0005						
	33	RCM0111						
	34	POT1184					DECREASE	
	36	ANA0082					Maybe increase	INCREASE
	35	Potomac River at Chain Bridge, MD			INCREASE			

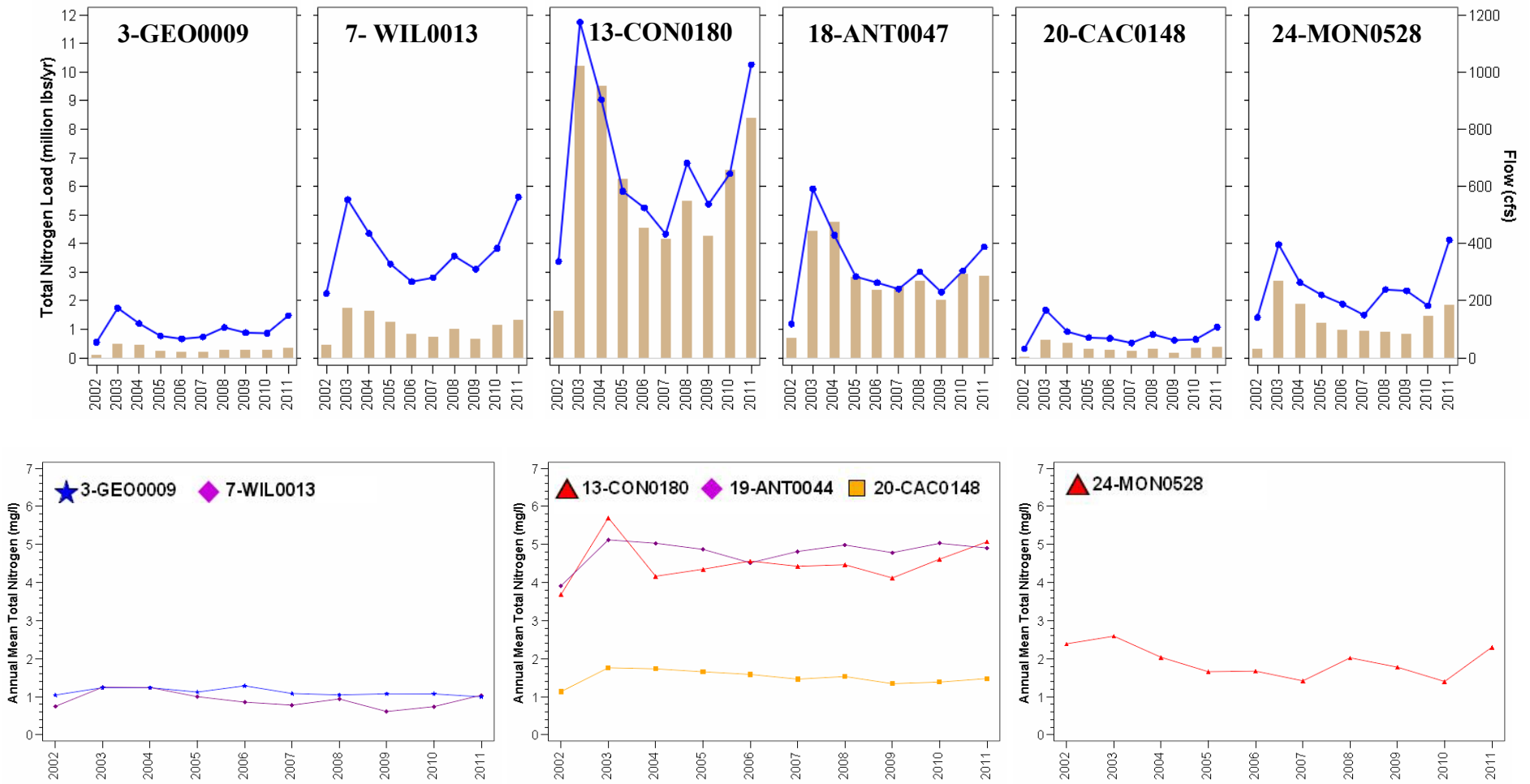


Figure 19. Annual nitrogen loadings to the Upper Potomac at USGS gage sites and water year means for TN at long-term non-tidal water quality monitoring stations.

Top graphs show annual nitrogen (tan bars, left axis) and flow (blue line, right axis) for each of the USGS gaging stations. Bottom graphs shows water year annual mean concentrations for total nitrogen for corresponding long-term non-tidal stations. Scales are the same on all of the loadings graphs and all of the annual concentrations graphs. Stations numbers correspond to station labels in Figure 17.

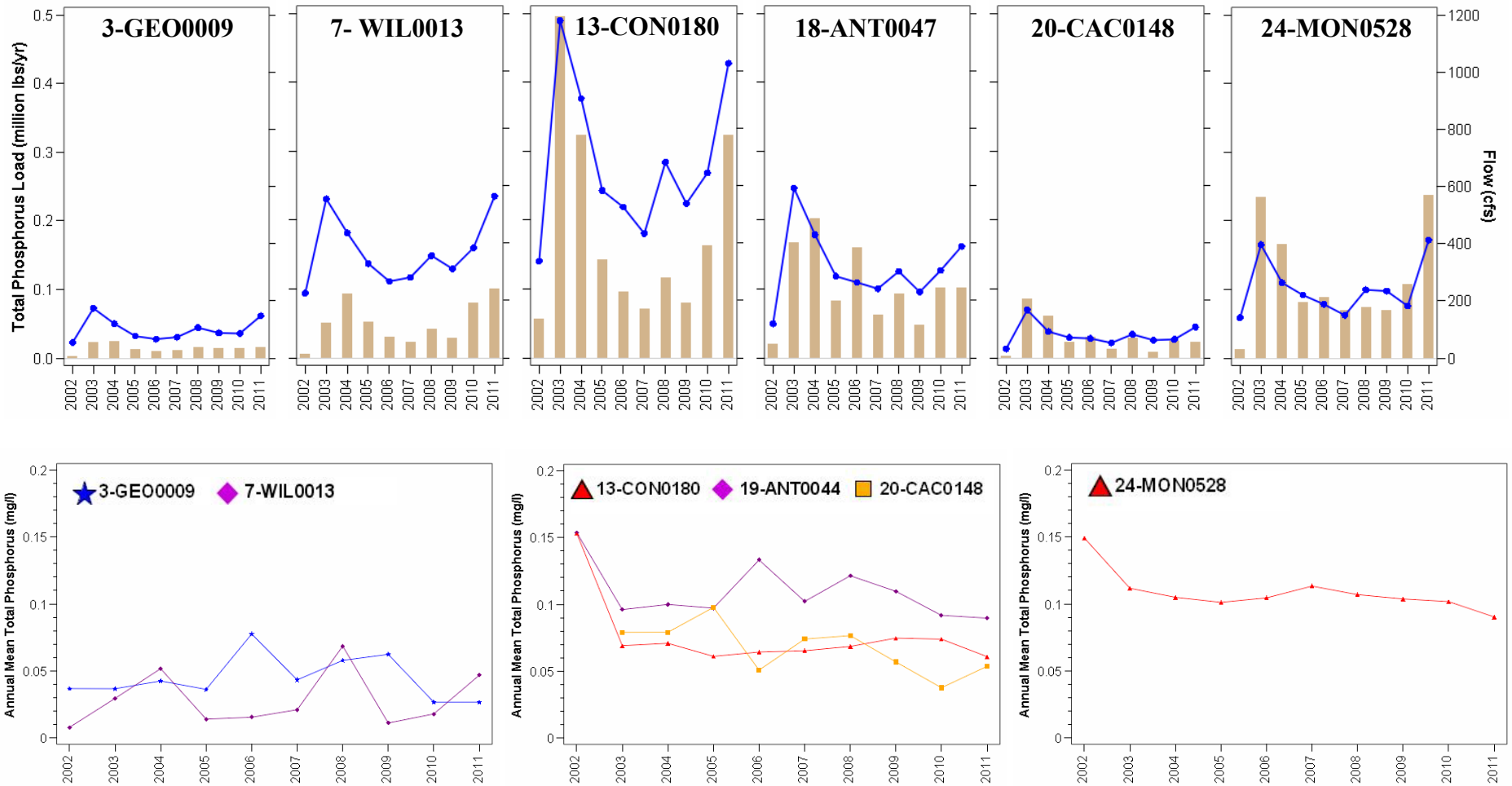


Figure 20. Annual phosphorus loadings to the Upper Potomac at USGS gaging sites and water year means for TP at long-term non-tidal water quality monitoring stations.

Top graphs show annual phosphorus (tan bars, left axis) and flow (blue line, right axis) for each of the USGS gaging stations. Bottom graphs shows water year annual mean concentrations for total phosphorus for corresponding long-term non-tidal stations. Scales are the same on all of the loadings graphs and all of the annual concentrations graphs. Stations numbers correspond to station labels in Figure 17.

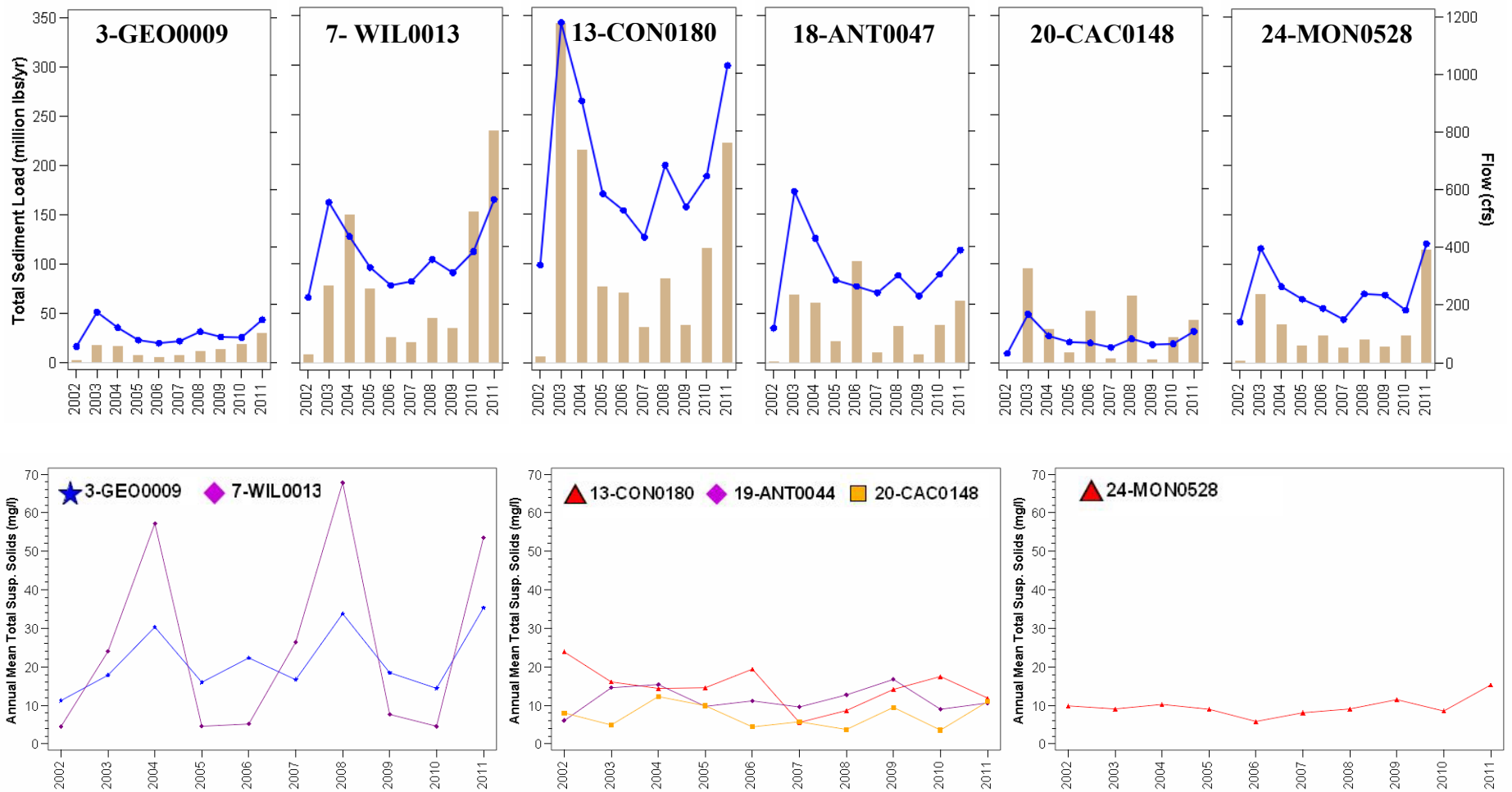


Figure 21. Annual sediment loadings to the Upper Potomac at USGS gage sites and water year means for TSS at long-term non-tidal water quality monitoring stations.

Top graphs show annual sediment (tan bars, left axis) and flow (blue line, right axis) for each of the USGS gaging stations. Bottom graphs shows water year annual mean concentrations for total suspended solids for corresponding long-term non-tidal stations. Scales are the same on all of the loadings graphs and all of the annual concentrations graphs. Stations numbers correspond to station labels in Figure 17.

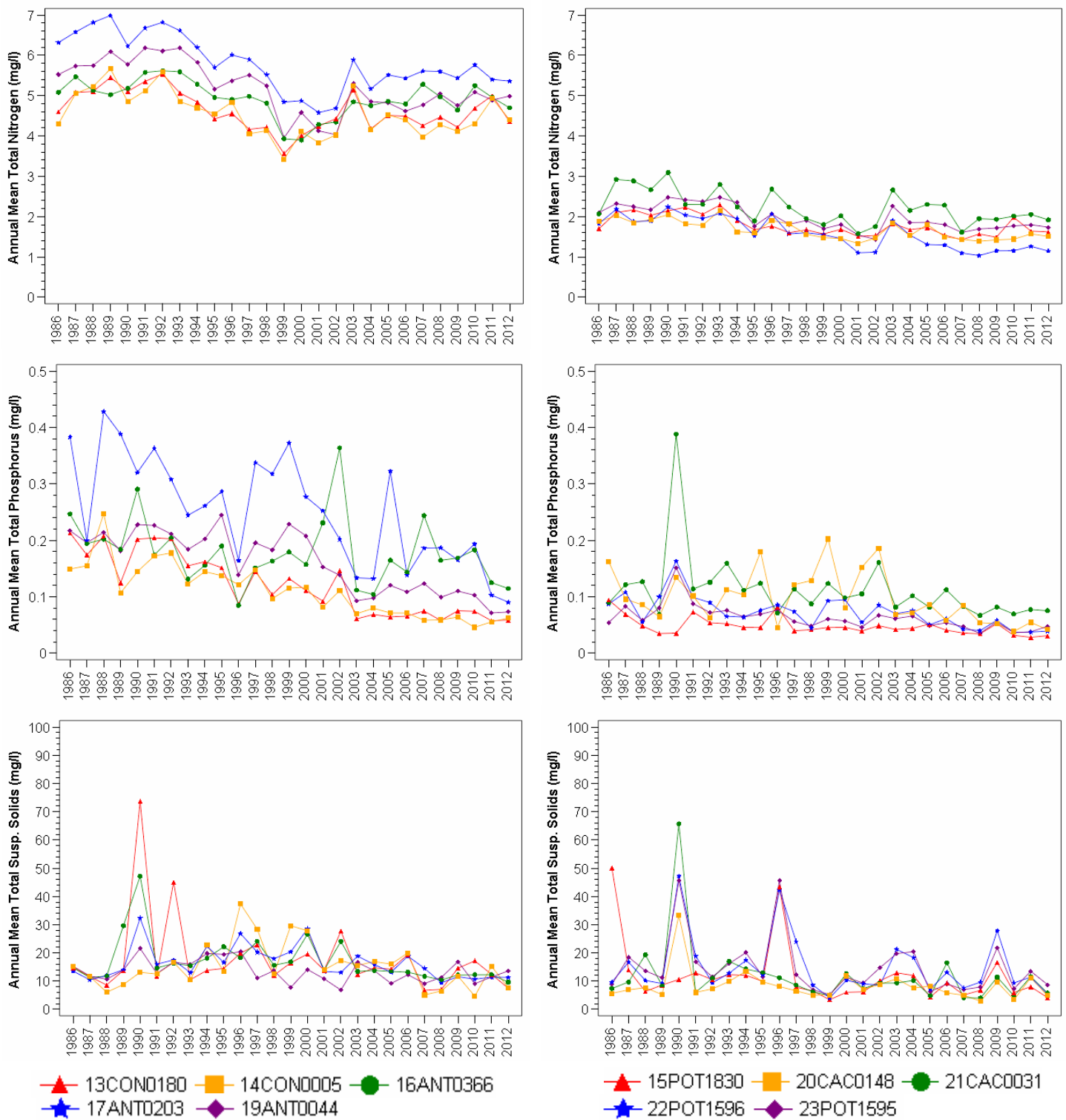


Figure 22. Annual means for total nitrogen, total phosphorus and total suspended solids in the eastern Upper Potomac basin non-tidal water quality monitoring stations.

Scales are the same on both graphs for each parameter: total nitrogen (top row), total phosphorus (middle row), total suspended solids (bottom row). Stations are the same in each column of graphs and legend for each column is at the bottom. Stations names shown in legends correspond to station labels in Figure 17.

Maryland 319 Nonpoint Source Program 2014 Annual Report
Appendix - Watersheds

Antietam Creek Watershed												
1994-2013 Completed NPS Implementation Projects (1)												
Project Summary			Project Expenditures					Pollutant Load Reduction				
Area/Lead	Name/Dsescription	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Bacteria (MPN/yr)	
				Federal	State							
Md Dept of Agriculture (MDA) with Washington County Soil Conservation District (SCD)	Antietam Creek Watershed Project		319 FFY1994 #6									
		1996	319 FFY1995 #13	\$112,821.00								
		1998	319 FFY1996 #15	\$52,774.00								
		1998	319 FFY1997 #16	\$91,531.00								
		1999	319 FFY1998 #17	\$105,337.00								
		2000	319 FFY1999 #12	\$120,360.00								
		2001	319 FFY2000 #8	\$99,733.00								
		2002	319 FFY2001 #9	\$125,859.00								
		2003	319 FFY2002 #6	\$134,423.00								
		2004	319 FFY2003 #7	\$124,859.00								
		2005	319 FFY2004 #11	\$106,189.90			\$70,793.27	\$176,983.17				
		2007	319 FFY2004 #27	\$129,225.23			\$86,150.15	\$215,375.38	77,692	5,686	0	0
		2006	319 FFY2005 #5	\$119,446.79			\$79,631.19	\$199,077.98	4,718	720	0	0
		2008	319 FFY2007 #5	\$139,258.68			\$92,839.12	\$232,097.80	65,216	5,862	81.2	0
2010	319 FFY2008 #6	\$155,838.12			\$103,892.08	\$259,730.20	71,239	5,553	0	0		
SCD	WCSCD Antietam Cr Watershed Plan	2012	319 FFY2008 #20	\$29,264.39		\$19,509.59	\$48,773.98	0	0	0	0	
MDA/SCD	MDA Antietam Creek Watershed Proj	2010	319 FFY2009 #3	\$151,110.82		\$100,740.55	\$251,851.37	64,590	5,067	0	0	
Washington County	Lehmans Mill Road Stream Bank Stabilization	2012	SRF Grant	\$0.00	\$191,700.00	\$0.00	\$191,700.00	101	5.35	0	0	
	Burnside Bridge Rd Stream Bank Stabilization	2012	SRF Grant	\$0.00	\$232,900.00	\$0.00	\$232,900.00	101	5.35	0	0	
TOTAL overall				\$1,798,030.93	\$424,600.00	\$553,555.95	\$1,808,489.88	283,657.0	22,898.7	81	0	
TOTALS for projects counted toward watershed plan implementation.				\$0.00	\$424,600.00	\$0.00	\$424,600.00	202	10.70	0	0	

(1) Baseline year for watershed plan implementation is 2012. Pollutant load reductions reported after that year can be counted toward meeting watershed plan goals. The watershed plan (EPA accepted 2012) accounts for all progress achieved prior to 2012 (See watershed plan Table 8 page 27 regarding sediment, page 43 regarding bacteria.)

Maryland 319 Nonpoint Source Program 2014 Annual Report
Appendix - Watersheds

2014 Grant Project Activity - Antietam Creek Watershed											
Project Summary			Project Funding				Projected Pollutant Load Reduction				
Area/Lead	Name/Dsescription	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Bacteria (MPN/yr)
				Federal	State						
Boonesboro	Tree Planting in the Park Project	TBD	Trust Fund SFY13	\$0	\$15,000.00		TBD	80.4	5.4	0.95	0
Hagerstown	Bioretention near Clean Water Circle	TBD	Trust Fund SFY14	\$0.00	\$455,000		TBD	100.5	20.9	5.8	TBD
	G3 Project	TBD	Trust Fund SFY14	\$0	\$107,720.00		TBD	11.78	0.48	0.04	TBD
				\$0	\$68,667.00		TBD	TBD	TBD	TBD	TBD
	Wet swales: Hagerstown Light Dept	TBD	Trust Fund SFY14	\$0	\$45,000		TBD	36.9	9.3	2.7	TBD
Washington County	Greensburg Rd Little Antietam Creek Restoration	2014	319 FFY12 #11	\$229,555.73	\$0	\$153,037.15	\$382,592.88	121	6.42	1.07	0
	Hidden Hollow Farm	2014	Trust Fund SFY13	\$0.00	\$1,904.79		\$1,904.79	86.16	5.76	1.02	0
	Devils Backbone Park Stream Restoration	TBD	319 FFY14 #8	\$390,000	\$0	\$260,000	TBD	300	102	232.5	0
Washington County Board of Education	Riparian Buffers: Fountaindale ES	2014	Trust Fund SFY14	\$0	\$625.50		\$625.50	5.90	0.24	0.05	0
	Riparian Buffers: Northern MS				\$780.62		\$780.62	35.40	1.46	0.27	0
	Riparian Buffers: Smithsburg HS				\$2,341.87		\$2,341.87	44.25	0.34	0.34	0
Washington County SCD	Barr Property Stream Restoration	TBD	319 FFY13 #10	\$148,930	\$0	\$99,287	TBD	47.5	9.9	5.5	0
	Shank/Anderson Project Phase 2 of 3	TBD	319 FFY11 #13	\$64,266	\$0	\$42,844	TBD	16.5	1.9	2.4	166 billion
	Kiwanis Park Stream Stabilization	TBD	319 FFY14 #7	\$124,998	\$0	\$83,332	TBD	34.2	10.3	16.75	0
Table: Summary of Grant Projects Completed During 2014 - Antietam Creek Watershed											
			Grant Project Expenditures				Pollutant Load Reduction Reported				
			Grant Name	Federal Grants	State Grants	Non Federal Match	Total Expenditures	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Bacteria (MPN/yr)
Completed Grant Projects		2014	319	\$229,555.73		\$153,037.15	\$382,592.88	121.00	6.42	1.07	0
			Trust Fund		\$5,652.78		\$5,652.78	171.71	7.80	1.68	0
			TOTAL	\$229,555.73	\$5,652.78	\$153,037.15	\$388,245.66	292.71	14.22	2.75	0
Active/Incomplete Grant Projects		TBD	All Grants*	\$728,194.00	\$0.00	\$485,463.00		398.20	124.10	257.13	166 billion

Maryland 319 Nonpoint Source Program 2014 Annual Report
 Appendix - Watersheds

Table: Antietam Creek Watershed Plan 2014 Implementation Progress Summary (1)											
Sediment Reduction Goals			Implementation Progress			Bacteria Reduction Goals			Implementation Progress		
BMP	Unit	Goal	2014	2012-13	Goal %	BMP	Unit	Goal	2014	2012-13	Goal %
Cover Crops	acres/yr	4,000	5,462		136.6%	Failing Septics Correction	systems	559	0	15	2.7%
Conservation Tillage	acres/yr	6,200	1,160		18.7%	Septic System Upgrades	systems	645	0	26	4.0%
SCWQP	acres	9,050	2,440	3,956.9	70.7%	Grass Buffers	acres	35	7.4	2.5	28.3%
Stream Protection not fenced	acres	1,300	60	40.0	7.7%	Riparian Forest Buffers	acres	260	2.5	56.8	22.8%
Stream Protection fenced	acres	780	4.62	2.6	0.9%	Stream Protection fenced	acres	300	4.62	2.6	2.4%
Buffers (grass/forest)	acres	295	9.9	59.3	23.5%	Stream Protection not fenced	acres	500	60	40.0	20.0%
Erodible Land Retirement	acres	130	0.25	8.3	6.6%	Livestock Stream Crossing	units	17	0	0	0.0%
No Till	acres/yr	4,800	495		10.3%	SCWQPs	acres	15,460	2,440	3,956.9	41.4%
Stream Restoration	acres	0.25	0	0	0.0%	Runoff Control Systems	acres	12	1	4.0	41.7%
Forest Harvest Practices	acres	250	196	722.0	367.2%	Animal Waste Mgmt Systems	units	26	7	2	34.6%

(1) 2014 is Calendar year. Zero means no progress or not reported. Washington County Soil Conservation District is the lead plan implementer/reporter and partners with other agencies.

(2) Antietam Plan BMP implementation goals address agricultural lands and septic systems. Goals are not set for urban BMP implementation.

Appendix Watershed Eligible for 319(h) Grant Implementation Funding

Back River – Tidal Watershed In Baltimore County, Maryland

Contents

- Water Quality Monitoring Activity
- Water Quality Overall Condition
- Context for Overall Water Quality Condition
- Completed grant projects prior to 2014
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring Activity

The State of Maryland has one long-term fixed tidal monitoring station (WT4.1) and no nontidal stations in the Back River watershed (see map next page). Based on March 2015 information, Baltimore County has numerous water quality monitoring stations: bacteria (2 monthly sites); base flow water chemistry (1 quarterly site); before/after monitoring of the Bread & Cheese Creek project (319 FFY10 #11); storm event monitoring (2 sites) and trend water chemistry (1 monthly site).

Water Quality Overall Condition¹

Water quality in the tidal waters of the Back River is poor because nitrogen and sediment levels are too high. Nitrogen and phosphorus levels have decreased in the Back River. Habitat quality is poor for underwater grasses due to high algal densities and poor water clarity. In many ways, Back River water and habitat quality is the worst of all Maryland rivers. Percent urban land use in the Back River watershed is the highest (and percent agriculture is the lowest) of all Maryland rivers. Nitrogen and phosphorus levels in the water and algal densities are also the highest, and water clarity is among the worst. Sediment levels are also among the highest of the high urban watershed rivers. Even though summer bottom dissolved oxygen levels are the highest of all Maryland rivers, this is an indication of poor habitat quality due to high nutrient levels and algal densities.

Context for Overall Water Quality Condition²

Back River tidal water quality is dominated by point source contributions as shown in the DNR report Appendix 2. (copy included here)

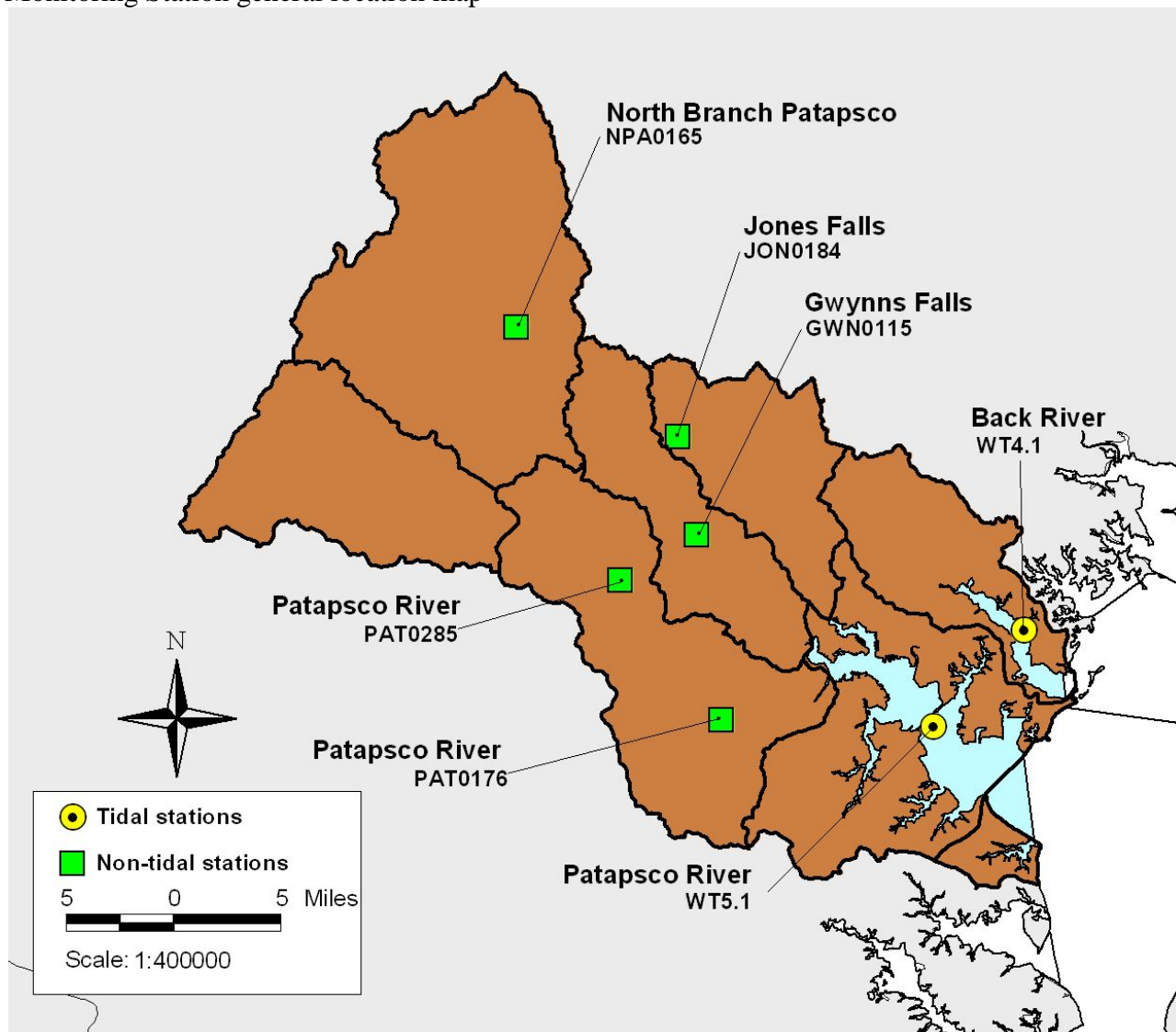
Water Quality Trends

Trend analysis for water quality related to nonpoint sources in the Back River watershed is not available.

¹ Maryland Department of Natural Resources. *Patapsco River and Back River Water Quality and Habitat Assessment Overall Condition 2011-2013*. Complete report is available: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

² Maryland Department of Natural Resources. *Patapsco and Back Rivers Water Quality and Habitat Assessment*. Complete report is available: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

Monitoring Station general location map²



Appendix 2

Delivered Loads to the Back and Patapsco Rivers

Phase 5.3 2009 Progress Run 8/25/2010

Chesapeake Bay Program. Accessed January 10, 2012 from
<http://www.chesapeakebay.net/watershedimplementationplantools.aspx?menuitem=52044>
 File
ftp://ftp.chesapeakebay.net/Modeling/phase5/Phase53_Loads-Acres-BMPs/MD/Load_Acres_MDWIP_08252010.xls)

Loadings by Land Use and Segment Loadings > 20% are in bold typeface

River	River/CBP segment	Category	N load (Million lbs per yr)	% Total N Load	P load (Million lbs per yr)	% Total P Load	Sed load (Million lbs per yr)	% Total Sed Load
Back	Back/ BACOH	Agriculture	0.001	0%	0.0001	0%	0.07	1%
		Forest	0.011	1%	0.0006	1%	0.35	4%
		Non-tidal Water Deposition	0.002	0%	0.0001	0%		
		Septic	0.018	1%				
		Urban Runoff	0.154	7%	0.0298	39%	8.98	95%
		Point Source	2.045	92%	0.0450	60%	0.03	0%
		Total Load	2.231		0.0756		9.43	
Patapsco	Patapsco/ PATMH	Agriculture	0.261	3%	0.0097	2%	20.18	18%
		Forest	0.239	3%	0.0070	2%	13.79	12%
		Non-tidal Water Deposition	0.010	0%	0.0006	0%		
		Septic	0.288	4%				
		Urban Runoff	0.921	12%	0.1003	25%	76.68	68%
		Point Source	5.865	77%	0.2797	70%	2.74	2%
		Total Load	7.584		0.3973		113.39	

Maryland 319 Nonpoint Source Program 2014 Annual Report
 Appendix - Watersheds

Table: Tidal Back River Watershed Plan - 2014 Implementation Progress Summary (1)

Goals			Progress (3)					
Category (2)	Unit	Goal	Implementation			Pollutant Reduction (2008-2014)		
			2014	2008-2013	Percent of Goal	Nitrogen (lbs/yr)	Phosphorus (lbs/yr)	Sediment (tons/yr)
Reforestation - Forest Land Mgmt	acres	35	1.18	7.61	25.1%	42.7	2.1	0.2
Buffer Reforestation, Forest Stand Mgmt	acres	156	0	0	0%	0.0	0.0	0.0
Nutrient Management	acres	186	0	0	0%	0.0	0.0	0.0
Downspout Disconnect, Roof Runoff Mgmt	acres	31	0.1	0.24	1.1%	3.7	0.7	49.2
Stream Channel Restoration	feet	17,040	0	1,980	11.6%	148.5	134.6	15.0
Street Trees, Tree/Shrub Establishment	acres	1.7	0	0	0%	0.0	0.0	0.0
Stormwater Retrofits & Mgmt Wetlands	acres	6.4	0	7.67	119.8%	38.2	5.9	1.8
Stormwater Conversion, Urban Wet Pond	units	2	2	0	100.0%	18.2	2.3	0.3
Shoreline Protection/Enhancement	units	NA	3	1	NA	764	503	1,047
Total Cumulative Pollutant Reduction						1,015.3	648.6	1,113.80
Pollution Reduction Goals (Watershed Plan Table 3-2, page 23)						6,498	679	NA
Percent of Goal Achieved						15.6%	95.5%	NA

1. 2014 is Calendar year. NA is not applicable. Zero means no progress or not reported.
2. Categories for watershed plan goals tracked by EPA for progress.
3. Baltimore County is the lead for reporting watershed plan implementation progress, including NGO NPS implementation.

Appendix
Watershed Eligible for 319(h) Grant Implementation Funding

Back River – Upper Watershed
In Baltimore City and Baltimore County, Maryland

Contents

- Water Quality Monitoring Activity
- Water Quality Conditions and Trends
- Completed grant projects 2001-2013
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring Activity

In the Back River's Upper Watershed in Baltimore City and Baltimore County, the State of Maryland is not conducting long term monitoring. Based on March 2015 information, Baltimore County is operating number water quality monitoring sites:

- bacteria monitoring: 5 monthly sites
- baseflow water chemistry: 3 quarterly sites
- before/after monitoring: Red House Run project (319 FFY2007 #18)
- storm event monitoring: 2 sites
- trend water chemistry: 2 monthly site

Water Quality Conditions and Trends

Immediately-available information is presented in the appendix for the Back River tidal watershed plan area.

Back River Upper Watershed 2001-2013 Completed NPS Implementation Projects										
Project Summary			Project Expenditures				Pollutant Load Reduction			
Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
Baltimore County	Redhouse Run/Overlea stream restoration & stormwater control	2001	319 FFY2000 #16	\$130,000.00		\$86,667	\$530,000.00	52	9.46	2.67
			Other		\$228,899.00					
	Redhouse Run/St. Patricks stream restoration	2011	319 FFY2007 #18	\$418,500.00		\$279,000	\$883,016.00	609	32.1	5.37
		2012	Trust Fund SFY10		\$186,121.00					
Upper Back River Stormwater conversions		2012	319 FFY2008 #21	\$95,883.81		\$63,923	\$159,806.35	51.7	11.5	2.06
		2012	Trust Fund SFY13		\$175,000.00		\$703,955.00	371.5	56	11
TOTAL reported for completed projects				\$644,383.81	\$590,020.00	\$429,589.21	\$2,276,777.35	1,084.2	109.1	21.1

Baseline year for watershed plan implementation is 1998. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The watershed plan (EPA accepted 2008) in Section 2.1 page 2-1 and Section 3.4 page 3.7 indicates that the plan's nutrient goals are from the nitrogen and phosphorus TMDL (EPA approved 2005). This TMDL is based on water quality data collected 1992-1997. (See TMDL Section 4.1 page 18, and Section 2.6 pages 6-17.)

2014 Grant Project Activity - Back River Upper Watershed										
Project Summary			Project Funding				Projected Pollutant Load Reduction			
Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
Baltimore City	Baltimore International Academy	TBD	Trust Fund SFY15	\$0	\$162,219		TBD	2.43	0.68	0.12
	Baltimore IT Academy	TBD	Trust Fund SFY14	\$0	\$9,601		TBD	5.73	0.39	0.03
	Chinquapin Run Park @ Kitmore	TBD	Trust Fund SFY14	\$0	\$4,800		TBD	2.87	0.2	0.03
	Herring Run Park	TBD	Trust Fund SFY13	\$0	\$3,840		TBD	2.29	0.16	0.03
	Moores Run	TBD	Trust Fund SFY14	\$0	\$9,601		TBD	5.73	0.39	0.06
	Moravia Park Elementary Imperivous Removal	TBD	Trust Fund SFY13	\$0	\$175,000		TBD	1.9	0	0
	Moravia Park Elementary	TBD	Trust Fund SFY14	\$0	\$28,803		TBD	14.13	0.6	0.1
	NACA Freedom and Democracy Acad.	TBD	Trust Fund SFY14	\$0	\$9,120		TBD	4.47	0.19	0.03
	Northeast Middle School	TBD	Trust Fund SFY14	\$0	\$1,920		TBD	0.94	0.04	0.01
	Patterson High School	TBD	Trust Fund SFY14	\$0	\$14,401		TBD	7.07	0.3	0.05
	St. Matthew's Catholic	TBD	Trust Fund SFY15	\$0	\$2,911		TBD	27.47	1.93	0.3
	Students Restoring Herring Run Park	TBD	Trust Fund SFY13	\$0	\$16,305		TBD	6.6	0.44	0.07
	Trees, Env. Ed. Chinquapin Run Park	TBD	Trust Fund SFY13	\$0	\$8,065		TBD	8.6	0.59	0.09
	Trees, Env. Ed. Northwood & Kelway	TBD	Trust Fund SFY13	\$0	\$8,065		TBD	8	0.55	0.9
Vanguard Collegiate/Maritime Academy	TBD	Trust Fund SFY14	\$0	\$9,601		TBD	4.71	0.2	0.03	
Baltimore County	Gallery Church	TBD	Trust Fund SFY15	\$0	\$2,911		TBD	1.6	0.11	0.02
	Herring Run/Overlook Park stream restoration & buffer planting	TBD	319 FFY2011 #7	\$358,032		\$238,688	TBD	200.5	29.6	6.75
		TBD	Trust Fund SFY12	\$0	\$273,416		TBD	65	11	3.92
	Pearlstone Center	TBD	Trust Fund SFY15	\$0	\$6,297		TBD	5.07	0.36	0.06
Villa Cresta ES	TBD	Trust Fund SFY14	\$0	\$4,640		TBD	4.58	0.31	0.05	

Table: Summary of Grant Projects Completed 2014 - Upper Back River Watershed									
Grant Project Expenditures							Pollutant Load Reduction Reported		
	Grant Name	Federal Grants	State Grants	Non Federal Match	Total Expenditures	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (tons/yr)	
Completed Grant Projects	319	\$0	\$0	\$0	\$0				
	Trust Fund	\$0	\$0	\$0	\$0				
	TOTAL	\$0	\$0	\$0	\$0				
Active/incomplete Grant Projects	All Grants	\$358,032	\$751,516	\$238,688	TBD				

Maryland 319 Nonpoint Source Program 2014 Annual Report
 Appendix - Watersheds

Table: Upper Back River Watershed Plan - 2014 Implementation Progress Summary (1)								
Goals			Progress (3)					
Category (2)	Unit	Goal	Implementation			Total Pollutant Reduction 2008-2014		
			2014	2008-2013	Percent of Goal	Nitrogen (lbs/yr)	Phosphorus (lbs/yr)	Sediment (tons/yr)
Reforestation - Forest Land Mgmt	acres	50	0.95	4.36	10.6%	26	1	0.1
Buffer Reforestation, Forest Stand Mgmt	acres	200	0	1.36	0.7%	17	2	71.1
Nutrient Management	acres	3,000	0	0	0.0%	0	0	0.0
Downspout Disconnect, Roof Runoff Mgmt	acres	180	0.65	5.0	3.1%	25	4	1.2
Stream Channel Restoration (5)	feet	66,000	0	4,000	6.1%	800.0	272.0	108.5
Street Trees, Tree/Shrub Establishment	units	4,000	0	133	2.9%	6	0	0.0
Stormwater Retrofits & Mgmt Wetlands	units	50	0	1	2.0%	2	0	0.1
Stormwater Conversion, Urban Wet Pond	units	17	2	4	35.3%	81.2	12.60	2.9
Total Pollutant Reduction						958	292.5	183.98
Pollutant Reduction Goal (Watershed Plan Table 3-2, page 3-8)						48,190	6,056	---
Percent of Goal Achieved						2.0%	4.8%	---

1. 2014 is Calendar year. NA is not applicable. Zero means no progress or not reported.
2. Categories for watershed plan goals tracked by EPA for progress.
3. Data reported by local government for 2008-2012 includes local government and NGO NPS implementation.

Appendix
Watershed Eligible for 319(h) Grant Implementation Funding

Casselman River
In Garrett County, Maryland¹

Contents

- Water Quality Monitoring Activity
- Water Quality Conditions and Trends
- Completed grant projects 2006-2013
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring Activity

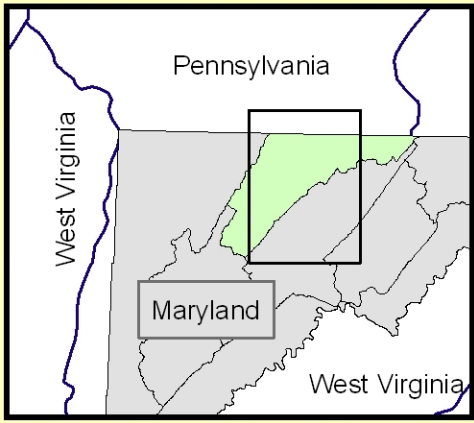
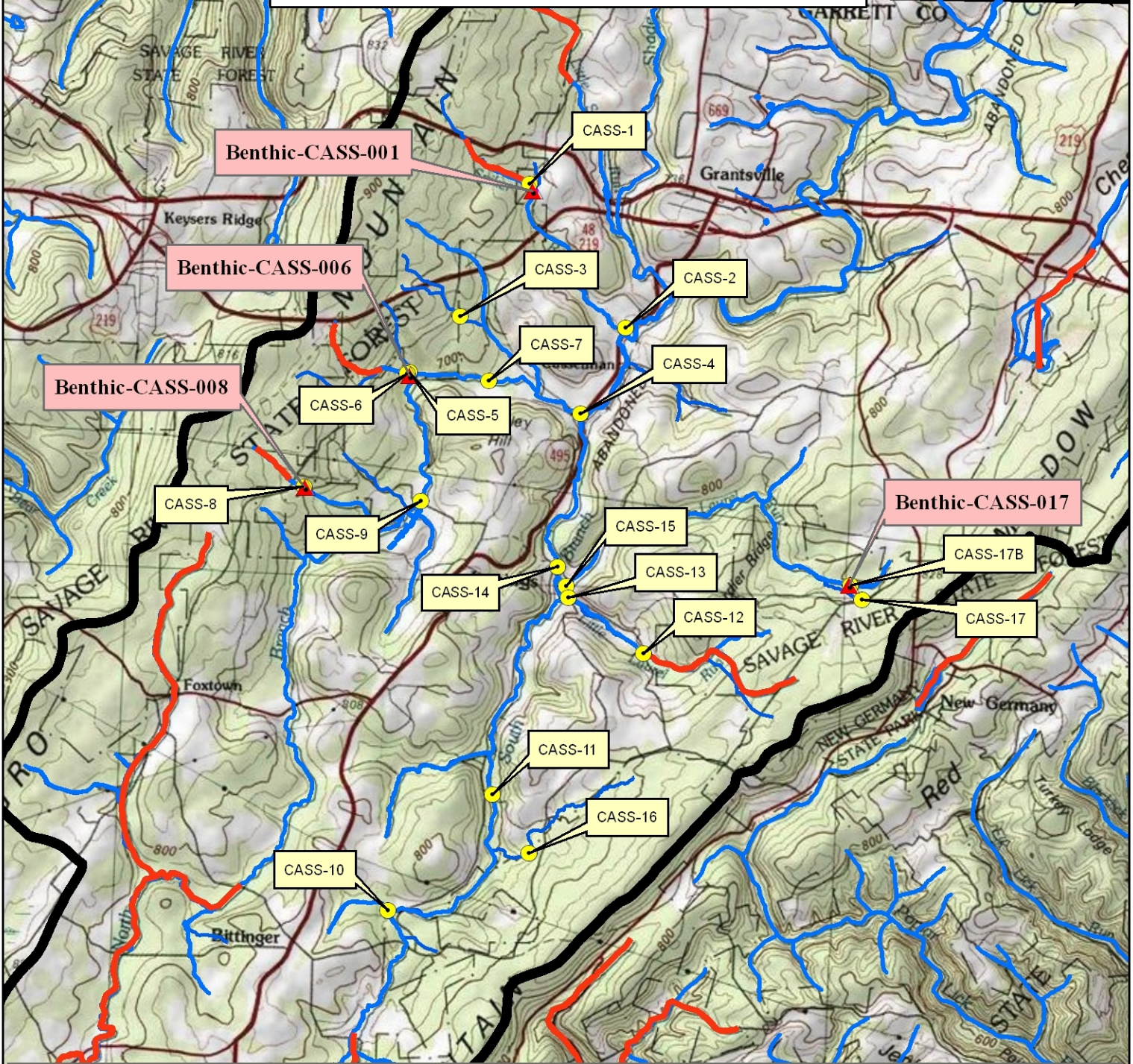
In the Casselman River watershed in Garrett County, Maryland, water quality monitoring is conducted by the State (no County monitoring). Monitoring by the 319-funded Targeted Watershed project (multiple grant years) operates before/after implementation monitoring stations that are sampled in order to identify water quality trends related to acid mine drainage (AMD) mitigation. (see map next page)

Water Quality Conditions and Trends

The following pages present a series of graphs on the following pages show pH before and after implementation of BMPs to address monitoring sites CASS001, CASS005, CASS006, CASS008, CASS012, and CASS017. Findings from site CASS017 were submitted to EPA in April 2015 as a success story entitled “*Big Laurel Run pH Impairment Remedied by Successful Acid Mine Drainage Treatment*”.

¹ Watershed Plan does not encompass portions of the watershed in Pennsylvania.

Casselman Watershed AMD Associated MDE/MBSS Monitoring Sites



Source: USA Imagery
Date Prepared: October 11, 2011

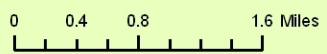




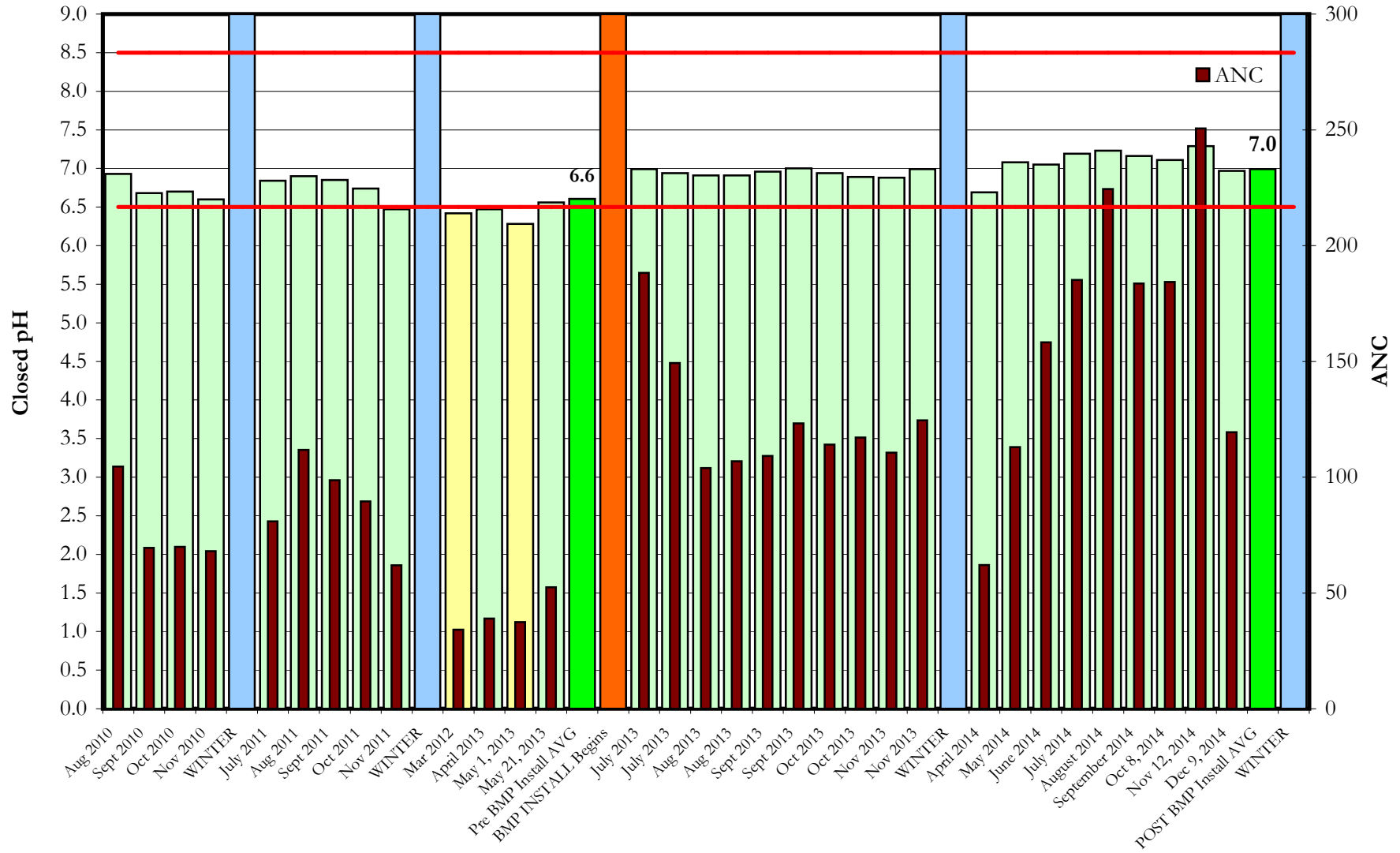
MARYLAND

Legend

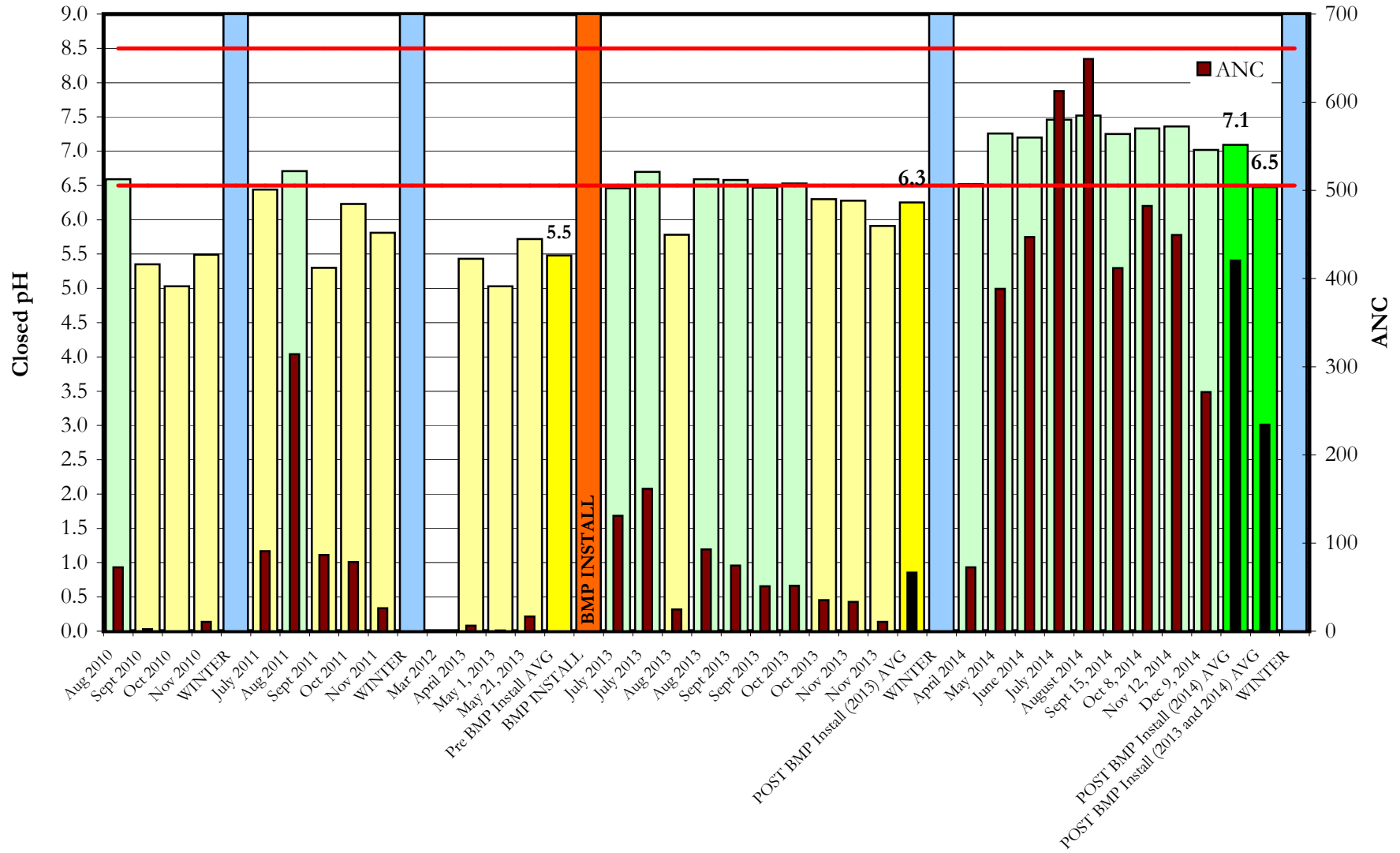
- ▲ MDE MBSS Sites - 2011
- MDE WQ Stations
- pH TMDL Impaired Streams
- garrwtr
- Casselman 8 Digit Watershed



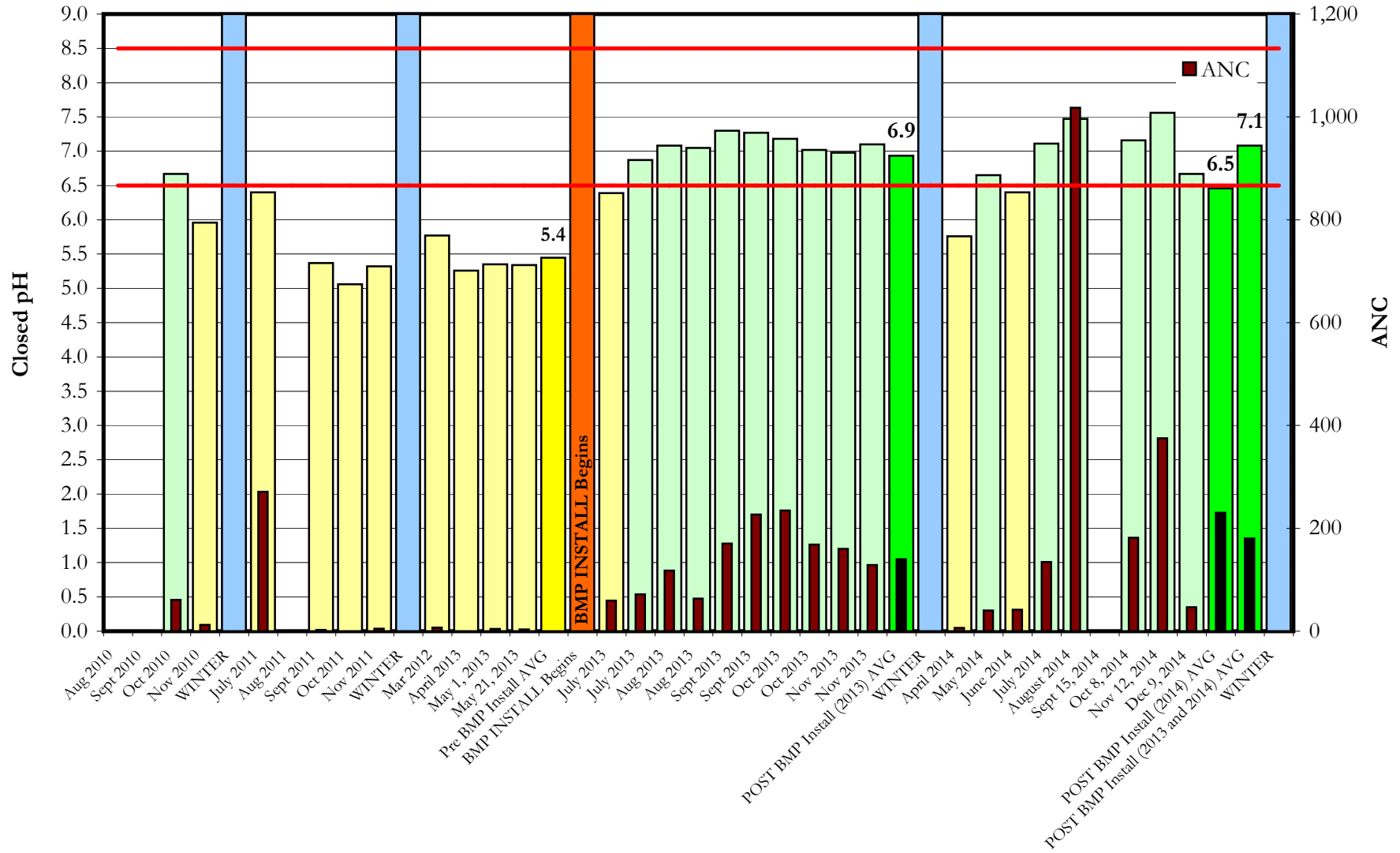
Casselman Watershed
 AMD Pre & Post BMP Implementation Water Quality Monitoring
 CASS001: CLOSED pH and ANC



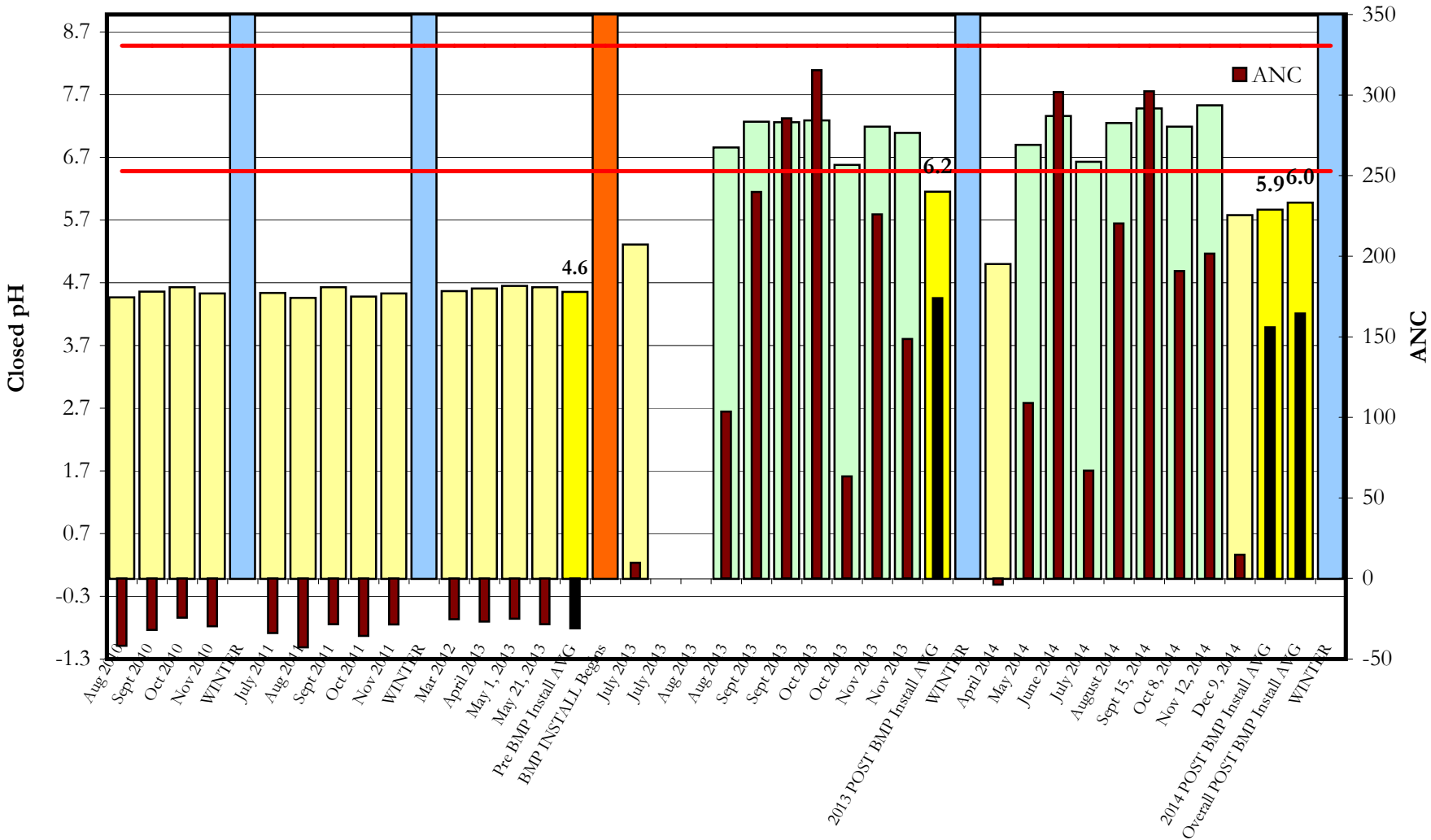
Casselman Watershed
 AMD Pre & Post BMP Implementation Water Quality Monitoring
 CASS005: CLOSED pH and ANC



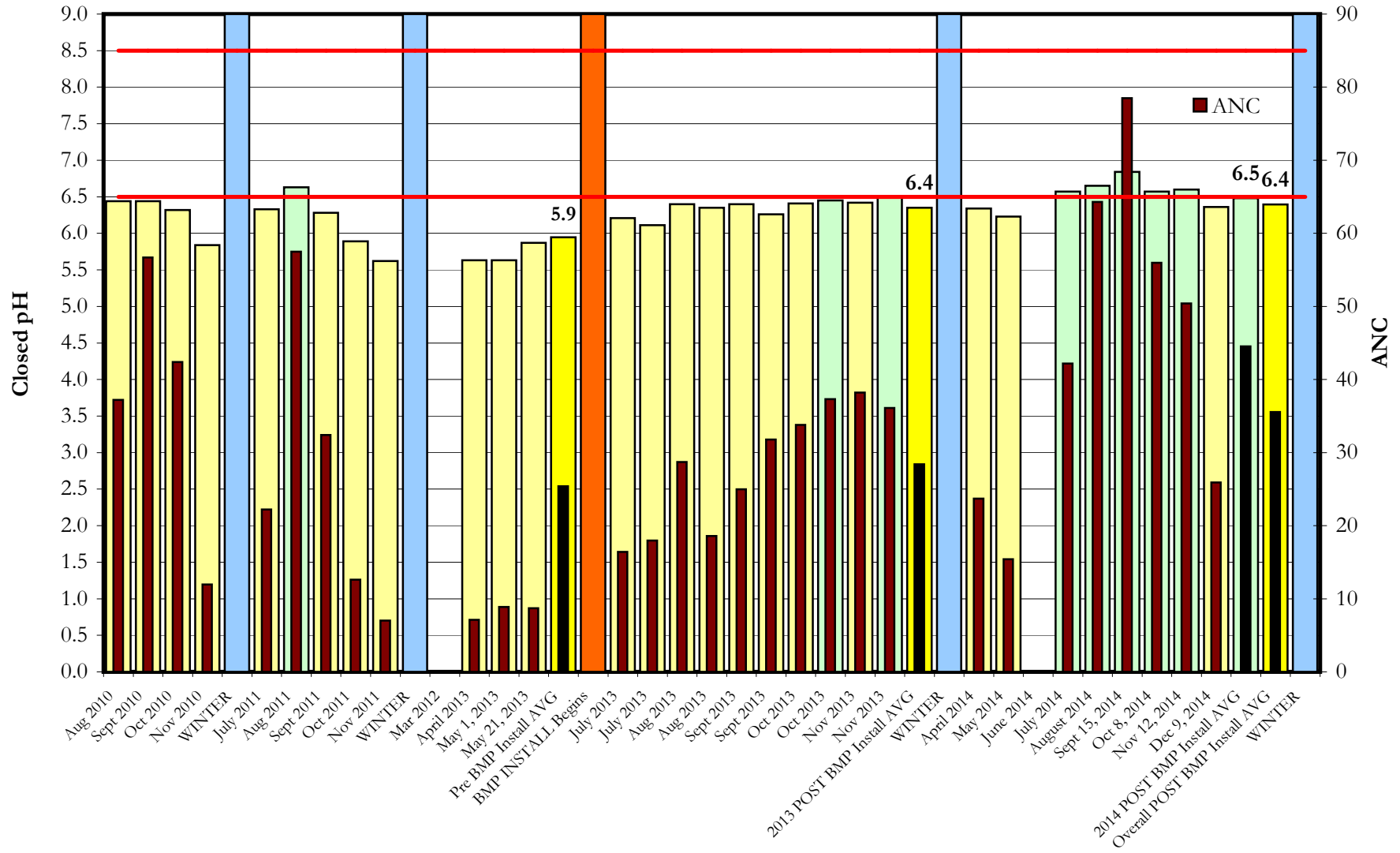
Casselman Watershed
 AMD Pre & Post BMP Implementation Water Quality Monitoring
 CASS006: CLOSED pH and ANC



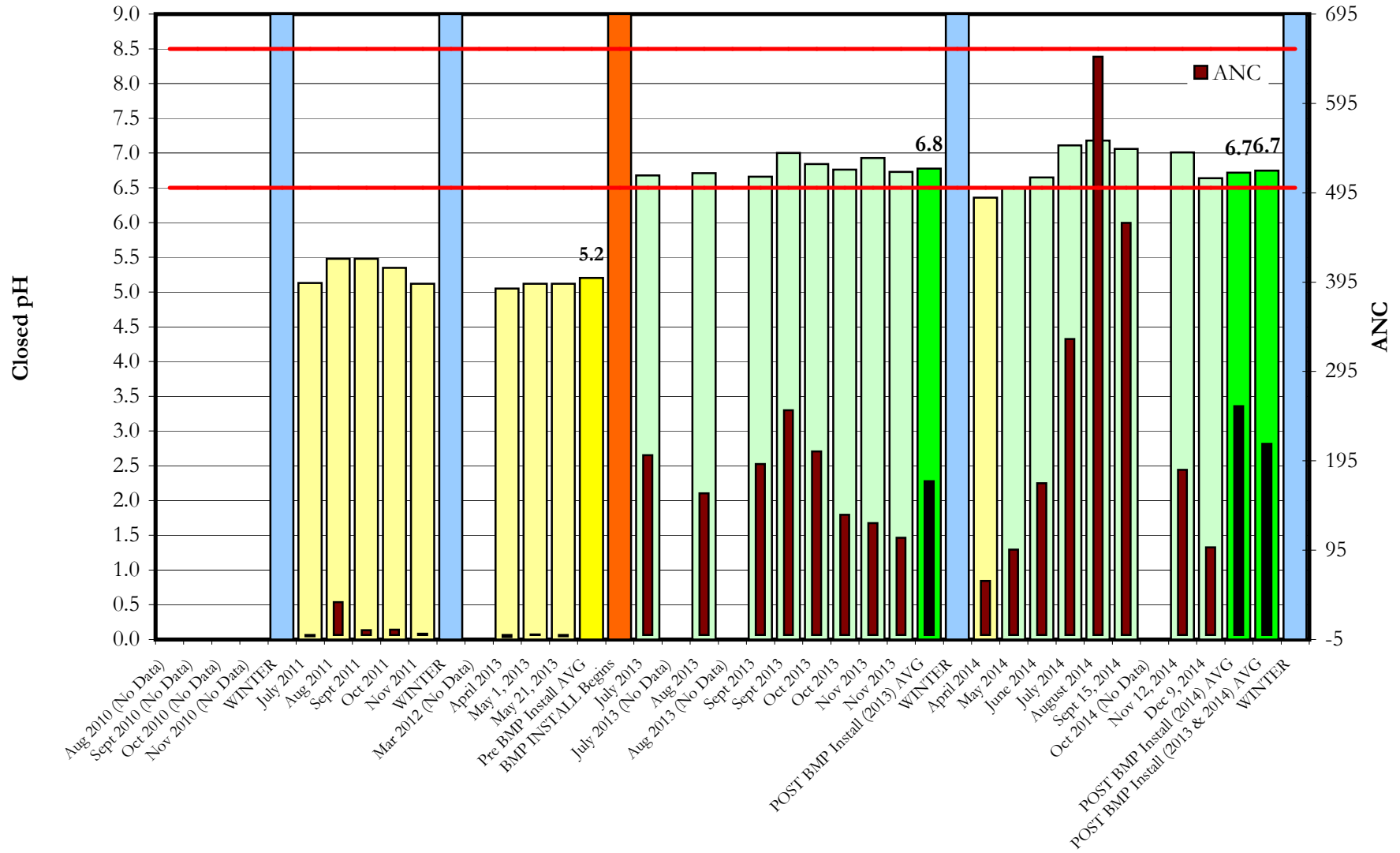
Casselman Watershed
 AMD Pre & Post BMP Implementation Water Quality Monitoring
CASS008: CLOSED pH and ANC



Casselman Watershed
 AMD Pre & Post BMP Implementation Water Quality Monitoring
 CASS012: CLOSED pH and ANC



Casselman Watershed
 AMD Pre & Post BMP Implementation Water Quality Monitoring
CASS017: CLOSED pH and ANC



Maryland 319 Nonpoint Source Program 2014 Annual Report
Appendix - Watersheds

Casselman River Watershed 2006-2013 Completed NPS Implementation Projects										
Project Summary			Project Expenditures				Pollutant Load Reduction			
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
MDE	Casselman Watershed Plan	2011	FFY2008	\$55,000.00		\$36,666.67	\$91,666.67	0	0	0
TOTALS				\$55,000.00	\$0.00	\$36,666.67	\$91,666.67	0.00	0.00	0.00

Baseline year for watershed plan implementation is 2006. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The watershed plan (EPA accepted 2011) in Section 3.1 page 10 indicates the plan's goal is from the pH TMDL and that the TMDL model run used data thru 2005. The pH TMDL indicates that Casselman Rive pH data thru 2005 was used in the TMDL model. (See TMDL Table 2-4 page 15 and Section 2.2.1 page 25. Also see MD 2013 Annual Report page 15.)

2014 Grant Project Activity - Casselman River Watershed										
Project Summary			Project Funding				Pollutant Load Reduction			
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
	Hope Property	2014	Trust Fund SFY14		\$6,440.19		\$6,440.19	22.13	0.92	0.17
MDE	AMD Remediation Project (4)	2014	319 FFY09 #6	\$644,115		\$429,410	\$1,073,525	0	0	0
	AMD Remediation GIS Tool	TBD	319 FFY11#14	\$83,619		\$55,746	\$139,365	0	0	0
	AMD Remediation Project Phase 2	TBD	319 FFY13 #5	\$401,307		\$267,538	\$668,845	0	0	0

Table: Summary of Grant Projects Completed 2014 Casselman River Watershed										
			Grant Project Expenditures				Pollutant Load Reduction			
			Grant Name	Federal Grants	State Grants	Non Federal Match	Total Expenditures	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
Completed Grant Projects	2014	319	\$644,115	\$0	\$429,410	\$1,073,525	0	0	0	
		Trust Fund	\$0.00	\$6,440.19	\$0.00	\$6,440.19	22.13	0.92	0.17	
		TOTAL	\$644,115.00	\$6,440.19	\$429,410.00	\$1,079,965.19	22.13	0.92	0.17	
Active/Incomplete Grant Projects	TBD	All Grants*	\$484,926.00	\$0.00	\$323,284.00	\$808,210.00	0	0	0	

Maryland 319 Nonpoint Source Program 2014 Annual Report
Appendix - Watersheds

Casselman River Watershed Plan - 2014 Implementation Progress Summary							Sample Site	Ph	
Subwatershed	Stream	Project Name	Phase	Site	Construction Status	BMP Type (how many sites)		Before	After (2014)
MSC	Spiker Run	Spiker Run	1	1	complete 2013	Leach Bed (1) and Limestone Sand (1)	C30	6.6	6.9
NBC-2	Unnamed Tributary 1	Amish Road North	1	2	complete 2013	Leach Bed (1) and Limestone Sand (1)	C28	7	7.7
	Unnamed Tributary 2	Amish Road South	1	3	complete 2013	Limestone Sand (1)	C27	5.5	6.3
	Tarkin Run	Tarkin Run	1	4	complete 2013	Limestone Sand (1)	C25	5.6	6.6
		Bowser	2		complete 2014	Limestone Sand (1)			
					scheduled 2015	Leach Bed (1)			
SBC-1	Alexander Run	Amish Road - Alexander	1	5	complete 2013	Limestone Sand (1)	C22	4.6	5.9
		Snyder	2		complete 2014	Limestone Sand (1)			
	SB Casselman Mainstem	Maynardier Ridge W of Bear Hill	1	6	complete 2013	Limestone Sand (1)	C52	6.9	7.2
	Koch	2		complete 2014	Limestone Sand (1)				
	Unnamed Tributary 12	Bear Hill Road	1	7	complete 2013	Leach Bed (1)	C53	6.9	7.2
SBC-2	Unnamed Tribs 8a & 10	Maynardier Ridge Road	1	8	complete 2013	Limestone Sand (1)	C56		
	Unnamed Tributary 6	West Shale Road South	1	9	complete 2013	Limestone Sand (1)	C65	6	6.3
	Unnamed Tributary 5	West Shale Road North	1	10	complete 2013	Limestone Sand (1)	C64	6	6.3
	Big Laurel Run Headwaters	West Shale Road	1	11	complete 2013	Leach Bed (1) and Limestone Sand (2)	C72	5.4	6.8
		Beeman	2		scheduled 2015	Limestone Sand (1)			
			2		scheduled 2015	Leach Bed (1)			
							C-72A	5.4	6.8

Appendix Watershed Eligible for 319(h) Grant Implementation Funding

Corsica River In Queen Anne's County, Maryland

Contents

- Water Quality Monitoring Activity
- Tidal Water Quality
- Nontidal Water Quality
- Completed grant projects prior to 2014
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring Activity

During 2014 in the Corsica River watershed in Centreville and Queen Anne's County, water quality monitoring was conducted by the State. Tidal monitoring began in 2005 and is conducted by the Maryland Department of Natural Resources. Nontidal monitoring began in 2003/2005 and is conducted by MDE thru the 319-funded Targeted Watershed project.

Tidal Water Quality

Overall water quality is fair because phosphorus and sediment levels are too high. Habitat quality for underwater grasses is poor because algal densities are high and water clarity is low. Summer bottom dissolved oxygen levels are good.¹ Additional analysis is on the following pages was provided by the Maryland Department of Natural Resources:

- Corsica River 2013 Water Quality Report (1 page)
- Intensive Monitoring of the Corsica River 2005-2011 (1 page)
- Corsica River Nutrients Data Summary 2005-2011 (2 pages)

Nontidal Water Quality

Long term monitoring by MDE of three streams in the Corsica River watershed documented water quality improvement that coincides with increased implementation of agricultural BMPs:

- Water quality improvement trends in two nontidal streams, Three Bridges Branch and Gravel Run, were submitted as a success story in 2013. (2 pages)
- Synoptic survey collection of water quality samples from over 40 sites identified one subwatershed with relatively high nitrogen concentrations. Based on these findings, the Queen Anne's Soil Conservation District targeted assistance to subwatershed #40. Phosphorus concentrations were found to be relatively high at several sites. Selected analysis from the 319 FFY12 Targeted Watershed project final report is included here:
 - o Corsica Synoptic Stations (1 page)
 - o Corsica Synoptic Average NO₂3 & Total Nitrogen (1 page)
 - o Corsica Synoptic Average PO₄ & Total Phosphorus (1 page)

¹ DNR (Maryland Dept. of Natural Resources). *Upper Eastern Shore Basin Water Quality and Habitat Assessment Overall Condition 2011-2013*. Complete document: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

Corsica River 2013 Water Quality Report



Mark Trice, mtrice@dnr.state.md.us
Tidewater Ecosystem Assessment
580 Taylor Avenue, D-2
Annapolis, MD 21401
(410) 260-8630

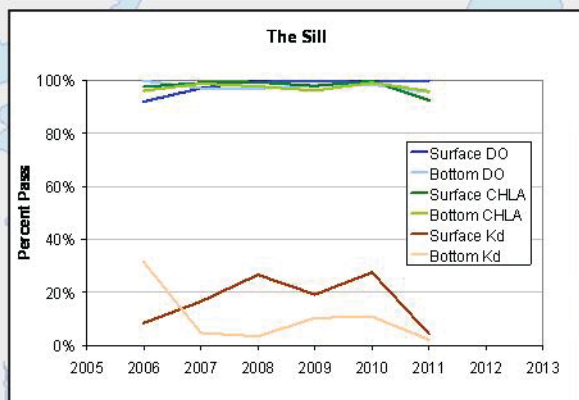


The Corsica River Targeted Watershed Project was implemented in 2005. Maryland DNR's Tidewater Ecosystem Assessment division is responsible for the water quality monitoring and habitat assessments that support the management actions of the project. As part of this effort, five continuous monitors have been maintained at three locations*, and monthly water quality mapping cruises are performed April - October. The continuous monitoring and water quality mapping programs both collect data on dissolved oxygen, chlorophyll, turbidity, water temperature, salinity and pH. Continuous monitors measure data every 15-minutes, while each monthly water quality mapping cruise records several thousand surface water quality measurements. These data help to guide future actions within the watershed by providing managers with insight into the effects of current efforts to reduce nutrient and sediment pollution.

Corsica River Continuous Monitoring

These graphs represent percent attainment over time of three key continuous monitoring water quality parameters in the Corsica River: Dissolved Oxygen (DO), Chlorophyll (CHLA), and Water Clarity (Kd). The dissolved oxygen criterion represents levels harmful to aquatic animals and the chlorophyll criterion indicates concentrations which are indicative of significant algal blooms. The water clarity criterion is based upon a calculation of light attenuation, Kd, which utilizes salinity, chlorophyll, and turbidity measurements. The Kd criterion represents conditions that would allow sunlight to reach the bottom in 1 meter of water.

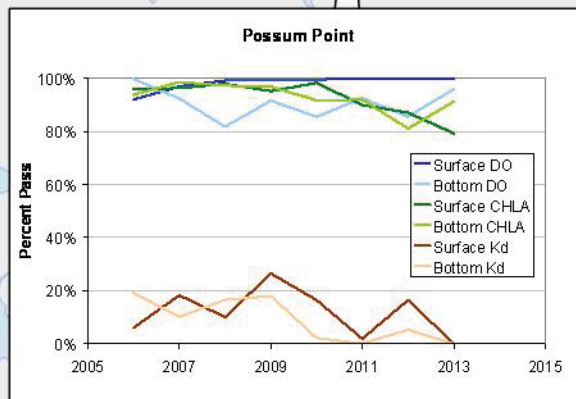
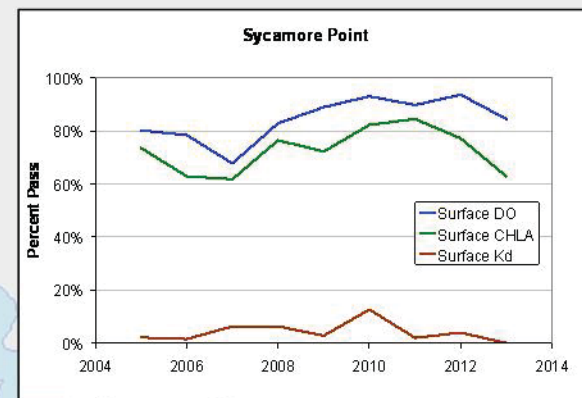
Parameter	Time Period Examined	Criterion
DO	June - September	3.2 mg/l
CHLA	April - October (Underwater grass growing season)	50 ug/l
Kd	April - October (Underwater grass growing season)	1.5



*The Sill was not deployed in 2012 & 2013

Monitoring Results

The station furthest upstream, Sycamore Point, experienced significant low oxygen conditions in 2007 with less than 70% of the readings meeting the dissolved oxygen criterion. Since 2009, however, nearly 90% of dissolved oxygen readings have met the criterion each year. Dissolved oxygen levels in the downstream stations, The Sill & Possum Point, have generally exceeded the dissolved oxygen criterion over 90% of the time during each year since monitoring began in 2006. Sycamore Point, generally experiences the most frequent and intense algal blooms with less than 70% of the readings meeting the chlorophyll criterion thus far in 2013. Water clarity has been poor overall at all three stations and less than 1% of all measurements in the river have met the Kd criterion thus far in 2013. This lack of clear waters has prevented the growth of underwater grasses within the Corsica River.



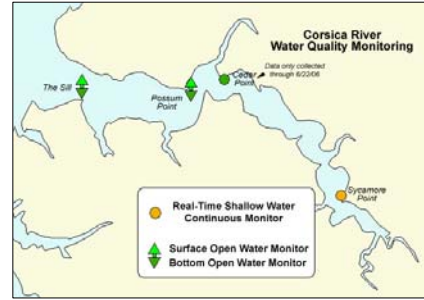
Intensive Monitoring of the Corsica River 2005-2011



Poster contact:
Mark Irico online@dnr.state.md.us
410-260-8649 www.esvsnhobay.net
Acknowledgements:
Tidewater Ecosystem Assessment Staff
Monitoring and Non-Tidal Assessment Field Office Staff



The continuous monitoring and water quality mapping programs both collect **dissolved oxygen, chlorophyll, turbidity, water temperature, salinity and pH** data. Continuous monitors measure data every 15-minutes, while each monthly water quality mapping cruise measures several thousand surface water quality measurements. During bi-weekly continuous monitor exchange and monthly water quality mapping cruises, in situ calibration samples are taken for light attenuation, nutrients, chlorophyll and total suspended sediment. These calibration data, in combination with the spatially and temporally intensive automated data, provide managers with insight into the effects of current management efforts to reduce nutrient and sediment pollution and can guide future actions.



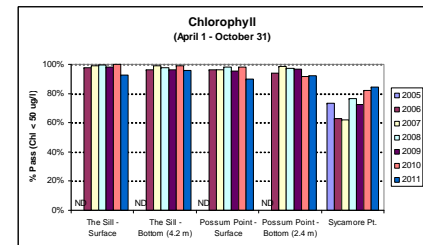
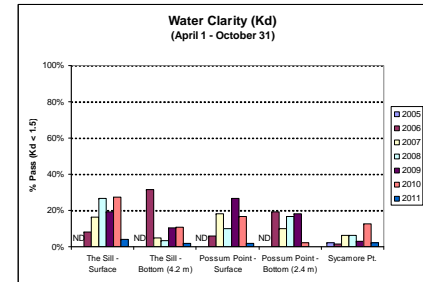
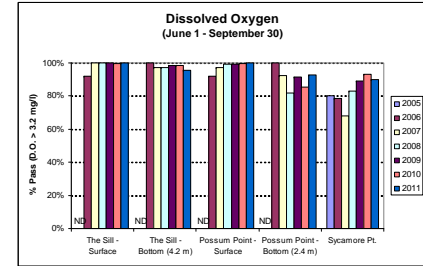
Water Quality Mapping Results

- **Surface dissolved oxygen declined** in 2010-2011, following a 4-year period of improvement (2006-2009). Cruise times vary from year to year and this may account for some of the variability that is observed between years for dissolved oxygen.
- **Average chlorophyll levels appear to be becoming less intense** in recent years. However, the spatial extent of chlorophyll values less than 15 ug/l has been declining.
- **Average turbidity levels never reach a level that is supportive of underwater grass growth** except a small portion near the mouth in 2010, which is likely an influence of the Chester River.

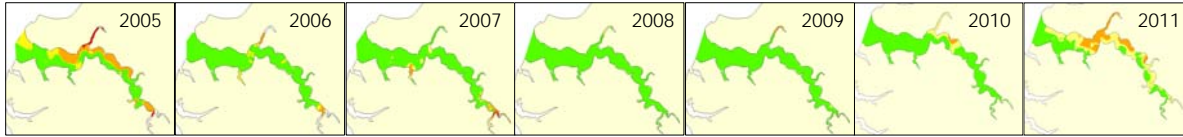
Continuous Monitoring Results

- **Dissolved oxygen, water clarity and chlorophyll levels are better at downstream locations.**
- ***For this analysis, negative turbidity values were not factored into the calculations.** These values could be acceptable data that represent exceptional water clarity and therefore **passing values may be artificially lowered.**
- **During 2008-2011, chlorophyll and dissolved oxygen 'attainment' has rebounded to and exceeded levels seen in 2006-2007 at Sycamore Point.**

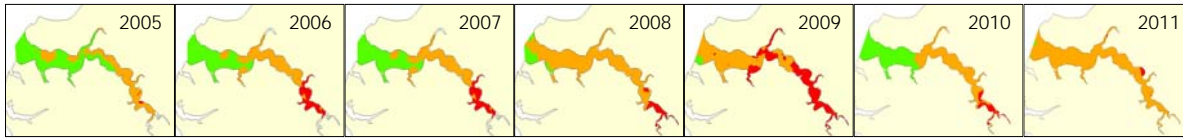
- **For the period 2005-2011, 2011 had the lowest water clarity at all stations due to heavier than normal Spring storms and Hurricane Irene and Tropical Storm Lee in the Fall.**



Water Quality Mapping Dissolved Oxygen (mg/l) – Annual Minimum



Chlorophyll (ug/l) – Annual Average



Turbidity (NTU) – Annual Average



Percent area meeting water quality thresholds

	Dissolved Oxygen (mg/l)			
	%Area <3.2	%Area 3.2 - 5.0	%Area 5.0 - 5.5	%Area >5.5
2005	2.6	27.3	43.5	26.6
2006	0	2.5	7.7	89.8
2007	0.4	4.2	5.2	90.2
2008	0	0	0.7	99.3
2009	0	0.8	0.4	98.8
2010	0	1.7	8.9	89.4
2011	0	19.4	35.6	45.0

	Chlorophyll (ug/l)		
	%Area >50	%Area 15 - 50	%Area <15
2005	0.6	42.3	57.1
2006	12.8	54.1	33.1
2007	7.4	83.2	9.4
2008	23.2	58.7	18.1
2009	39.6	57.9	2.5
2010	6.8	45.0	48.2
2011	1.4	98.1	0.55

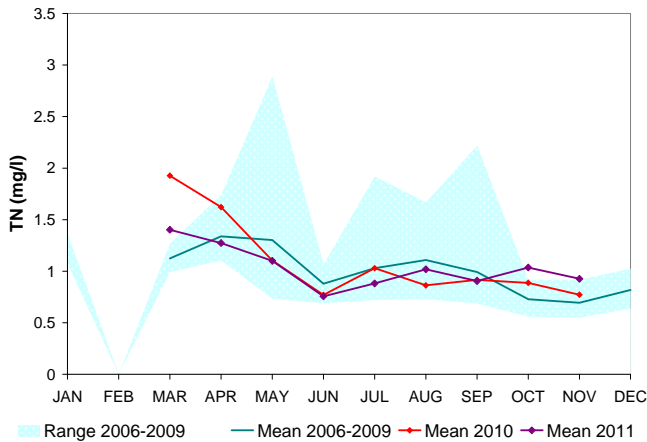
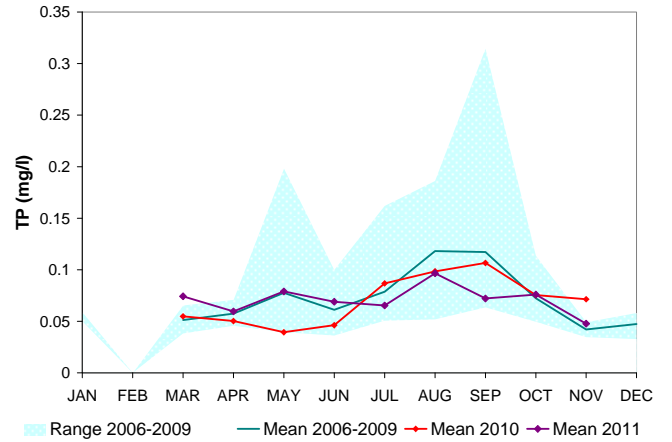
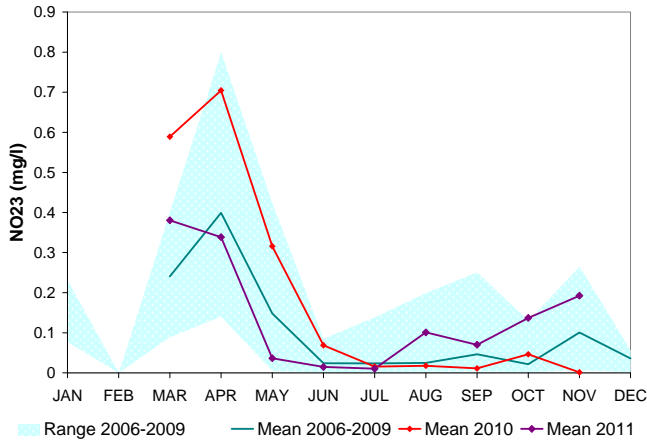
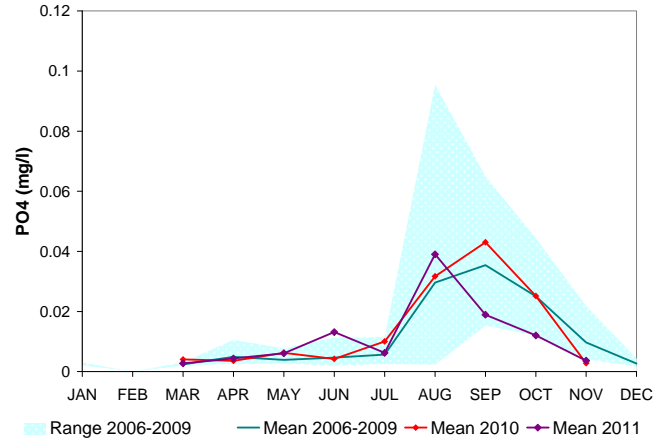
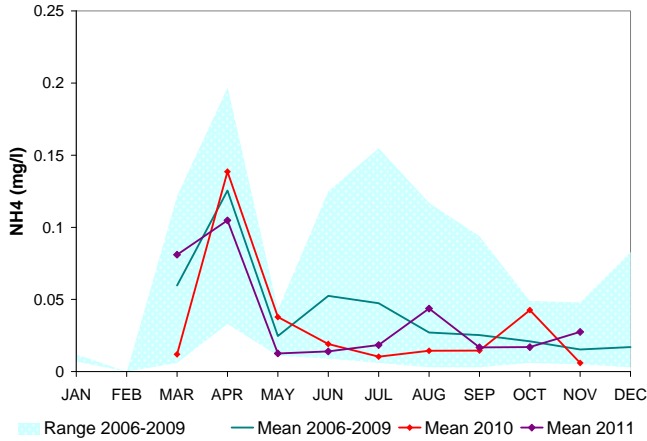
	Turbidity (NTU)	
	%Area >7	%Area <7
2005	100	0
2006	100	0
2007	100	0
2008	100	0
2009	100	0
2010	93.7	6.3
2011	100	0



Martin O'Malley, Governor John Griffin, Secretary
Maryland Department of Natural Resources
Resource Assessment Service
580 Taylor Ave, D2; Annapolis, MD 21401
<http://www.dnr.state.md.us>

Corsica River Nutrients – Data Summary 2005-2011

MD DNR Shallow Water Monitoring Program

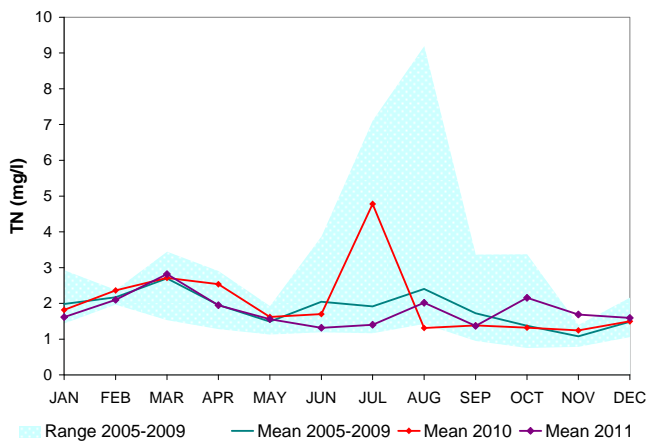
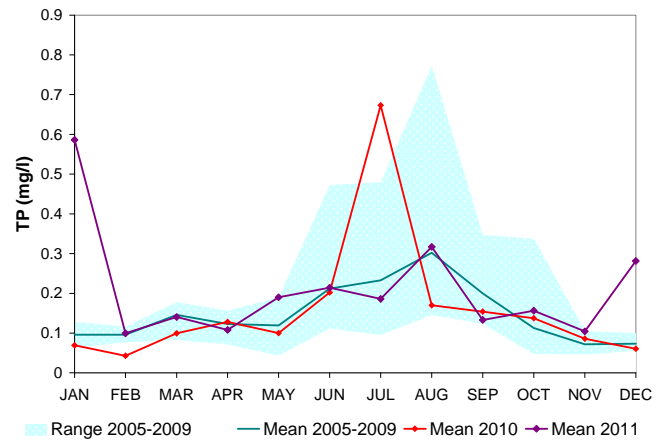
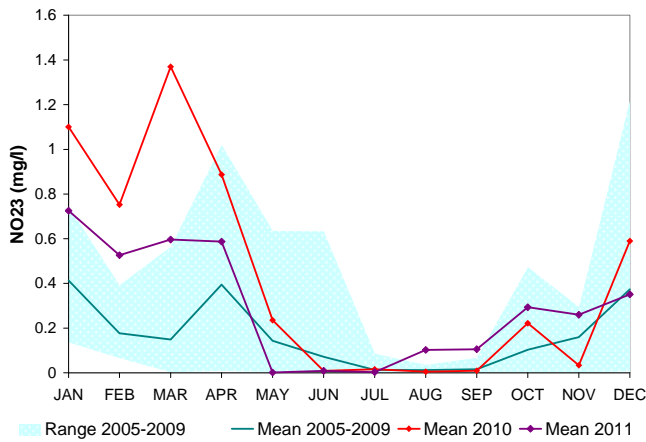
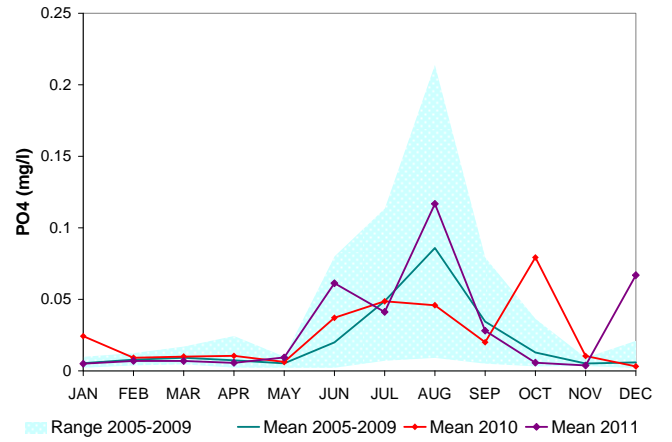
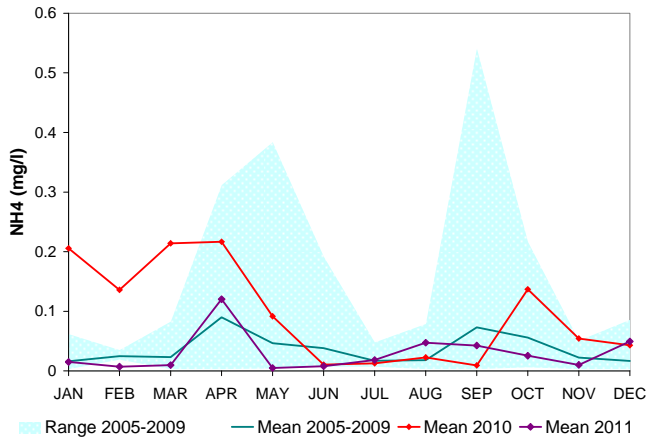


Nutrient Concentrations at The Sill

Ammonia (NH₄) values in 2010 and 2011 were slightly below average in the summer (June – July).

Nitrite + Nitrate (NO₂₃) concentrations were above average in Spring 2010 and Fall 2011, but not outside of the range of observed values at this station.

Total nitrogen (TN), orthophosphate (PO₄), and total phosphorus (TP) were all near average for 2010 and 2011.



Nutrient Concentrations at Sycamore Point

Higher than average ammonia (NH₄) concentrations were measured in the Spring of 2010.

Nitrate + Nitrite (NO₂₃) concentrations in Spring 2010 and Spring 2011 were the highest values measured during 2005-2011.

Unusually high values of total nitrogen (TN) and total phosphorus (TP) were measured in July 2010.

Figure 21. Corsica Synoptic Stations

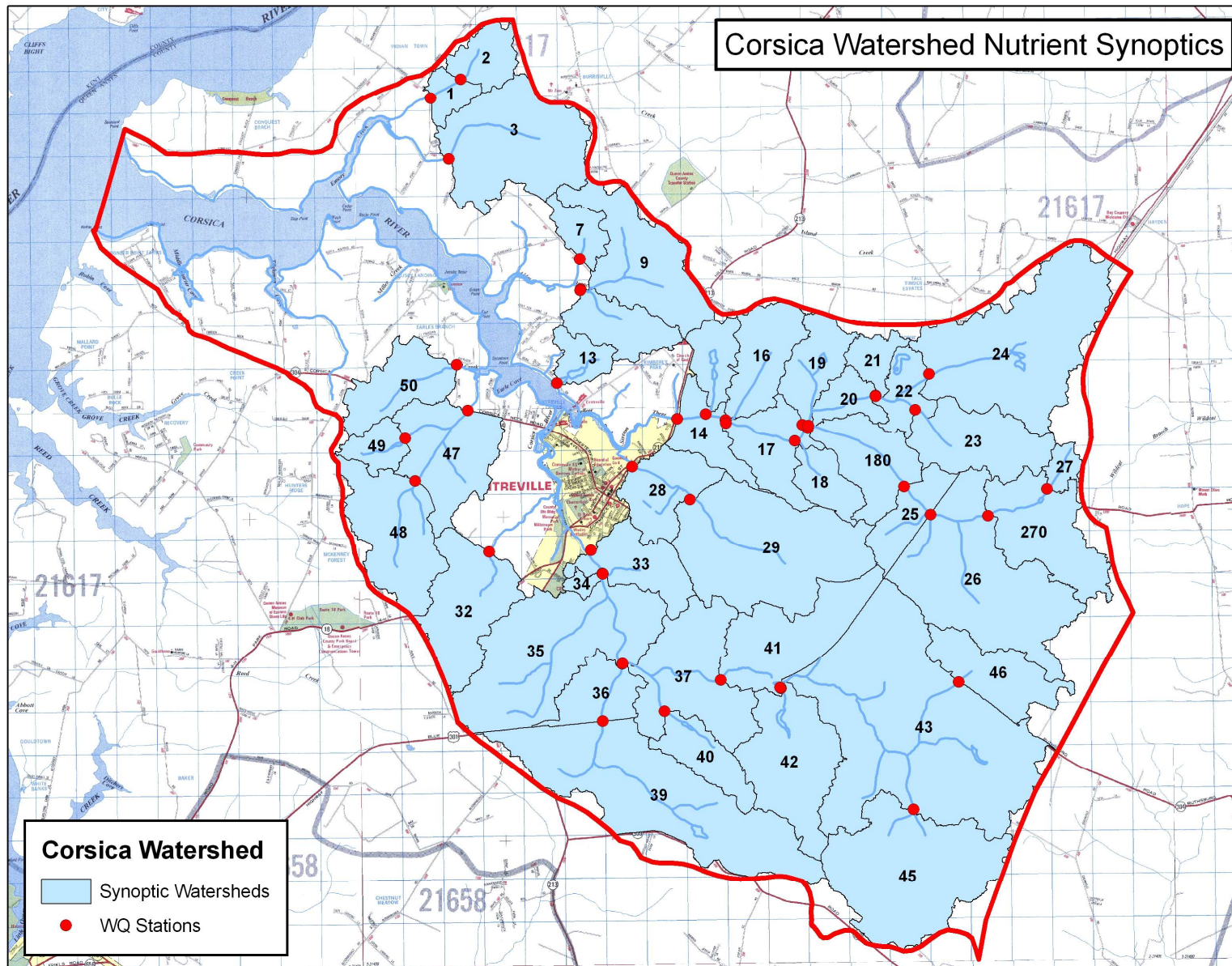


Figure 24. Average NO23 and TN mg/L Corsica

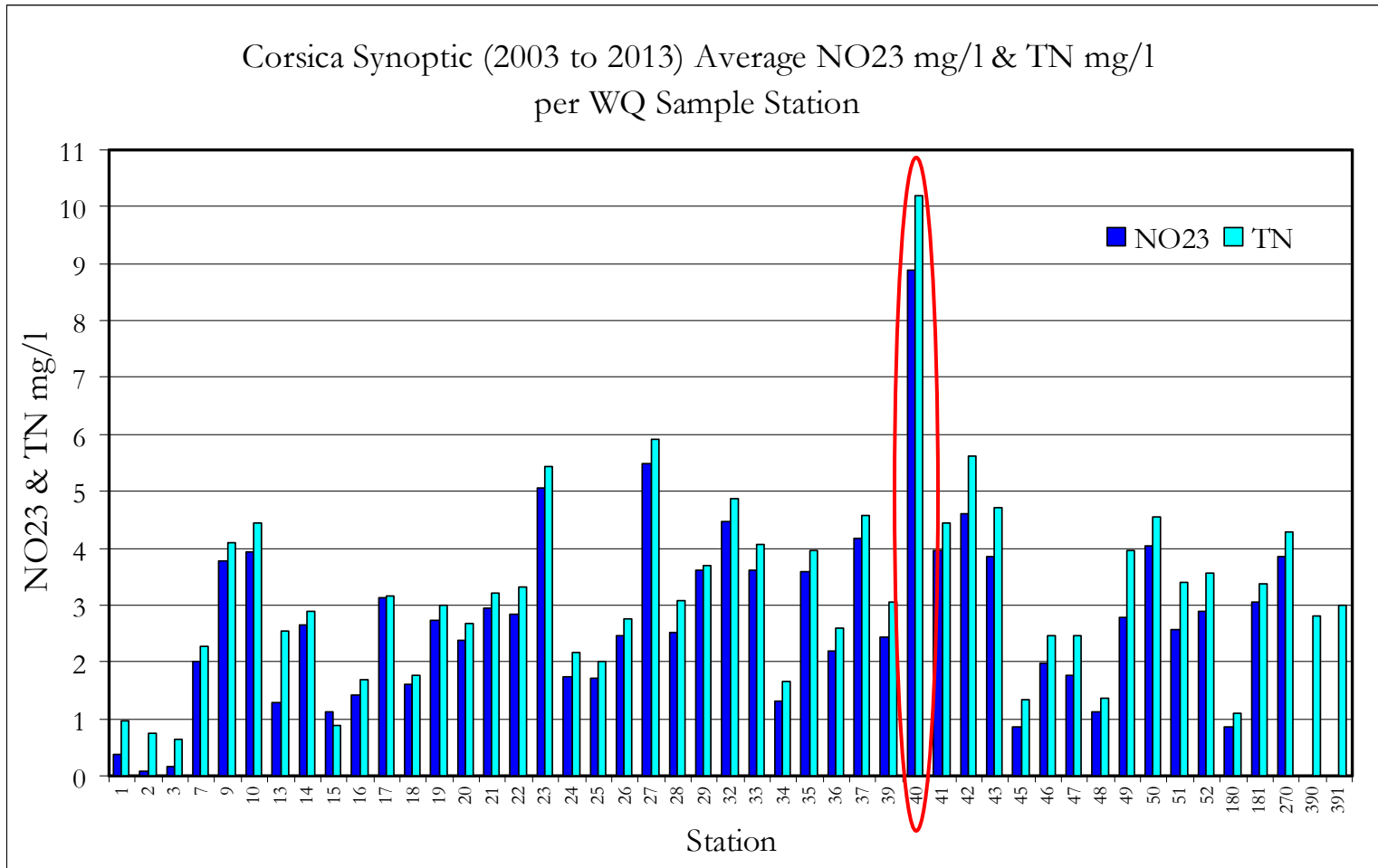
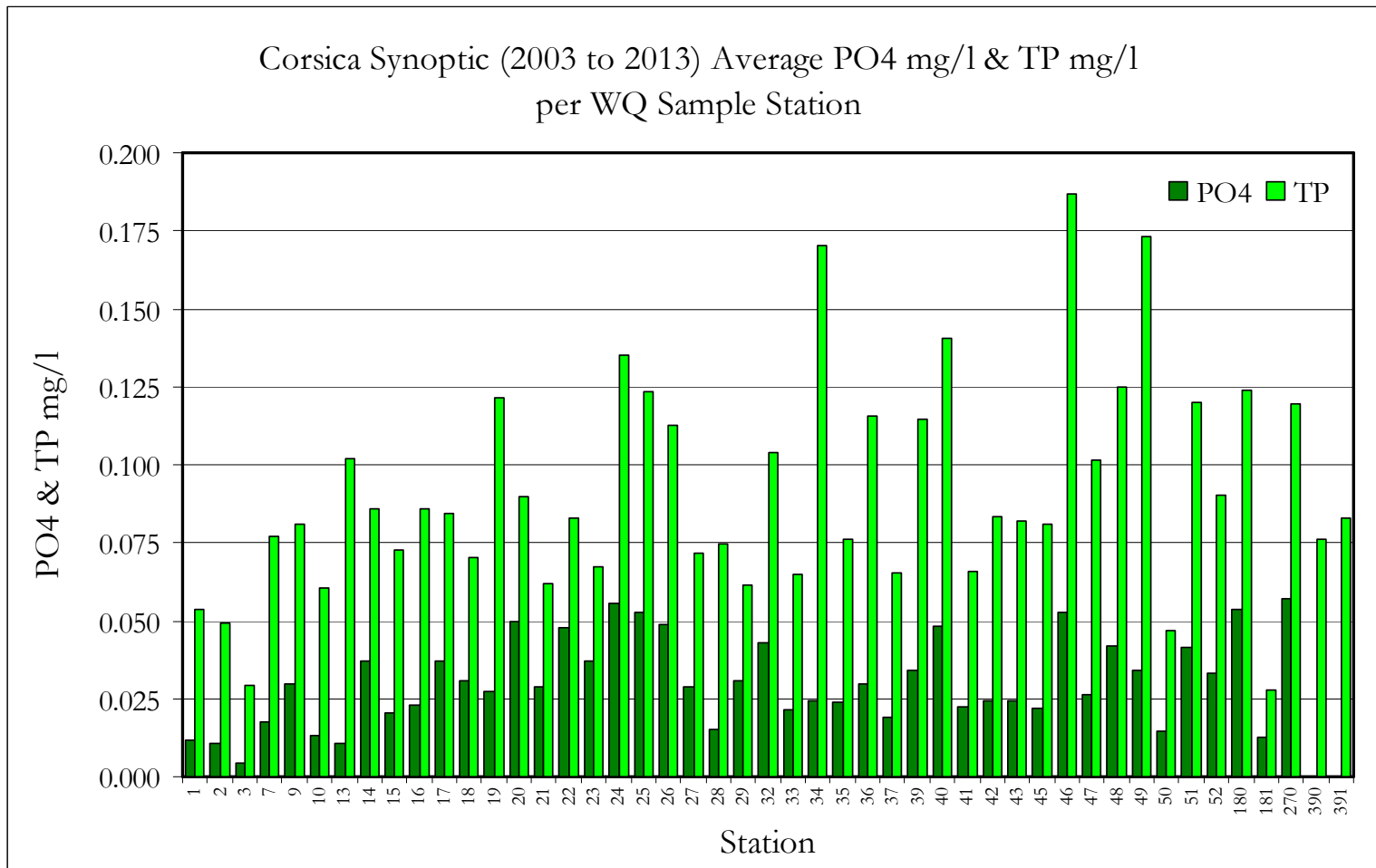


Figure 28. Average PO4 and TP mg/L Corsica Synoptic Samples (2003 to 2013) per Station



Maryland 319 Nonpoint Source Program 2014 Annual Report
Appendix - Watersheds

Corsica River Watershed										
2005-2013 Completed NPS Implementation Projects										
Project Summary			Project Expenditures					Pollutant Load Reduction		
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
Centreville	Watershed Restoration	2006	319 FFY05 #2	\$232,666.15		\$155,110.77	\$387,776.92	0	0	0
	Watershed Restoration	2009	319 FFY06 #3	\$241,974.82		\$161,316.55	\$423,291.37	62	6	0
	Symphony Village Bioswale		Trust Fund SFY11		\$20,000.00					
	Watershed Restoration	2012	319 FFY09 #1	\$270,427.25		\$180,284.83	\$590,712.08	5.33	1.05	0.29
	Stormwater Retrofit near WWTP		Trust Fund SFY11		\$30,000.00					
			General Funds		\$60,000.00					
	Banjo Lane Coastal Plain Outfall		Trust Fund SFY11		\$30,000.00					
	General Funds			\$10,000.00						
Rain Barrel Program	Trust Fund SFY11		\$10,000.00							
CRC	Corsica River Rain Garden Project		Trust Fund SFY12		\$10,000.00		\$50,000.00	62	11	0.29
MDA / Queen Anne's Soil Conservation District	Agricultural Technical Assistance	2006	319 FFY04 #18	\$32,379.50		\$21,586.33	\$53,965.83	4,847	114	0
		2008	319 FFY05 #12	\$145,554.24		\$97,036.16	\$242,590.40	767	79	463
		2008	319 FFY06 #9	\$14,272.71		\$9,515.14	\$23,787.85	2,413	233	0
		2008	319 FFY07 #6	\$22,187.16		\$14,791.44	\$36,978.60	286	10	755
		2009	319 FFY08 #7	\$50,780.00		\$33,853.33	\$84,633.33	46	3	62
		2010	319 FFY09 #4	\$58,539.00		\$39,026.00	\$97,565.00	19,740	6,664	33
		2011	319 FFY10 #10	\$61,590.00		\$41,060.00	\$102,650.00	53,259	802	0
		2012	319 FFY11 #10	\$66,700.59		\$44,467.06	\$111,167.65	45,703	642	492
Queen Anne's County	Corsica and Beyond	2008	319 FFY06 #13	\$124,281.44		\$82,854.29	\$207,135.73	0	0.34	0
	Bioretention Swale	2011	319 FFY08 #19	\$50,000.00		\$33,333.33	\$83,333.33	0.22	0.35	0.739
	County Office Bldg Stormwater		Trust Fund SFY11		\$200,000.00		\$200,000.00	12	2	0.47
	Bloomfield Park N. Bldg. Permeable Paving		SRF Grant		\$200,000.00		\$250,000.00	864	173	0
	Bloomfield Park Permeable Pavers		Trust Fund SFY11		\$50,000.00		\$50,000.00	2	0.33	0.08
	Board of Education Bioretention	2013	319 FFY11 #11	\$22,431.94		\$14,954.63	\$99,518.57	5.16	0.36	0.066
			Trust Fund SFY13		\$62,132.00					
	Mill Steam Park Buffer Plantings, Ph1		Trust Fund SFY11		\$20,000.00		\$20,000.00	57.44	3.88	0.7
Mill Steam Park Buffer Plantings, Ph2		Trust Fund SFY11		\$52,470.80		\$52,470.80	209.66	14.16	2.56	
TOTAL for completed projects				\$1,444,784.77	\$754,602.80	\$963,189.85	\$3,217,577.46	184,162.6	9,587.8	1,918.8

Baseline year for watershed plan implementation is 2005. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. All stakeholders agreed that the baseline year is 2005 and that the watershed plan goal is to meet the TMDL as a benchmark against further degradation related to nitrogen and phosphorus loads. In addition, note that the Corsica nutrient TMDL approved in 2000 was based on 1997 water quality data. (See TMDL Section 2.2 pages 5-9. See 2004 watershed plan pages 23-24. See MD 2013 Annual Report page 17.)

Maryland 319 Nonpoint Source Program 2014 Annual Report
Appendix - Watersheds

2014 Grant Project Activity - Corsica River Watershed										
Project Summary			Project Funding				Projected Pollutant Load Reduction			
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
Centreville	Watershed Restoration	TBD	319 FFY11 #8	\$298,998.00		\$199,332.00	\$808,330.00	5.16	0.36	0.066
	Pennsylvania Ave BioSwale		Trust Fund SFY13		\$50,000.00	\$10,000.00				
	Stream Restoration near WWTP		Trust Fund SFY12		\$250,000.00					
	Watershed Restoration	TBD	319 FFY12 #7	\$115,002		\$76,668	\$285,670	20.6	1.8	0.6
Powell Street Retrofit	Trust Fund SFY13			\$94,000						
MDA / SCD	Agricultural Technical Assistance	2014	319 FFY13 #9	\$47,810.49		\$31,873.66	\$79,684.15	32,830	4,394	38.28
Queen Anne's County	Bloomfield Park Permeable Pavers	2014	Trust Fund SFY13		\$330,000.00		\$399,416.00	25	2	0
	Board of Ed. Phase 2: Kramer Center, Centreville Elementary Bioretention	2014	319 FFY12 #10	\$66,624.98		\$44,416.65	\$161,041.63	60.7	7.6	3.03
	Trust Fund SFY13			\$50,000.00						
	Natural Filters Restoration	TBD	Trust Fund SFY13		\$537,000		\$537,000	110.2	10.0	1.5
Kennard Elementary Riparian Buffer Planting (in Centreville)	2014	Trust Fund SFY14		\$7,000.00		\$7,000.00	29.5	1.56	0.3	
Table: Summary of Grant Projects Completed 2014 - Corsica River Watershed										
			Grant Project Expenditures				Pollutant Load Reduction Reported			
			Grant Name	Federal Grants	State Grants	Non Federal Funds	Total Expenditures	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (tons/yr)
Completed Grant Projects	2014	319		\$114,435.47		\$76,290.31	\$577,725.78	32,945.20	4,405.16	41.56
		Trust Fund			\$387,000.00					
		TOTAL								
Active/incomplete Grant Projects	TBD	All Grants		\$414,000	\$931,000		\$1,345,000	TOTAL ACTIVE GRANTS BUDGETED		

Maryland 319 Nonpoint Source Program 2014 Annual Report
Appendix - Watersheds

Table: Corsica River Watershed Plan - 2014 Implementation Progress Summary								
Goals			Progress (2)					
Category (1)	Unit	Goal	Implementation Progress			Total Pollutant Reduction Reported 2005 thru 2014		
			2014	2005 thru 2013	Percent of Goal Achieved	Nitrogen (lbs/yr)	Phosphorus (lbs/yr)	Sediment (tons/yr)
Agricultural BMPs	units	50	3	6	18%	35,846	4,791	863
Cover Crop (3)	acres	5,500	4,827		88%	32,777	4,393	0
Agricultural Buffers	acres	100	0	94.3	94%	2,173	141	0
Forest Buffers (urban)	acres	200	0	14	7%	28	8	0
Manure Transfer (3)	tons	27.4	0		0%	0	0	0
Oyster Bed Restoration	acres	20	0	11	55%	0	0	0
Rain Gardens & Bioretention	units	408	0	373	91%	150	20	1.5
Septic Tank Upgrades	systems	30	0	18	60%	73.0	0	0
Stormwater Retrofits	acres	300	0	112.5	37.5%	61.7	5.9	0
Stream Restoration	miles	2	0	0	0.0%	0.8	0.1	0.1
Waste Storage Facilities (ag)	units	1	0	1	100%	210.0	42.0	0
Wetland Restoration	acres	108	0	88.3	82%	0	0	0
Total Pollutant Reduction						71,320	9,401	865
Watershed Plan Nutrient Reduction Goal						100,132	6,306	---
Percent of Goal Achieved						71.2%	149.1%	---

1. Categories for watershed plan goals tracked by EPA for progress.

2. 2014 is calendar year. Town of Centreville is lead implementer/reporter in cooperation with the Corsica Implementers Group. All 319(h) Grant-funded implementation is reported. Zero means no progress or not reported. Grey shading means not applicable.

3. Accomplishments for cover crops and manure transfer are annual practices. This table includes the most recent calendar year only.

Appendix
Watershed Eligible for 319(h) Grant Implementation Funding

Lower Jones Falls In Baltimore City and Baltimore County, Maryland

Contents

- Water Quality Monitoring Activity
- Water Quality Conditions and Trends
- Completed grant projects 2006-2013
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring Activity

The State of Maryland operates a long term nontidal monitoring station (JON0184) in the Jones Falls watershed upstream of the Lower Jones Falls subwatershed. Baltimore County operates several water quality monitoring stations within the Lower Jones Falls watershed (March 2015):

- bacteria monitoring: 6 monthly sites (adding 6 more in May 2015)
- trend water chemistry: 1 monthly site

Water Quality Conditions and Trends

Immediately-available information, that can provide some general context, is presented in the appendix for the Middle Gwynns Falls watershed. However, this information is not specific to the Lower Jones Falls subwatershed.

Maryland 319 Nonpoint Source Program 2014 Annual Report

Appendix - Watersheds

Lower Jones Falls Watershed 2006-2013 Completed NPS Implementation Projects											
Project Summary			Project Expenditures				Pollutant Load Reduction				
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Bacteria (MPN)
				Federal	State						
Baltimore City	Stony Run Stream Restoration Northern Parkway to Wyndhurst Av	2006	319 FFY03 #17	\$139,000.00	\$0	\$92,667	\$139,000.00	0	0	0	0
	Jones Falls Stream Restoration at Mt. Vernon Mills	2013	State Revolving Fund Loan	\$0	\$100,664		\$100,664	0	0	0	0
TOTAL for completed projects				\$139,000.00	\$100,664	\$92,666.67	\$239,664.00	0	0	0	0

Nitrogen, phosphorus and sediment baseline year for watershed plan implementation is 2008. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The watershed plan Section 5.2 page 83 indicates that the reductions goals are based on anticipated results of the management strategy presented in the plan. (Monitoring for these pollutants is not referenced as a basis for the plan and TMDLs for these pollutants were not available when the plan was written).

Bacteria baseline year for watershed plan implementation is 2004. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The watershed plan Section 5.2 page 83 indicates that the bacteria reduction goal is based on the TMDL. The Fecal Bacteria TMDL Section 2.2 pages 11-12 indicate that the TMDL is based on monitoring conducted 2003 and earlier.

2014 Grant Project Activity - Lower Jones Falls Watershed											
Project Summary			Project Funding				Projected Pollutant Load Reduction				
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Bacteria (MPN)
				Federal	State						
Baltimore City	3700 Cottage Ave	TBD	Trust Fund SFY 15	\$0	\$101,312		TBD	0.47	0.49	0.12	
	Baltimore Hebrew Congregation	TBD	Trust Fund SFY 15	\$0	\$1,259		TBD	0.46	0.03	0.01	
	Chizuk Amuno Syagogue	TBD	Trust Fund SFY 15	\$0	\$207,179		TBD	19.77	2.54	0.69	
	Congregation Ner Tamid	TBD	Trust Fund SFY 15	\$0	\$3,778		TBD	3.44	0.23	0.04	
	Druid Hill Park Bio-Filter & Impervious Removal	TBD	Trust Fund SFY 13	\$0	\$100,000		TBD	1.90	0	0	
	Faith Presbyterian Baltimore	TBD	Trust Fund SFY 15	\$0	\$2,911		TBD	0.74	0.05	0.01	
	Jones Falls Stream Restoration (Trout Unlimited)	TBD	Trust Fund SFY 13	\$0	\$425,000		TBD	74.00	9	1	
	Saints Philip and James Parish	TBD	Trust Fund SFY 15	\$0	\$629		TBD	0.57	0.04	0.01	
	Western High School	TBD	Trust Fund SFY 14	\$0	\$4,800		TBD	2.36	0.1	0.02	
Baltimore County	Divine Life Church	TBD	Trust Fund SFY 15	\$0	\$2,911		TBD	8.95	0.63	0.1	
	Jones Falls Stream Restoration	TBD	Trust Fund SFY 13	\$0	\$425,000		TBD	74.00	9	1	

Table: Summary of Grant Projects Completed During 2014 - Lower Jones Falls Watershed											
			Grant Project Expenditures				Pollutant Load Reduction Reported				
			Grant Name	Federal Grants	State Grants	Non Federal Match	Total Expenditures	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Bacteria (MPN/yr)
Completed Grant Projects	2014	319									
		State Revolving Fund									
		Trust Fund									
		TOTAL									
Active/Incomplete Grant Projects	TBD	All Grants*	\$0	\$1,274,779	\$0	TBD	TBD	TBD	TBD	TBD	

Maryland 319 Nonpoint Source Program 2014 Annual Report
 Appendix - Watersheds

Table: Lower Jones Falls Watershed Plan - 2014 Implementation Progress Summary (1)								
Goals			Progress (3)					
Category (2)	Unit	Goal	Implementation			Total Pollutant Reduction 2008-2014		
			2014	2008-2013	Percent of Goal	Nitrogen (lbs/yr)	Phosphorus (lbs/yr)	Sediment (tons/yr)
Reforestation - Forest Land Mgmt	acres	2	0.26	3.06	166.0%	12.02	0.86	0.17
Buffer Reforestation, Forest Stand Mgmt	acres	NA	0	0.77	NA	8.84	0.37	40.24
Nutrient Management	acres	2,210	0	0	0.0%	0	0	0
Downspout Disconnect, Roof Runoff Mgmt	acres	250	0.03	2.71	1.1%	31.74	2.86	1.16
Stream Channel Restoration	feet	20,000	0	0	0.0%	0	0	0
Street Trees, Tree/Shrub Establishment	units	1,000	0	0	0.0%	0	0	0
Stormwater Retrofits, Urban SWM Wetlands	acres	100.0	0	1.29	1.3%	16.89	1.49	0.51
Stormwater Conversion, Urban Wet Pond	units	NA	0	0	NA	0	0	0
Total Cumulative Pollutant Reduction						69.5	5.6	42.1
Pollution Reduction Goals (Watershed Plan Table 5.4, page 85)						23,146	3,887	205
Percent of Goal Achieved						0.3%	0.1%	20.5%

1. 2014 is Calendar year. NA is not applicable. Grey shaded areas means not applicable or not reported.
2. Categories for watershed plan goals tracked by EPA for progress.
3. Data is reported by Baltimore City and Baltimore County, which includes results of nongovernmental organization activities.

Appendix Watershed Eligible for 319(h) Grant Implementation Funding

Lower Monocacy River In Frederick County, Maryland¹

Contents

- Water Quality Monitoring Activity
- Water Quality Overall Condition
- Water Quality Trends
- Completed grant projects 1992 – 2013
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring activity

During 2014 in the Lower Monocacy River in Frederick County, Maryland

- Frederick County may be monitoring associated with their MS4 permit.
- No State current monitoring stations have been identified in the Lower Monocacy River watershed. The closest is a long term monitoring station operated by the State near the state boundary with Pennsylvania (MON0546) is located in the Upper Monocacy River watershed far upstream of the Lower Monocacy River watershed.

Water Quality Overall Condition²

In the eastern portion of the basin, sediment loadings increased but nitrogen and phosphorus loadings decreased. Nitrogen levels increased in Conococheague Creek and Antietam Creek but decreased in the lower Monocacy River and in the main river at Point of Rocks. Phosphorus levels decreased throughout the basin, and sediment levels decreased in Conococheague Creek and Antietam Creek.

Water Quality Trends³

In Figure 17 on the next page, two State-operated long term monitoring stations are located on the Monocacy River mainstem within the Lower Monocacy River watershed: map #27 MON0155 and map #28 MON0020. Another State-operated long term monitoring station on the mainstem, map#26 MON0269, is just upstream of the Lower Monocacy River watershed.

Maryland DNR summarized trends 1999-2012 as is shown in Table 1. The graphs in Figure 23 show annual mean concentrations from 1986 thru 2012 for nitrogen, phosphorus and total suspended solids at stations MON0155 and MON0020.

¹ Watershed Plan does not encompass portions of the Lower Monocacy River watershed in Carroll County, Maryland or Montgomery County, Maryland.

² Maryland Department of Natural Resources. *Potomac River Water Quality and Habitat Assessment Overall Condition 2011-2013*. Complete report is available: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

³ Maryland Department of Natural Resources. *Potomac River Water and Habitat Assessment*. Complete report is available: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

Map: Water Quality Monitoring Station Locations³

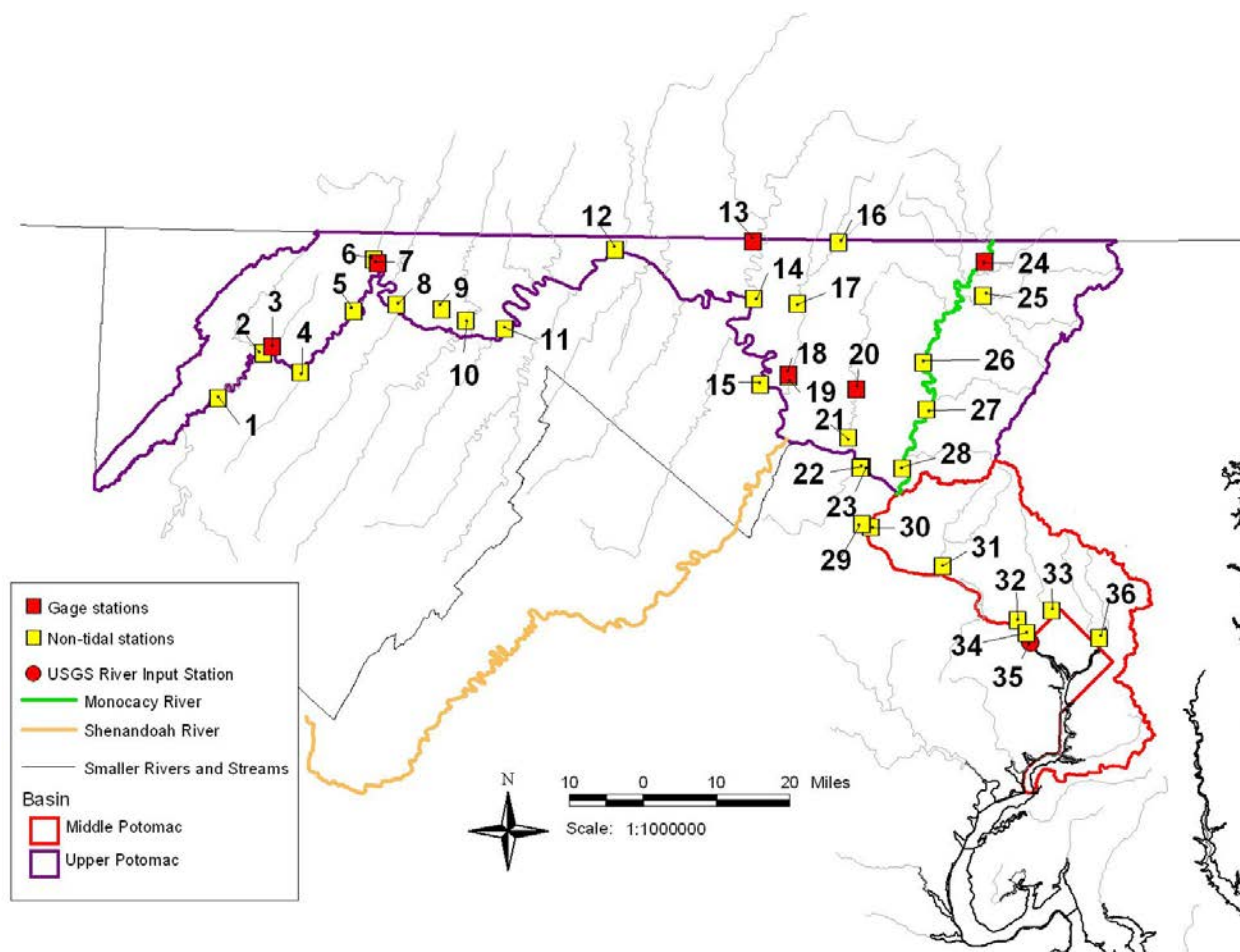


Figure 17. Long-term non-tidal water quality monitoring stations.

Stations are: 1) NBP0689, 2) NBP0534 and SAV0000, 3) **GEO0009** (USGS gage 01599000) , 4) NBP0461, 5) NBP0326, 6) BDK0000, 7) **WIL0013** (USGS gage 01601500), 8) NBP0103, 9) NBP0023, 10) TOW0030, 11) POT2766, 12) POT2386, 13) **CON0180** (USGS gage 01614500), 14) CON0005, 15) POT1830, 16) ANT0366, 17) ANT0203, 18) **ANT0047** (USGS gage 01619500), 19) ANT0444, 20) **CAC0148** (USGS Gage 01637500), 21) CAC0031, 22) POT1596, 23) POT1595, 24) **MON0528** (USGS gage 01639000), 25) BPC0035, 26) **MON0269**, 27) **MON0155**, 28) **MON0020**, 29) POT1472, 30) POT1471, 31) SEN0008, 32) CJB0005, 33) RCM0111, 34) POT1184, 35) USGS RIM station 01646580), 36) ANA0082. Stations in **BOLD** are USGS gage stations (red squares). See Appendix 3 for station description and information.

Table 1. Summary of trends for non-tidal loadings (WY2002-2011) and non-tidal water quality parameters trends (1999-2012).

Map # corresponds to Figure 17 in main report. Annual trends either ‘Increase’ or ‘Decrease’ if significant at $p \leq 0.01$ or ‘Maybe Increase’ or ‘Maybe Decrease’ at $0.01 < p < 0.05$; blanks indicate no significant trend. Improving trends are in green, degrading trends are in red. Gray boxes indicate there is no data to evaluate that component.

	map#	Station	Loadings			Water Quality		
			Nitrogen	Phosphorus	Sediments	Nitrogen	Phosphorus	Sediments
Western Upper Potomac	1	NBP0689				INCREASE		INCREASE
	2	SAV0000						INCREASE
	2	NBP0534						INCREASE
	3	GEO0009			INCREASE	DECREASE		INCREASE
	4	NBP0461				DECREASE	DECREASE	
	5	NBP0326				DECREASE	DECREASE	
	6	BDK0000				DECREASE		
	7	WIL0013	DECREASE	INCREASE		DECREASE		
	8	NBP0103				DECREASE	DECREASE	
	9	NBP0023				DECREASE	DECREASE	
	10	TOW0030				DECREASE		
	11	POT2766				DECREASE		
12	POT2386				DECREASE		DECREASE	
Eastern Upper Potomac	13	CON0180		DECREASE		INCREASE	DECREASE	Maybe Decrease
	14	CON0005				INCREASE	DECREASE	DECREASE
	15	POT1830					DECREASE	
	16	ANT0366				INCREASE		DECREASE
	17	ANT0203				INCREASE	DECREASE	DECREASE
	18	ANT0044				INCREASE	DECREASE	
	20	CAC0148		DECREASE			DECREASE	
	21	CAC0031					DECREASE	Maybe Decrease
	22	POT1596				DECREASE	DECREASE	
23	POT1595					DECREASE		
Monocacy River	24	MON0528	DECREASE	DECREASE		Maybe Decrease	DECREASE	Maybe Decrease
	25	BPC0035					DECREASE	
	26	MON0269					DECREASE	
	27	MON0155				DECREASE	DECREASE	
	28	MON0020				DECREASE	DECREASE	
Middle Potomac	29	POT1472				Maybe Decrease	DECREASE	
	30	POT1471					DECREASE	
	31	SEN0008				DECREASE	DECREASE	
	32	CJB0005						
	33	RCM0111						
	34	POT1184					DECREASE	
	36	ANA0082					Maybe increase	INCREASE
	35	Potomac River at Chain Bridge, MD			INCREASE			

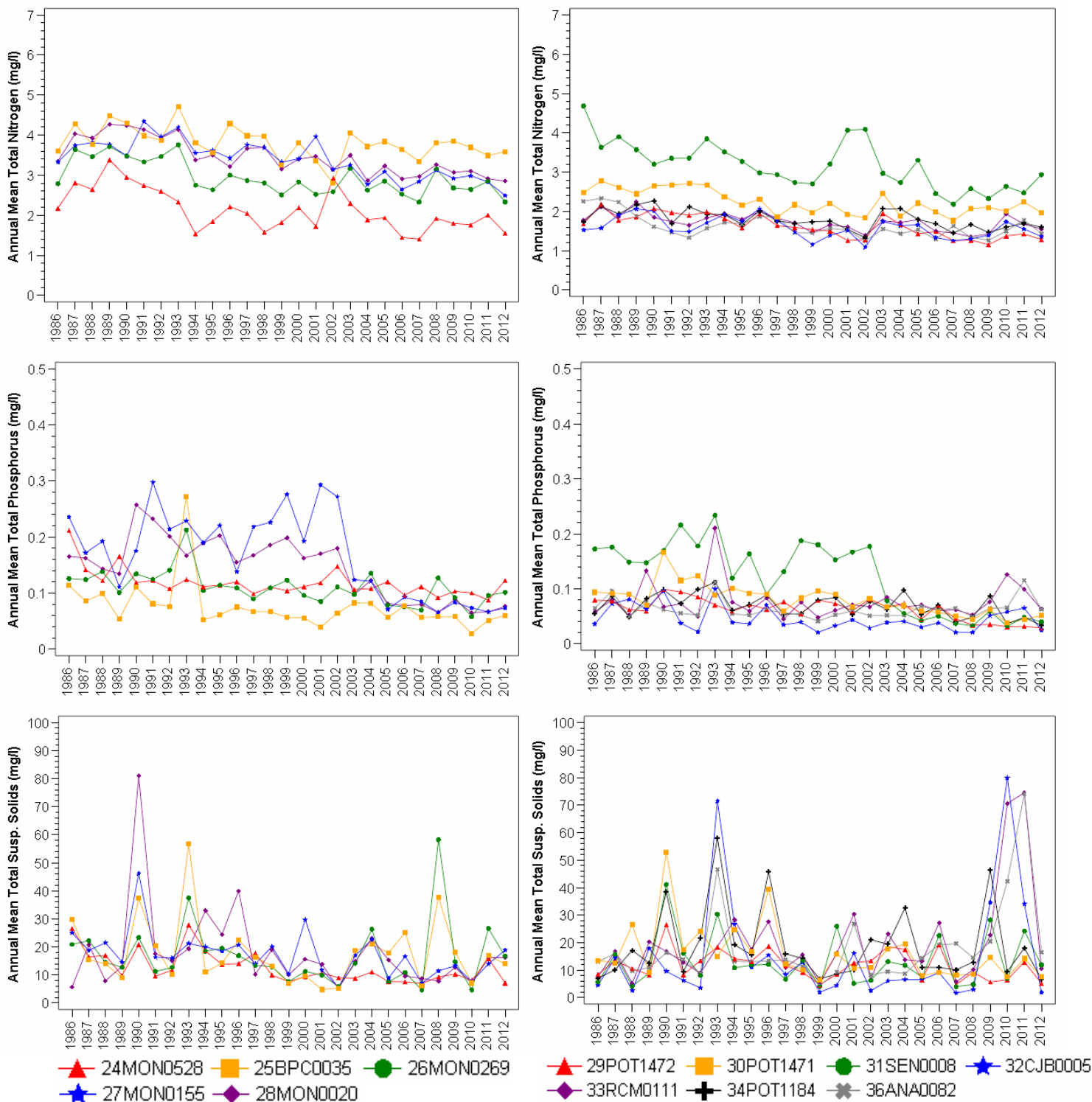


Figure 23. Annual means for total nitrogen, total phosphorus and total suspended solids in the Monocacy River and Middle Potomac non-tidal water quality monitoring stations.

Scales are the same on both graphs for each parameter: total nitrogen (top row), total phosphorus (middle row), total suspended solids (bottom row). Stations are the same in each column of graphs (Monocacy River on left, Middle Potomac on right) and legend for each column is at the bottom. Stations names shown in legends correspond to station labels in Figure 17.

Lower Monocacy River Watershed 1992-2013 Completed NPS Implementation Projects										
Project Summary			Project Expenditures				Pollutant Load Reduction			
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
MDA with Frederick SCD	Monocacy Agri Enforcement		319 FFY1992 #4	\$55,530						Completed projects shaded grey predate the baseline year for the watershed plan and are not counted toward implementation progress reporting. Blank spaces indicate that information was not available.
	Monocacy Eng Tech / SCS		319 FFY1992 #5	\$52,000						
	Monocacy Demo Monitor/Model		319 FFY1992 #9	\$71,438						
	Engineering Support - Monocacy	1994	319 FFY1993 #6							
	Monocacy Watershed Initiative		319 FFY1994 #2							
	Monocacy Watershed	1996	319 FFY1995 #14	\$83,190						
	Agricultural Implementation	2006	319 FFY04 #23	\$74,767.61		\$49,845.07	\$124,612.68	1,296.3	171.6	
Agricultural Implementation	2008	319 FFY04 #39	\$35,000.00		\$23,333.33	\$58,333.33	609.64	118.36	10	
Frederick County	Watershed Restoration	2008	319 FFY05 #17	\$216,237.00		\$144,158.00	\$360,395.00	615.9	43.9	8.2
	Urban Wetlands, Bennett Creek Pilot	2011	319 FFY07 #4	\$196,732.92		\$131,155.28	\$327,888.20	101.3	18.5	1.6
		2012	319 FFY08 #4	\$228,361.26		\$152,240.84	\$380,602.10	149.9	31.4	2.782
Green Infrastructure	2013	319 FFY10 #9	\$284,739.42		\$189,826.28	\$572,971.98	350.94	34.13	4.07	
TOTAL for completed projects				\$1,297,996.21	\$0.00	\$690,558.81	\$1,824,803.30	3,124.0	417.9	31.35

Baseline year for watershed plan implementation is 2003. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The TMDL for phosphorus and sediment for Lake Linganore (Section 2.2, page 5) indicates that monitoring data used for the TMDL was collected in 2002. The 2008 Lower Monocacy watershed plan goals for nitrogen, phosphorus and sediment reduction are based on Tributary Strategy goals and County calculations. The 2008 plan does not address more recent TMDLs.

2014 Grant Project Activity - Lower Monocacy River Watershed										
Project Summary			Project Funding				Projected Pollutant Load Reduction			
Area/Lead	Name/Dsescription	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
City of Frederick	Stream Restoration & Education	TBD	Trust Fund SFY14							
	Old Camp Park				\$1,948		\$1,948	11.50	0.77	0.14
	Career & Tech Center				\$19,877		\$19,877	TBD	TBD	TBD
	Carroll Creek/Baker Park 1				\$12,664		\$12,664	74.7	5.0	0.88
	Carroll Creek/Baker Park 2				\$10,716		\$10,716	63.18	4.22	0.75
	Carroll Creek/Baker Park 3				\$34,097		\$34,097	201.0	13.44	2.38
	Fredericktowne Village Park				\$23,868		\$23,868	104.7	9.41	1.67
	Rivermist, City parkland				\$2,435		\$2,435	14.4	0.96	0.17
	Walnut Ridge				\$19,484		\$19,484	114.88	7.68	1.36
	Waterford Park				\$52,607		\$52,607	310.18	20.73	3.67
Willowbrook		\$23,381		\$23,381	137.9	9.2	1.6			
Frederick County	Dearbought Park	TBD	Trust Fund SFY14		\$2,721		\$2,721	9.74	0.4	0.07
	Neighborhood Green Infrastructure	TBD	319 FFY13 #7	\$97,000		\$64,667	\$161,667	29	2	TBD
	Riparian Buffers & Education	TBD	Trust Fund SFY14		\$5,831		\$5,831	11.46	0.78	0.13
	Crestwood Middle School				\$0	\$1,938	\$1,938	0.86	0.06	0.01
	Monocacy Elementary #1				\$1,459		\$1,459	2.12	0.14	0.02
Monocacy Elementary #2		\$8,264		\$8,264	14.33	0.98	0.16			
Moutain Village HOA										
Hood College	Whitaker Parking, Rosenstock H.	TBD	Trust Fund SFY14		\$36,923		\$36,923	2.4	0.3	0.16
	North of Coffman Chapel	TBD	Trust Fund SFY14		\$56,550		\$56,550	21.6	1.4	0.6

Table XX. Summary of Grant Projects Completed During 2014 - Lower Monocacy River Watershed										
			Grant Project Expenditures				Pollutant Load Reduction Reported			
			Grant Name	Federal Grants	State Grants	Non Federal Match	Total Expenditures	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
Completed Grant Projects	2014	319	319: no projects completed during 2014				\$0	0	0	0
		Trust Fund	Trust Fund: no projects completed during 2014				\$0	0	0	0
		TOTAL					\$0	0	0	0
Active/Incomplete Grant Projects	TBD	All Grants*		\$97,000	\$312,824	\$66,605	\$476,429	1,124.0	77.5	13.77

Maryland 319 Nonpoint Source Program 2014 Annual Report
 Appendix - Watersheds

Table: Lower Monocacy River Watershed Plan 2014 Implementation Progress Summary (1)							
Lower Monocacy Goals				Lower Monocacy Implementation Progress (2)			
Parameter		Unit	Goal	2014	2006-2013	Cumulative Total	Goal % Achieved
Nitrogen	Agriculture	lbs/yr	582,949	0	0	0	0%
	Urban	lbs/yr	67,049	23.14	2,330.9	2,354.0	3.5%
Phosphorus	Agriculture	lbs/yr	57,337	0	0	0	0%
	Urban	lbs/yr	11,615	1.57	182.9	184.4	1.6%
Sediment	Agriculture	lbs/yr	18,342,280	0	0	0	0%
	Urban	lbs/yr	2,348,084	526.49	52,603.0	53,129.5	2.3%
Lake Linganore Goals				Lake Linganore Implementation Progress (2)			
Phosphorus	Agricultural	lbs/yr	601,489.60	0	0	0	0%
	Urban	lbs/yr	92,106.30	0	61.6	61.6	0.07%
	Forest	lbs/yr	4,186.70	0	0	0	0%
Sediment	Agricultural	tons/yr	38,401	0	0	0	0%
	Urban	tons/yr	3,615	0	10.8	10.8	0.30%
	Forest	tons/yr	1,033	0	0	0	0%

(1) 2014 is Calendar year. Frederick County is the lead plan implementer/reporter. Other entities may not be reporting implementation accomplishments. Grey shaded boxes indicate that reporting is not available.

(2) Lake Linganore is a Lower Monocacy subwatershed that has its own TMDL for phosphorus and sediment. Results reported to Lake Linganore are also included in reporting for the Lower Monocacy River watershed.

Appendix
Watershed Eligible for 319(h) Grant Implementation Funding

Middle Gwynns Falls In Baltimore County, Maryland¹

Contents

- Water Quality Monitoring Activity
- Water Quality Overall Conditions
- Water Quality Trends
- Completed grant projects 2011-2013
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring Activity

In the Middle Gwynns Falls watershed, the State of Maryland operates one long term nontidal monitoring station designated GWN0115 (see map next page). This station includes a stream gauge that began collecting flow data in 2001.² Additionally, Baltimore County is operating numerous water quality monitoring stations in this subwatershed (March 2015 information): bacteria (5 monthly monitoring sites, adding 9 more in May 2015), base flow water chemistry (15 quarterly sites), storm event monitoring (5 sites), and trend water chemistry (2 monthly sites).

Water Quality Overall Conditions²

Overall water quality conditions for the overall Patapsco River basin are presented in DNR's report but information at the scale of this subwatershed is not singled out.

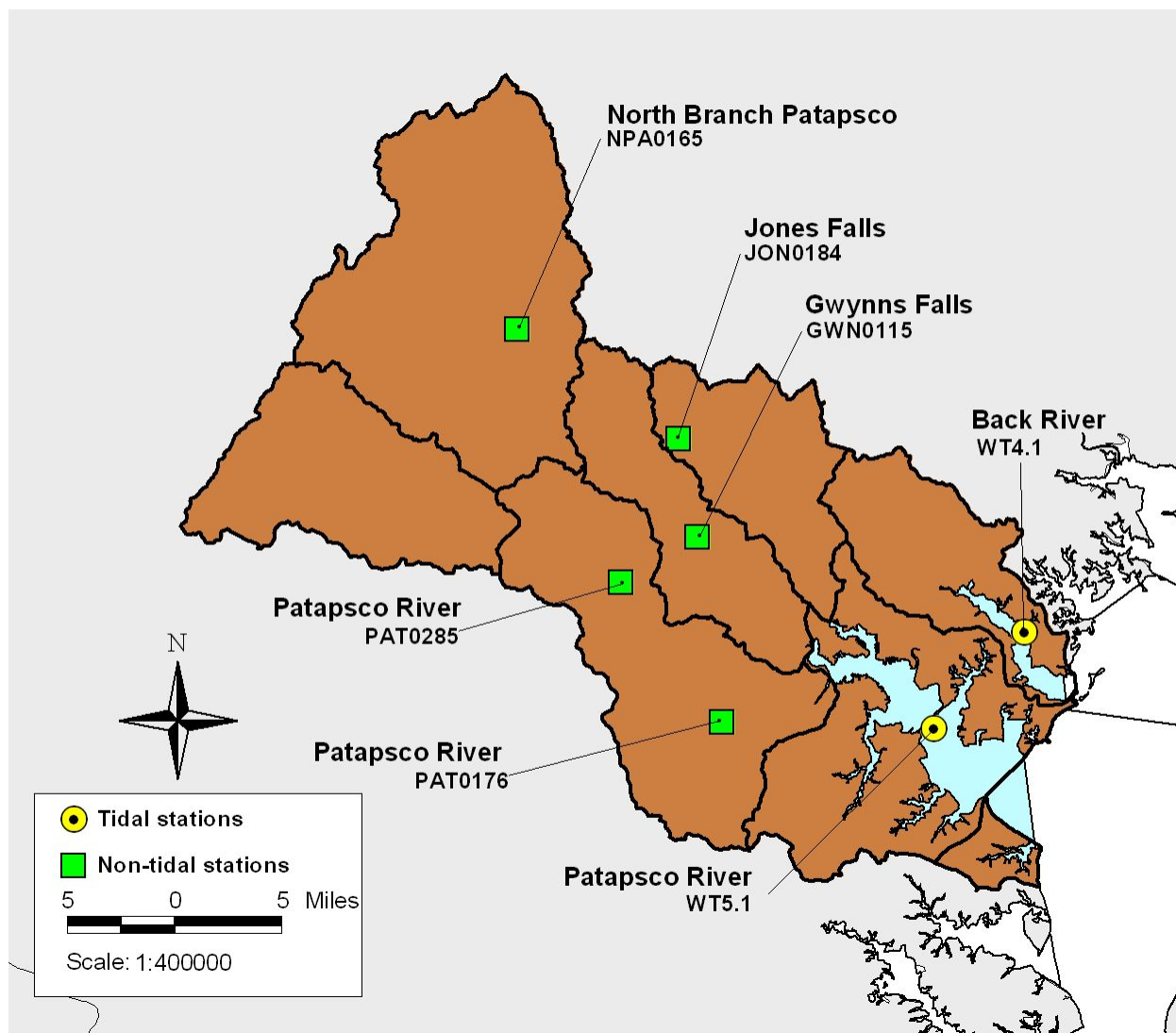
Water Quality Trends²

Figures 12 and 13 on the following pages were extracted from DNR's report. The figures show change in average annual concentration at monitoring station GWN0115 for the period 1986 thru 2010.

¹ Middle Gwynns Falls is a subwatershed of the Gwynns Falls watershed defined by Baltimore County. The watershed plan for this area does not encompass any area within Baltimore City.

² Maryland Department of Natural Resources. Patapsco and Back Rivers Water Quality and Habitat Assessment. Complete report is available: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

Monitoring Station general location map²



average BDO were often in excess of 10 mg/l in the summer, an indication of excessive nutrients and algal density fueling high oxygen production by algae.

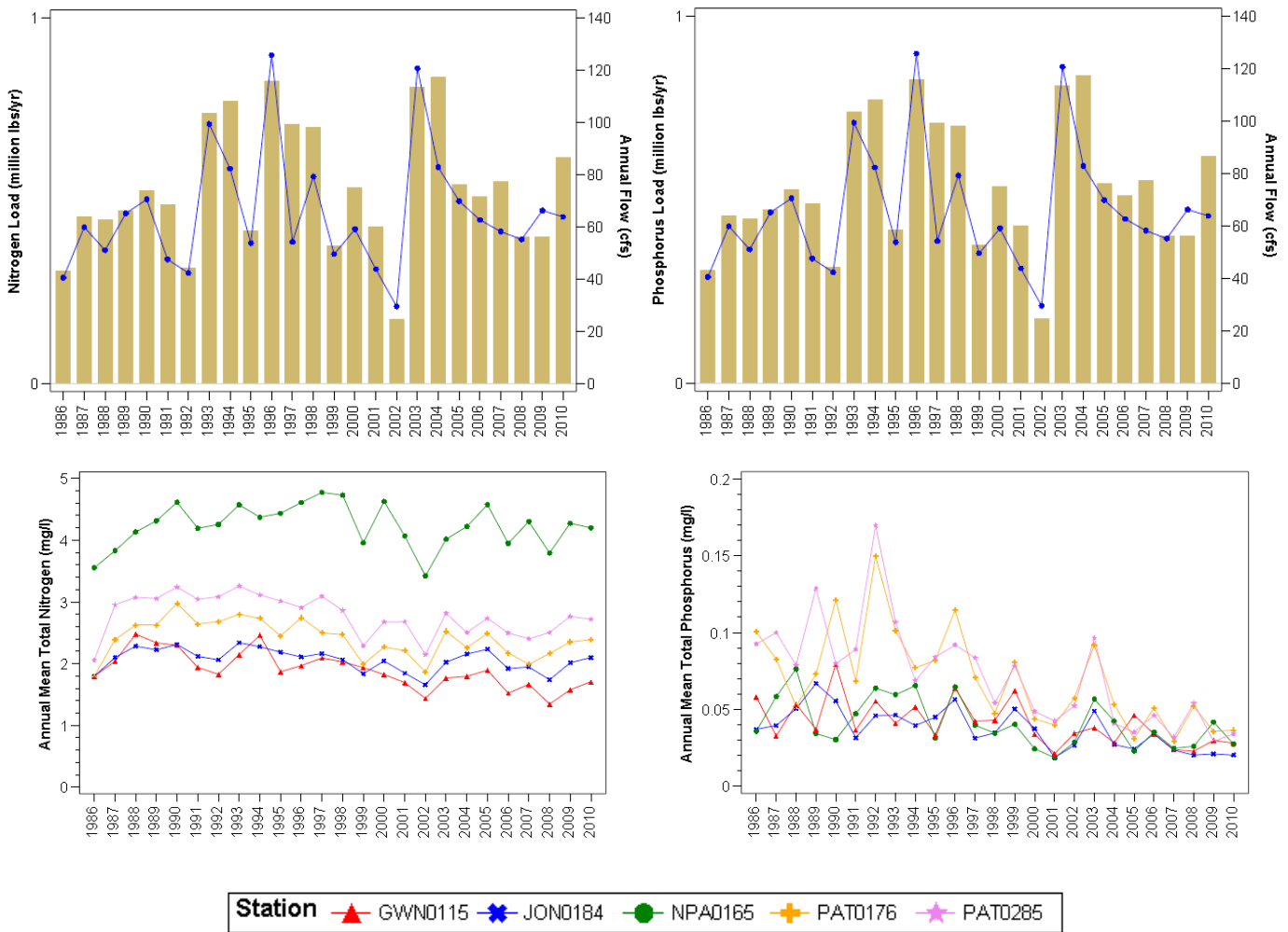


Figure 12. Annual nitrogen and phosphorus load and concentration for non-tidal stations in the Patapsco River basin.

Top graphs show annual nitrogen and phosphorus (tan bars, left axis) and flow (blue line, right axis) for North Branch Patapsco (station NPA0165). Bottom graphs show annual mean concentrations for total nitrogen and total phosphorus for all of the non-tidal stations.

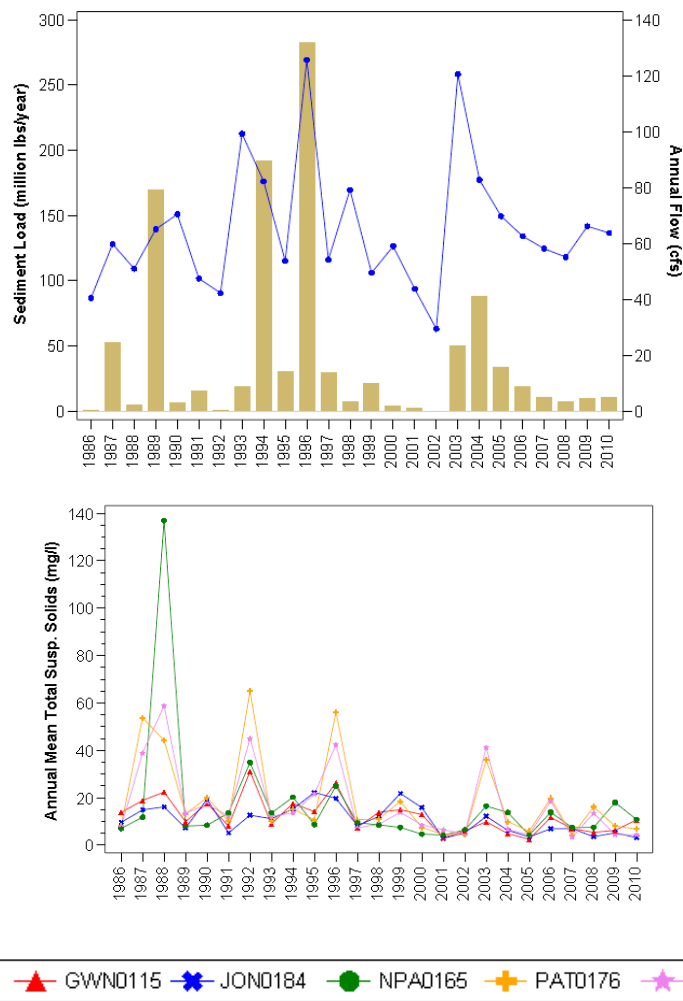


Figure 13. Annual sediment load and concentration for non-tidal stations in the Patapsco River basin.

Top graphs show annual nitrogen and phosphorus (left axis) and flow (right axis) for North Branch Patapsco (station NPA0165). Bottom graphs show annual mean concentrations for total nitrogen and total phosphorus for all of the non-tidal stations. For station NPA0165, 1988 TSS mean is very high due to very high levels on May 18, 1988 (1,502 mg/l). Without this measurement, the 1988 mean TSS level was 12.8 mg/l.

Maryland 319 Nonpoint Source Program 2014 Annual Report
Appendix - Watersheds

Middle Gwynns Falls (In Baltimore County only)											
2011-2013 Completed NPS Implementation Projects											
Project Summary			Project Expenditures				Pollutant Load Reduction				
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Bacteria (MPN)
				Federal	State						
			(no 319 or Trust Fund projects identified)								
TOTAL for completed projects				\$0.00	\$0	\$0.00	\$0.00	0	0	0	0
Nutrients baseline year for watershed plan implementation is 2011. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The watershed plan (EPA accepted 2014) in Section 2.2 page 12-15 indicates that the goal is to help meet the "bay-wide Chesapeake Bay TMDL" completed in 2010 and in Section 3.4.1.1 page 22 indicates that baseline NPS load estimates in the watershed plan are derived from 2010 land use data.											
Sediment baseline year for watershed plan implementation is 2008. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The watershed plan Addendum A Section A.2.1 indicates that the sediment reduction goal is based on the Gwynns Falls sediment TMDL (EPA approved 2010). Section A.2.2 says that the land use data in from 2007 aerial imagery. The TMDL is based on CBP P5 model land uses (pages 5-7) and edge-of-field target erosion rates (pages 8-12).											
Bacteria baseline year for watershed plan implementation is 2004. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The watershed plan Addendum A Section A.3 says the bacteria reduction goal is based on the Gwynns Falls Bacteria TMDL (EPA approved 2007). The bacteria TMDL Section 2.2 pages 10-12 indicates that bacteria monitoring data was conducted 2003 and earlier.											
Summary of Grant Projects Completed in 2014 - Middle Gwynns Falls Watershed											
Project Summary			Project Funding				Projected Pollutant Load Reduction				
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Bacteria (MPN)
				Federal	State						
Baltimore County	Scotts Level McDonogh Road Watershed Restoration Project	2014	319 FFY12 #5	\$320,004		\$213,336	\$1,213,340	415.20	136.4	306.2	0
			Trust Fund SFY 13		\$680,000						
	Powhatan ES	TBD	Trust Fund SFY 14	\$0	\$4,640		TBD	4.58	0.31	0.05	TBD

Appendix Watershed Eligible for 319(h) Grant Implementation Funding

Sassafras River In Cecil County, Maryland and Kent County, Maryland¹

Contents

- Water Quality Monitoring Activity
- Water Quality Overall Condition
- Water Quality Trends
- Completed grant projects prior to 2014
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring Activity

2014 in the Sassafras River watershed in Cecil County, Maryland and Kent County, Maryland

- Monitoring by the Sassafras River Association (March 2015)
 - o Nontidal streams: 16 monthly sites
 - o Tidal river: 7 weekly sites April-October
 - o Wetland treatment project site in Cecil County
 - Wetlands created to treat runoff from 15 acres of impervious surface associated with an egg-laying facility before the runoff drains into Duffy Creek. The project was funded in-part by the State Chesapeake and Atlantic Coastal Bays Trust Fund.
- Water quality monitoring by the State of Maryland
 - o Tidal river monitoring at station ET3.1 near Georgetown is a long-term fixed monitoring station that is part of the state's Chesapeake Bay monitoring network. Trend analysis is periodically generated for this station and will show affects of Delaware inputs and Chesapeake Bay tidal influence.

Water Quality Overall Condition²

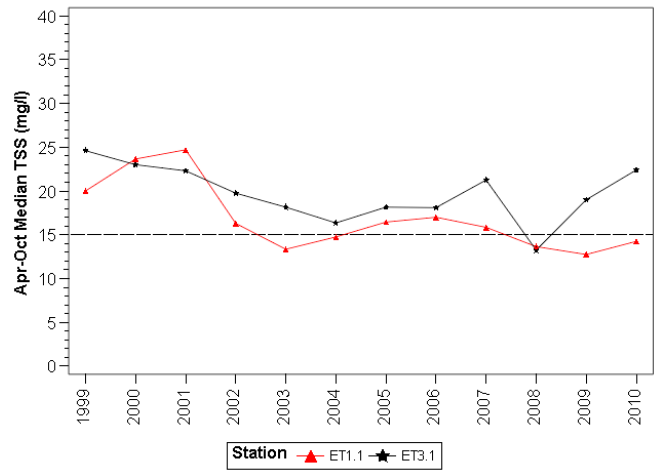
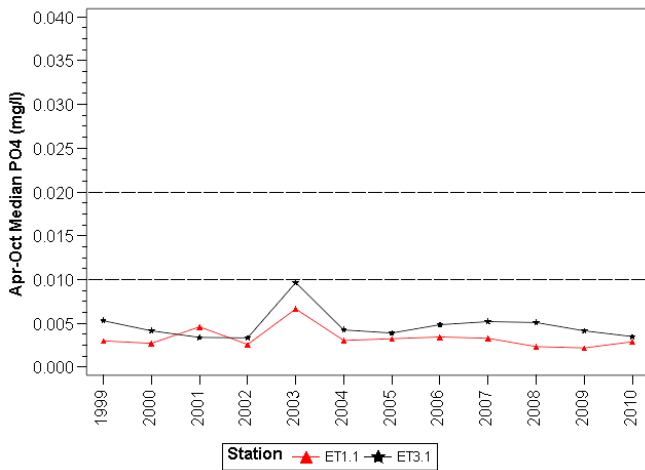
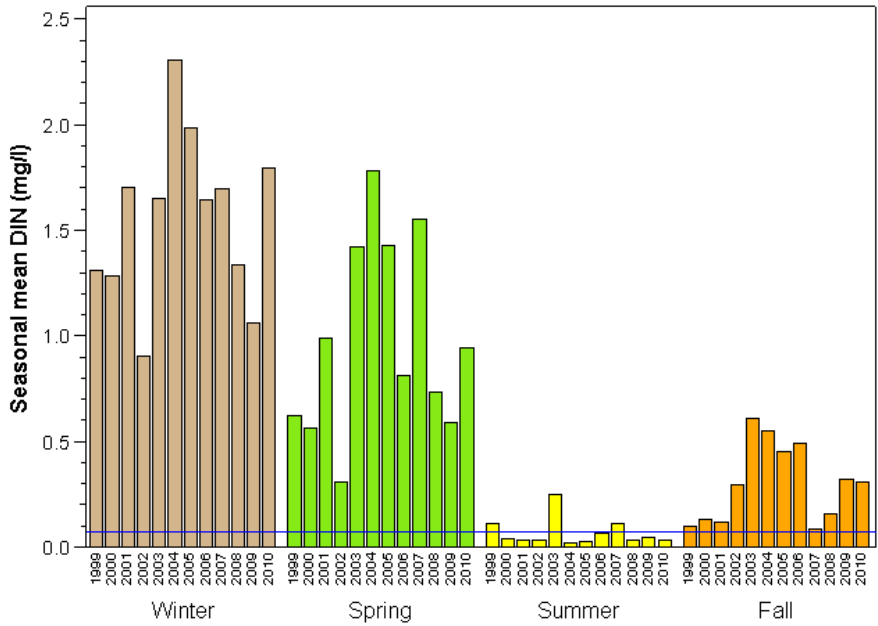
Water quality in the [tidal] Sassafras River is fair due to high sediment levels. Habitat quality for underwater grasses is poor due to poor water clarity and high algal densities. Harmful algal blooms of blue-green algae occur in most years and have led to human health impacts and beach closures at Betterton Beach. The area covered with underwater grass beds was 44% of the restoration goal during this period. Summer bottom dissolved oxygen levels are good, and bottom dwelling animal populations are healthy in most locations. The Sassafras River is in the 'Low Urban, High Agriculture' land use category. Nitrogen and phosphorus levels are higher than most rivers, and sediment levels are moderate. Water clarity is low and algal levels are among the highest of all the rivers.

¹ Watershed Plan does not encompass portions of the watershed in Delaware.

² DNR (Maryland Dept. of Natural Resources). *Upper Eastern Shore Basin Water Quality and Habitat Assessment Overall Condition 2011-2013*. Complete document: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

Sassafras Water Quality Trends³

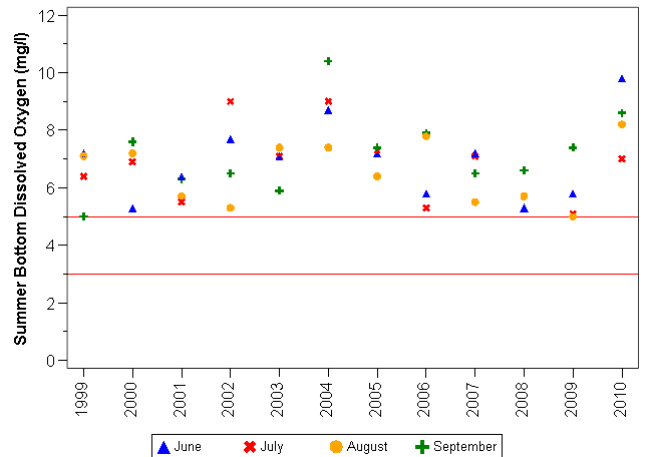
Figure 14. Mean dissolved inorganic nitrogen by season for the upper basin rivers. The blue line at 0.07 mg/l indicates the DIN level below which nitrogen limitation likely occurs. Winter season includes December (of the previous year), January and February. Spring season includes March- May. Summer season includes July-August (June is a transition month and not included). Fall season includes October and November. Biological nutrient removal of nitrogen at WWTPs is most effective in warmer months, and seasonal changes in phytoplankton populations (blooms in spring and fall) reduce DIN.



▲ Northeast ★ Sassafras

Figure 15. SAV Habitat Requirement parameters. SAV growing season (April-October) median values for PO₄ and TSS. Left panels show data for the Northeast River and Sassafras River. The right panels show the data for Back Creek, Bohemia River and Elk River. Threshold values are shown with dashed lines (Appendix 5). To meet or pass the habitat requirements, levels of PO₄ and TSS need to be lower than the threshold. All rivers are compared the Tidal Fresh/Oligohaline thresholds.

Figure 17. Summer bottom dissolved oxygen levels in the upper basin rivers. Monthly bottom dissolved oxygen levels with threshold values of 5 mg/l and 3 mg/l shown with red reference lines. Note that the y-axes differ between graphs.



³ DNR (Maryland Dept. of Natural Resources). 2012. *Upper Eastern Shore Basin Water Quality and Habitat Assessment*. Complete document: <http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

Sassafras River Watershed										
2009-2013 Completed NPS Implementation Projects										
Project Summary			Project Expenditures				Pollutant Load Reduction			
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
SRA	Budds Landing ravine stabilization		Trust Fund SFY13		\$170,864.00		\$205,864.00	0	90	1.1
	Crawford Treatment Wetlands		Trust Fund SFY13		\$145,582		\$349,000			
	Salfner Farm Stream Restoration		Trust Fund SFY13		\$90,000.00		\$90,000.00	120	40.8	93.0
Kent SCD with	Galena Elementary School stormwater	2013	319 FFY12 #8	\$14,000.00		\$9,333.33	\$25,000.00	1.38	0.24	0.05
TOTAL				\$14,000.00	\$406,446.00	\$9,333.33	\$669,864.00	121.4	131.0	94.15

Baseline year for watershed plan implementation is 1999. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The Sassafras River phosphorus TMDL Section 2.2 page 6 indicates that monitoring data for TMDL was collected in 1999.

2014 Grant Project Activity - Sassafras River Watershed										
Project Summary			Project Expenditures				Pollutant Load Reduction			
Area/Lead	Name/Dsescription	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
Betterson	Greener Wheeler Ave, Phase 1	TBD	Trust Fund SFY14		\$92,615		\$97,432	0.03	0	4.2
	Greener Wheeler Ave, Phase 1	TBD	Trust Fund SFY14		\$4,817			0	0	0
SRA	Rt 301 Stormwater Conveyance	TBD	Trust Fund SFY13		\$440,000		\$880,000	35	465	0.05
Kent SCD with SRA	Phipps Treatment Wetlands & sediment traps	TBD	Trust Fund SFY12		\$130,000		\$180,000	34,284	10,312	119.75
		TBD	319 FFY13 #8	\$50,000		\$33,333				
	Sassafras NRMA Waterway and Buffer	TBD	Trust Fund SFY13		\$47,556		\$47,556	430	28.8	5.1
	Sassafras NRMA NRMA Site 2	TBD	Trust Fund SFY14		\$15,365		\$15,365	147.5	6.1	1.13
	Turners Creek NRMA Ravine	TBD	Trust Fund SFY14		\$121,643		\$121,643	300	102	232.5

Table: Summary of Grant Projects Completed 2014 - Sassafras River Watershed										
			Grant Project Expenditures				Pollutant Load Reduction Reported			
			Grant Name	Federal Grants	State Grants	Non Federal Funds	Total Expenditures	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (tons/yr)
Completed Grant Projects	2014	319	no completed 319 projects in 2014							
		Trust Fund	no completed Trust Fund projects in 2014							
		TOTAL								
Active/incomplete Grant Projects	TBD	All Grants	\$50,000	\$851,996	\$33,333	\$1,341,996	TOTAL ACTIVE GRANTS BUDGETED			

Maryland 319 Nonpoint Source Program 2014 Annual Report
 Appendix - Watersheds

Table: Sassafras River Watershed Action Plan - 2014 Implementation Progress Summary (1)									
Goals			Progress (3)						
Goal Number and Name (2)	Unit	Units Needed	Goal Implementation Progress				Total Pollutant Reduction		
			2014	Previous Years (2009-	Total	Percent of Goal Achieved	Nitrogen (lbs/yr)	Phosphorus (lbs/yr)	Sediment (tons/yr)
#1 Road retrofit, stream restored	project	3	0	0	0	0%	0	0	0
#2 Stormwater retrofits	project	4	0	1	1	25%	0	0	0
#5 Septic system upgrades	project	150	0	0	0	0%	0	0	0
#12 Stabilize eroding ravines	miles	1	0	0.3	0.3	30%	0	90	21.1
#13 Stabilize eroding shoreline	miles	0.5	0	0	0	0%	0	0	0
#14 Increase buffers (stream/shore)	miles	3	0	0	0	0%	0	0	0
#17 Agricultural cover crops (3)	acres/yr	5,000	0		0	0%	0	0	0
#20 Innovative ways of more efficient and effective use of nutrients	acres/yr	100	0	20	20	20%	0	0	0
#21 Wetland creation	projects	5	0	2	2	40%	1.4	0.2	0.05
#22 Agricultural BMPs	acres	500	0	0	0	0%	0	0	0

1. 2014 is Calendar year. Grey shading and/or NA is not applicable. Zero means no progress or not reported.

2. Categories for watershed plan goals tracked by EPA for progress.

3. Sassafras River Association is the lead for reporting watershed plan implementation progress, including local government.

Appendix Watershed Eligible for 319(h) Grant Implementation Funding

Upper Choptank River In Caroline County, Maryland¹

Contents

- Water Quality Monitoring Activity
- Water Quality Overall Condition
- Water Quality Trends
- Completed grant projects prior to 2014
- Activity by grant projects during 2014
- Watershed Plan implementation status reported by the lead plan implementer

Water Quality Monitoring Activity

During 2014 in the Upper Choptank River watershed in Caroline County, Maryland, water quality monitoring was conducted by the State (no County monitoring). Two long-term monitoring stations in the mainstem in/near Upper Choptank River watershed planning area:

- Station ET5.0 is a nontidal site near Greensboro monitored since 1985. It reflects inputs from the upper most portions of the watershed plan area but includes Delaware inputs.
- Station ET5.1 is a tidal fresh site at Ganey Wharf that reflects inputs from the entire Upper Choptank watershed plan area and the similarly-sized Tuckahoe Creek watershed.

Water Quality Overall Condition²

Water quality in the upper Choptank is poor. Phosphorus and sediment loads from the watershed to the non-tidal waters have increased, but phosphorus levels in nontidal waters have decreased. Still, nitrogen, phosphorus and sediment levels in the tidal waters of the upper Choptank are too high. Habitat for underwater grasses is poor because algal densities are too high and water clarity is poor. Summer bottom dissolved oxygen levels are also low. No underwater grass beds were found in the upper Choptank. Bottom dwelling animal populations are healthy in this portion of the river.

Water Quality Change/Trends³

Selected information from Maryland DNR reporting on water quality change over time is included in following pages. For station ET5.0, Figures 9 and 10 show change in nontidal pollutant load and concentration 1985 thru 2010 for nitrogen, phosphorus and sediment. (In the graphs, Tuckahoe Creek station (TUK0181) has collected data since 2008 in a similar watershed immediately adjacent to the Upper Choptank watershed plan area.)

For the tidal Choptank River 1985 thru 2010, Figure 11 shows average pollutant concentrations and Figure 12 shows average seasonal dissolved inorganic nitrogen concentration.

¹ Watershed Plan does not encompass portions of the watershed in Talbot County, Maryland or in Delaware.

² Maryland Department of Natural Resources. *Choptank and Little Choptank Rivers Water Quality and Habitat Assessment Overall Condition 2011-2013*. Complete document is available:

<http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm> Also see: www.eyesonthebay.net

³ Maryland Department of Natural Resources. *Choptank, Little Choptank and Honga Rivers Water Quality and Habitat Assessment*. November 2012. Complete document is available:
<http://mddnr.chesapeakebay.net/eyesonthebay/tribsums.cfm>

Non-tidal streams

Total nitrogen and total phosphorus loads increased at the Choptank River non-tidal station from 1985-2010 (Figure 10). Sediment load decreased overall from 1985-2010, but increased from 2001-2010 (Figure 11). Sediment loadings for 2010 were the highest measured and total nitrogen and total phosphorus loadings were the second highest even though flow was the sixth highest. TP levels measured in the water decreased.¹⁷

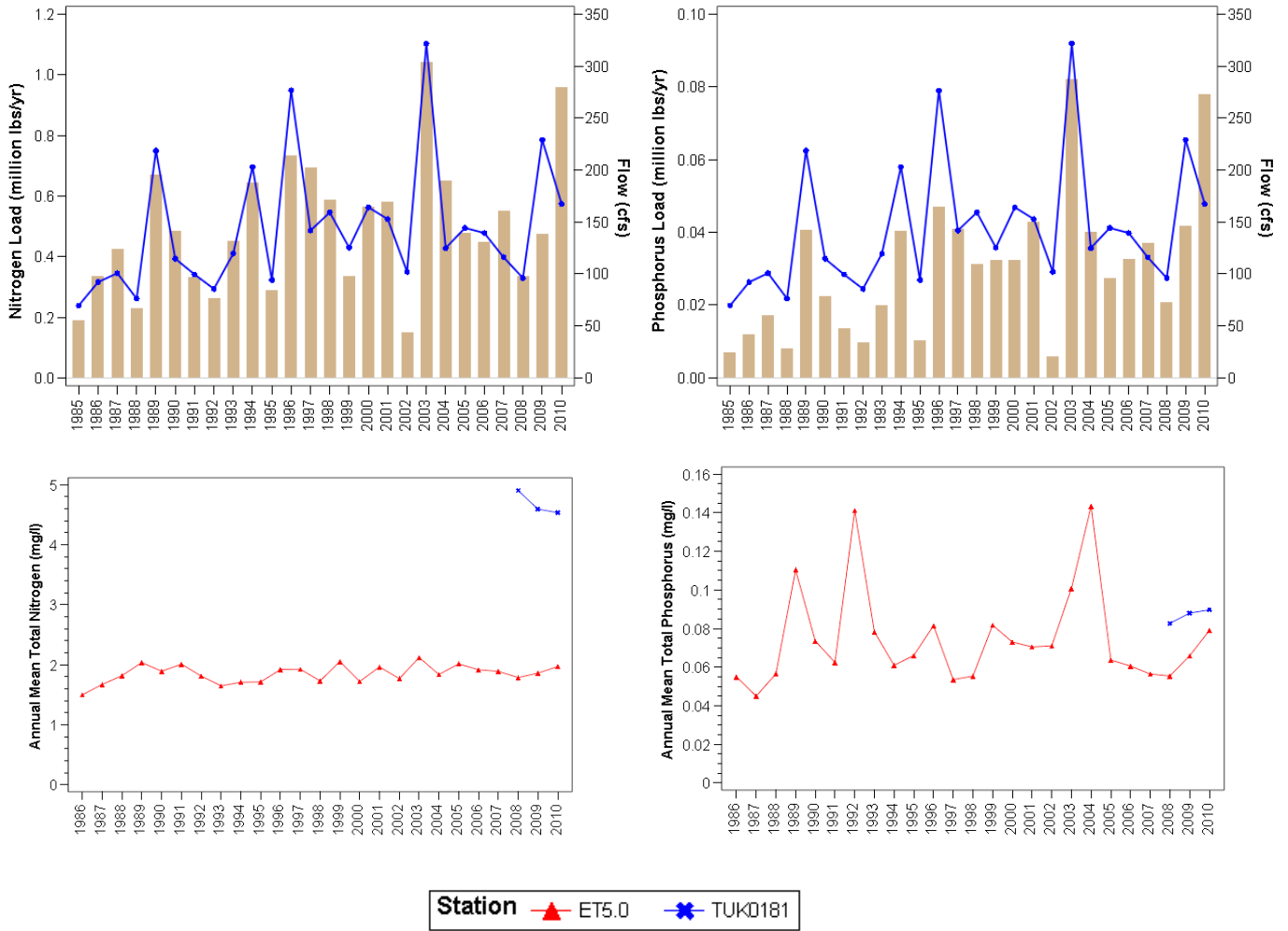


Figure 9. Annual nitrogen and phosphorus load and concentration for non-tidal stations in the Choptank River watershed.

Top graphs show annual nitrogen and phosphorus (tan bars, left axis) and flow (blue line, right axis) for Choptank River near Greensboro. Bottom graphs show annual mean concentrations for total nitrogen and total phosphorus at the Choptank and Tuckahoe Creek stations.

¹⁷ TN levels measured in the water may have increased from 1986-2010 at the Choptank River non-tidal station.

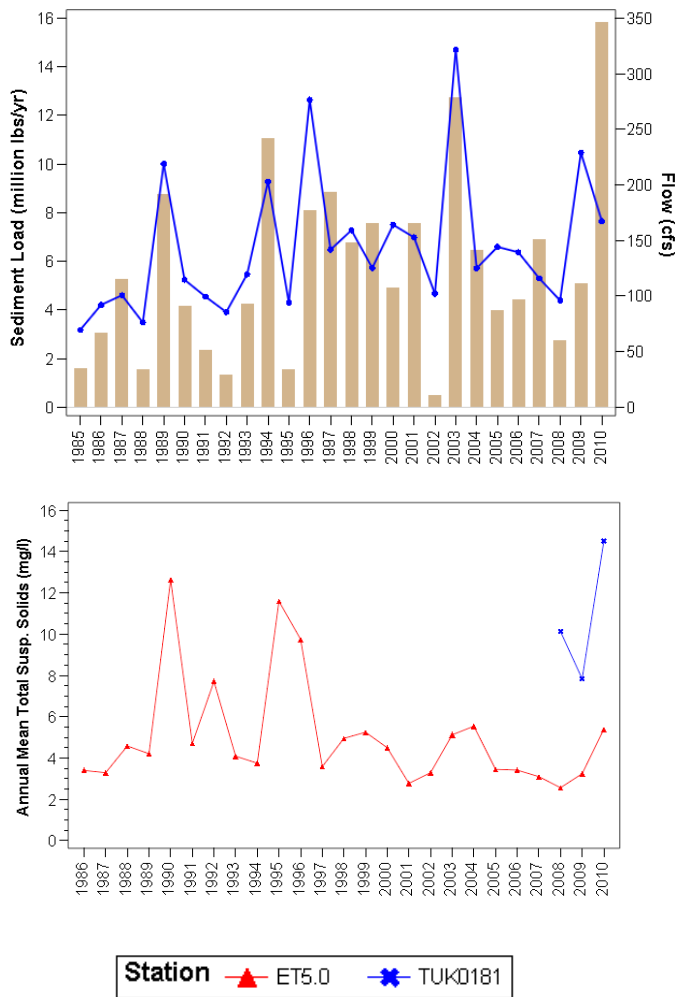


Figure 10. Annual sediment load and total suspended solids concentration for non-tidal stations in the Choptank River watershed.

Top graph shows annual sediment load (tan bars, left axis) and flow (blue line, right axis) for Choptank River near Greensboro. Bottom graph shows annual mean concentrations for total suspended solids at the Choptank and Tuckahoe Creek stations.

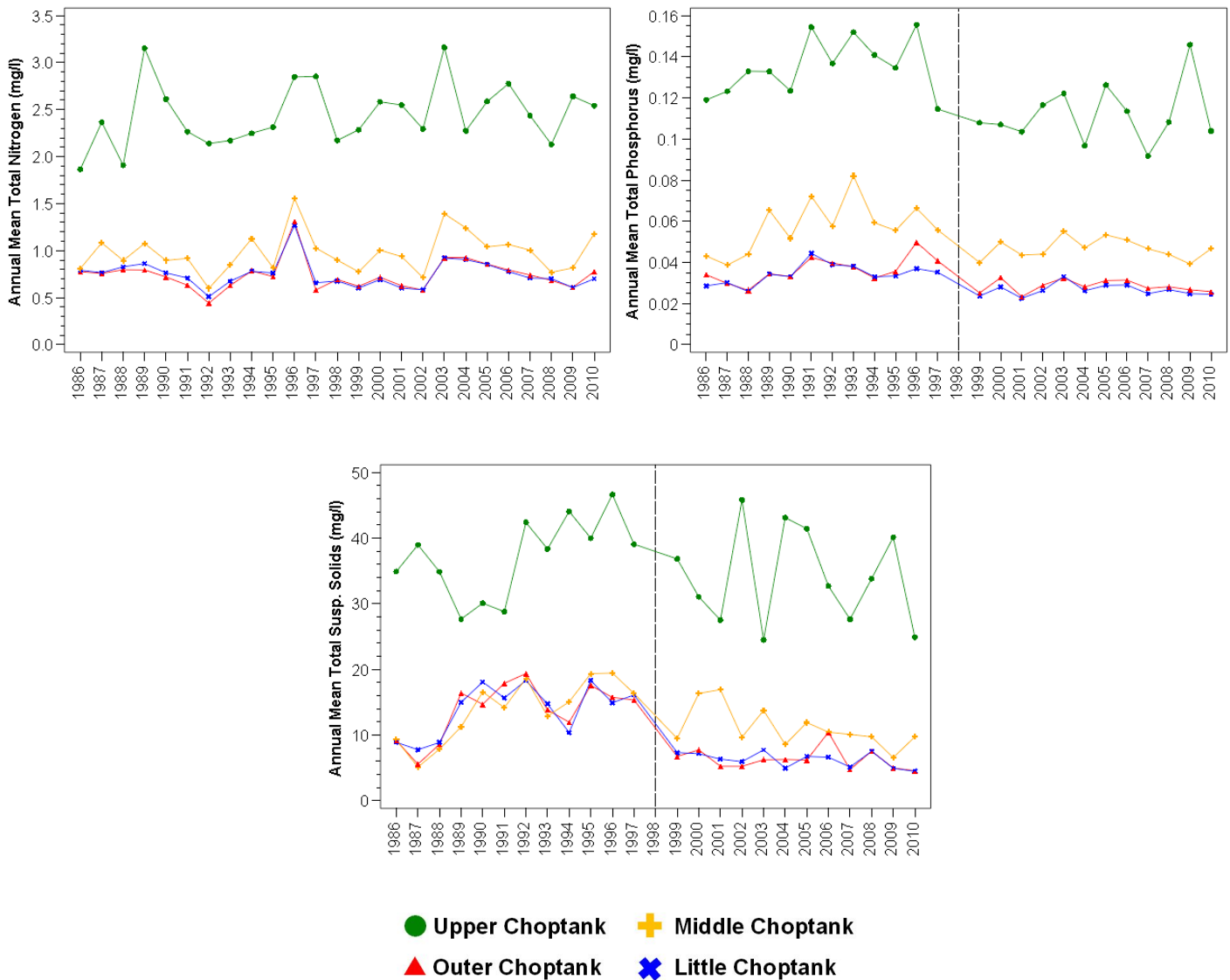


Figure 11. Annual means for total nitrogen, total phosphorus and total suspended solids in the Choptank and Little Choptank rivers. Dotted line (1998) indicates when the lab change occurred that may have impacted TP and TSS. Caution should be used in making comparisons for TP and TSS from before to after the lab change.

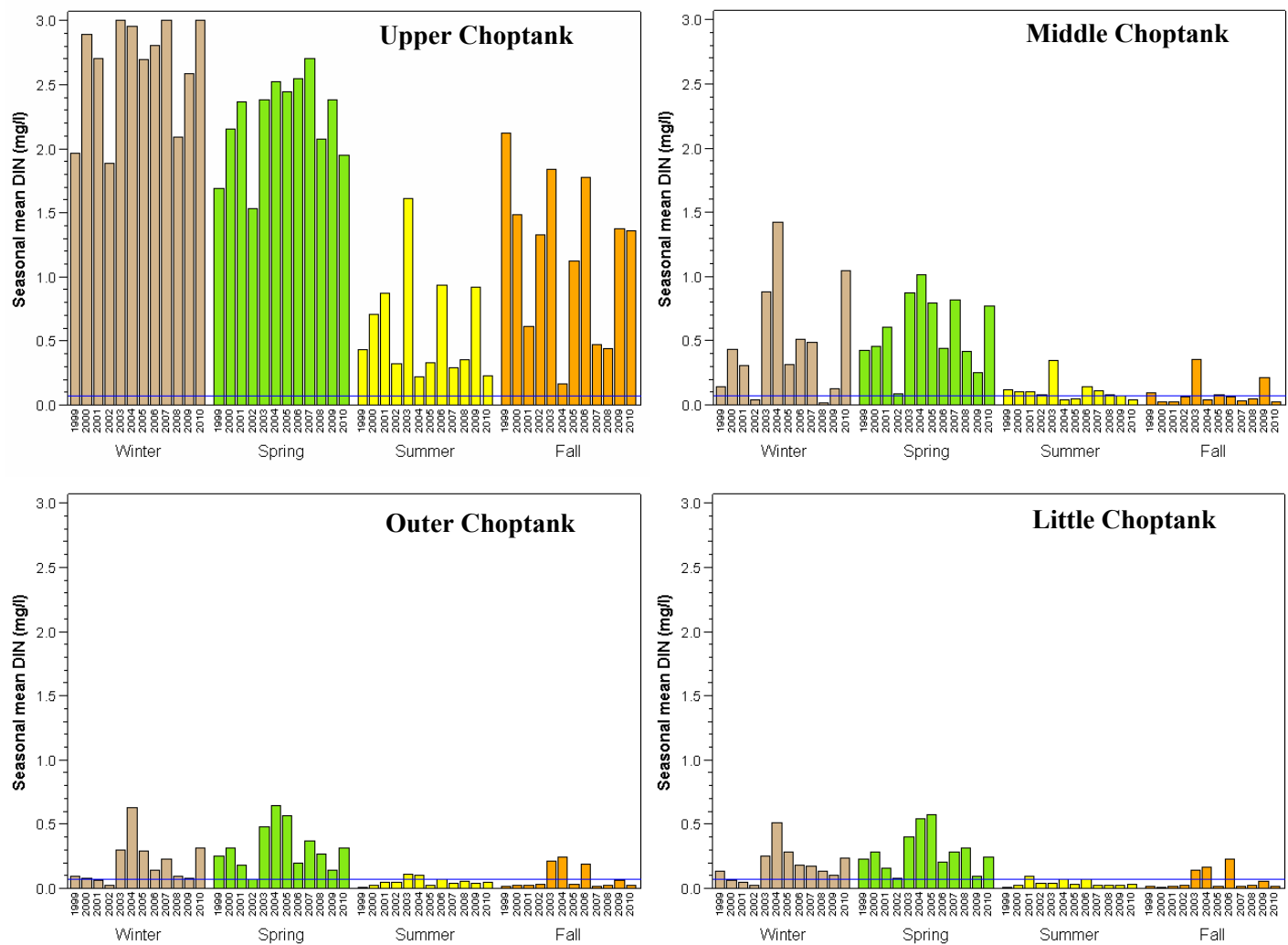


Figure 12. Mean dissolved inorganic nitrogen by season for the Choptank and Little Choptank rivers.

The blue line at 0.07 mg/l indicates the DIN level below which nitrogen limitation likely occurs. Winter season includes December (of the previous year), January and February. Spring season includes March-May. Summer season includes July-August (June is a transition month and not included). Fall season includes October and November. Biological nutrient removal of nitrogen at WWTPs is most effective in warmer months, and seasonal changes in phytoplankton populations (blooms in spring and fall) reduce DIN.

Upper Choptank River Watershed 2004-2013 Completed NPS Implementation Grant Projects										
Project Summary			Project Expenditures					Pollutant Load Reduction		
Area/Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
MDA / Caroline Soil Conservation District (SCD)	Upper Choptank Cover Crop Demo	2004	319 FFY03 #12	\$48,161.00	\$0	\$32,107.33	\$80,268.33	0	0	461.8
	Upper Choptank Cover Crop Demo	2005	319 FFY03 #21	\$114,000.00	\$0	\$76,000.00	\$190,000.00	23,097	642	0
	Agricultural Technical Assistance	2005	319 FFY04 #13	\$49,949.00	\$0	\$33,299.33	\$83,248.33	0	0	393.1
	Upper Choptank Cover Crop Demo	2006	319 FFY04 #20	\$150,000.00	\$0	\$100,000.00	\$250,000.00	19,465	458	0
	Agricultural Technical Assistance	2007	319 FFY04 #32	\$55,990.64	\$0	\$37,327.09	\$93,317.73	20,646.14	1,979.37	99.89
	Agricultural Technical Assistance	2006	319 FFY05 #9	\$39,167.70	\$0	\$26,111.80	\$65,279.50	9,139.8	1,461.3	23.84
	Upper Choptank Cover Crop Demo	2007	319 FFY05 #18	\$121,600.00	\$0	\$81,066.67	\$202,666.67	33,192	0	0
Caroline SCD	Agricultural Technical Assistance	2010	319 FFY07 #21	\$56,256.00	\$0	\$37,504.00	\$93,760.00	33,169.01	5,832.24	107.97
	Agricultural Technical Assistance	2009	319 FFY08 #2	\$48,314.98	\$0	\$32,209.99	\$80,524.97	82,140.24	2,707.31	41.2
Caroline Co.	DPW Stormwater Retrofits	2012	319 FFY10 #7	\$46,213.30	\$0	\$30,808.87	\$77,022.17	11.39	7.89	0.91
TOTAL for completed projects				\$729,652.62	\$0.00	\$486,435.08	\$1,216,087.70	220,860.6	13,088.1	1,128.71

Baseline year for watershed plan implementation is 2002. Pollutant load reductions reported that year and thereafter can be counted toward meeting watershed plan goals. The baseline year and plan goals are derived from the work of the Maryland Tributary Team for the Choptank River Basin. No TMDL for nutrients and/or sediment applied to this watershed at the time when the watershed plan was written

Table: 2014 Grant Project Activity - Upper Choptank River Watershed										
Project Summary			Project Funding					Projected Pollutant Load Reduction		
Lead	Name/Description	End Date	Grant Funding Source	Grant Funds		Non Federal Match	Total	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)
				Federal	State					
Caroline County	Upper Choptank Watershed Restoration	2014	319 FFY12 #6	\$130,781.17	\$0	\$87,187.45	\$217,968.62	8.01	0.85	0
	Upper Choptank Watershed Restoration	2014	319 FFY13 #6	\$138,378.63	\$0	\$92,252.42	\$230,631.05	16.06	2.69	0.23
Caroline County	Emergency Services Permeable Parking	TBD	319 FFY14 #6	\$133,770.00	\$0	\$119,798.00	TBD	TBD	TBD	TBD
	Greensboro Stream Restoration	TBD	Trust Fund SFY14	\$0	\$99,696.00	\$0	TBD	TBD	TBD	TBD
	Ganey's Wharf Public Landing	TBD	Trust Fund SFY14	\$0	\$4,220.00		TBD	2.87	0.2	0.03
	Levengood	TBD	Trust Fund SFY15	\$0	\$6,433.00		TBD	23	2	0
	Marydel Community Park	TBD	Trust Fund SFY14	\$0	\$21,240.00		TBD	148.19	6.45	1.29
	Ober Community Park	TBD	Trust Fund SFY14	\$0	\$8,453.00		TBD	5.89	0.25	0.04
	Voorhees	TBD	Trust Fund SFY15	\$0	\$17,638.00		TBD	1609	0	0
Denton	Sharp Road	TBD	Trust Fund SFY14	\$0	\$12,500.00		TBD	8.6	0.59	0.09
Mid Shore Riv Conserv.	Agricultural BMPs	TBD	Trust Fund SFY14	\$0	\$50,031.00	\$18,800.00	TBD	TBD	TBD	TBD

Table: Summary of Grant Projects Completed 2014 - Upper Choptank River Watershed										
			Grant Project Expenditures					Pollutant Load Reduction Reported		
			Grant Name	Federal Grants	State Grants	Non Federal Grants	Total Expenditures	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (tons/yr)
Completed Grant Projects	2014	319		\$269,159.80	\$0	\$179,439.87	\$448,599.67	24.07	3.54	0.2285
		Trust Fund		\$0	\$0	\$0	\$0	0	0	0
		TOTAL		\$269,159.80	\$0	\$179,439.87	\$448,599.67	24.07	3.54	0.2285
Active/incomplete Grant Projects	TBD	All Grants		\$133,770.00	\$220,211.00	\$138,598.00	\$0			

Maryland 319 Nonpoint Source Program 2014 Annual Report
Appendix - Watersheds

Table: Upper Choptank River Watershed Plan Implementation Progress Summary (1)

BMP	Goal	Units	2014 Progress (2)				Reported 2003 thru 2013 (2)				Cumulative 2003 Thru 2014				
			Units	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Units	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	Units	Nitrogen (lb/yr)	Phosphorus (lb/yr)	Sediment (ton/yr)	
Agricultural Lands	Cover Crops	50,000	acres/yr	0	0	0	0					0	0	0	0
	Cover Crops - commodity	15,000	acres/yr	0	0	0	0					0	0	0	0
	Buffers Forested	1,000	acres	0	0	0	0	0	0	0	0	0	0	0	0
	Buffers Grassed	5,500	acres	0	0	0	0	64.2	0	0	0	64.2	0	0	0
	Conservation Tillage	20,000	acres/yr	0	0	0	0	1,374.4				1,374.4	0	0	0
	Nutrient Management	48,000	acres	0	0	0	0	6,415.0	0	0	0	6,415.0	0	0	0
	Precision Agriculture	25,000	acres	0	0	0	0	0	0	0	0	0	0	0	0
	Retire Highly Erodible Land	500	acres	0	0	0	0	0	0	0	0	0	0	0	0
	SCWQ Plans	66,000	acres	0	0	0	0	4,699.9	0	0	0	4,699.9	0	0	0
	Wetland creation	1,200	acres	0	0	0	0	12.1	0	0	0	12.1	0	0	0
	Stream Protection w Fencing	130	acres	0	0	0	0	0	0	0	0	0	0	0	0
	Stream Protection w/o Fencing	32	acres	0	0	0	0	0	0	0	0	0	0	0	0
	Tree Planting	100	acres	0	0	0	0	0	0	0	0	0	0	0	0
	Animal Waste Mgmt - Livestoc	2	systems	0	0	0	0	1	0	0	0	1	0	0	0
	Animal Waster Mgmt - Poultry	4	systems	0	0	0	0	15	0	0	0	15	0	0	0
	Runoff Control	8	systems	0	0	0	0	2	0	0	0	2	0	0	0
	Pre-2013 Ag BMPs (3)								23,455.6	2,498.2	108		23,456	2,498	108
Developed Lands	Buffers Forested	60	acres	30	0	0	0	0	0	0	0	0	0	0	0
	Erosion & Sediment Control	895	acres/yr	29	0	0	0	0				0	0	0	0
	Nutrient Management	12,000	acres	0	0	0	0	0	0	0	0	0	0	0	0
	Stormwater Management	8,400	acres	3	0	0	0	6.9	0	0	0	9.9	0	0	0
	OSDS Denitrification	5,051	systems	154	0	0	0	0	0	0	0	0	0	0	0
	Septic connections to WWTP	750	systems	125	0	0	0	0	0	0	0	0	0	0	0
	Pre-2013 Urban BMPs (3)							30	675	185	19	30	675	185	19
TOTAL				0	0	0		24,130.6	2,683.2	127		24,130.6	2,683.2	127	
1) 2014 is calendar year. Shaded blanks mean not applicable. Zero may mean progress not reported.											Completed 319-funded NPS Projects (3)		220,860.6	13,088.1	1,128.71
2) Ag BMP units implemented were frequently not reported or under-reported in prior year's projects. Pollutant reductions were either not reported or were reported in aggregate for all BMPs that year.											TOTAL Cumulative Reduction		244,991.2	15,771.3	1,255.7
											Watershed Plan Goal		704,000	34,500	NA
3) NPS implementation (319 and non-319) completed prior the watershed plan commonly reported sufficient information to include here but not in specific BMP categories above.											Percent of Goal Achieved		34.8	45.7	