

Non-tidal network monitoring update for calendar year 2011

Bill Romano
MD Dept. of Natural Resources



Non-tidal Monitoring Workgroup

8 February 2011



Photograph by Laura J. Fabian

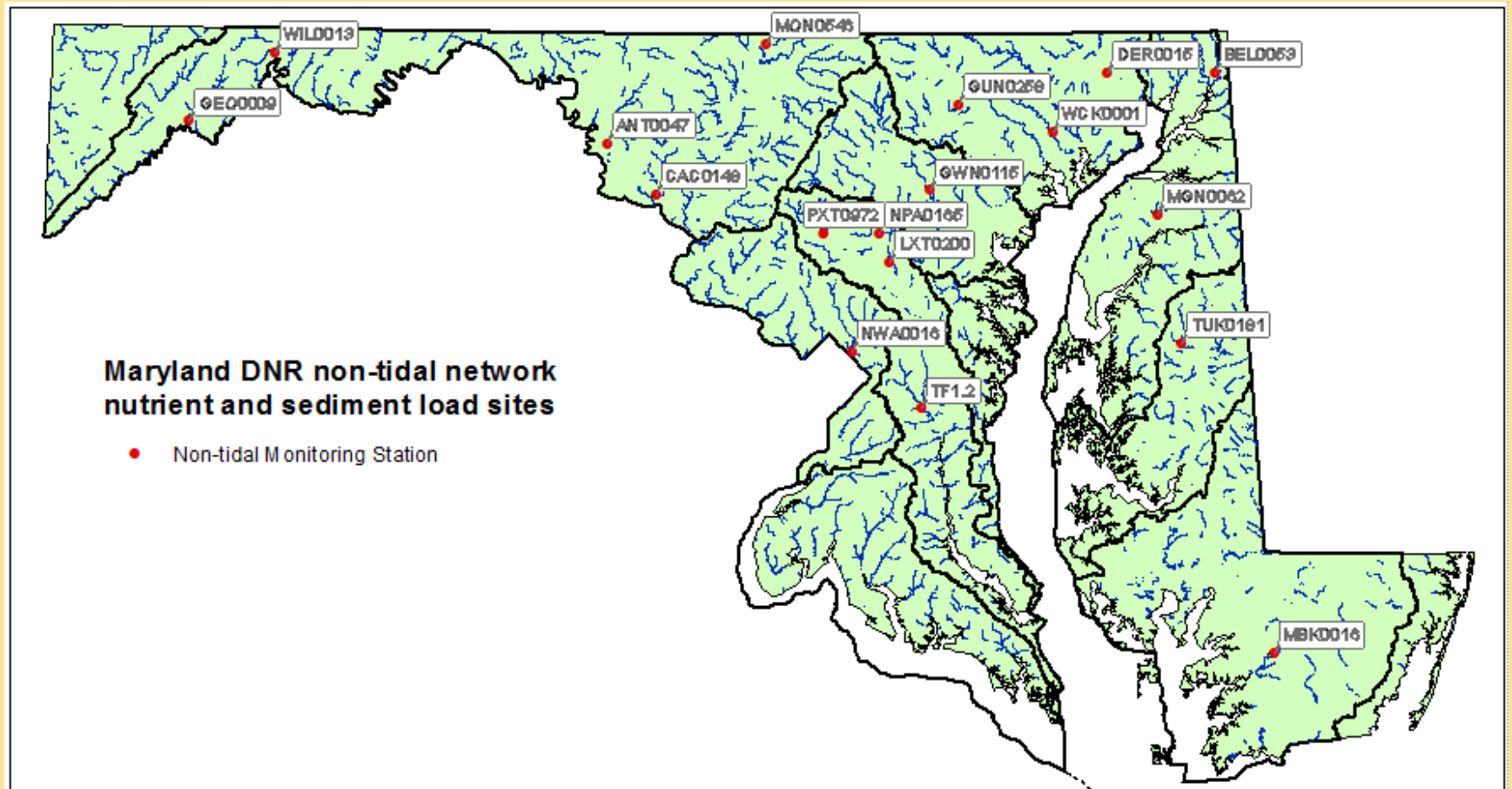
Monitoring sites

Station name	Stream	USGS gage	Station type
ANT0047	Antietam Creek	01619500	Primary
BEL0053	Big Elk Creek	01495000	Primary
GWN0115	Gwynns Falls	01589300	Primary
DER0015	Deer Creek	01580520	Primary
NPA0165	North Branch Patapsco River	01586000	Primary
TF1.2	Western Branch	01594526	Primary
MON0546	Monocacy River	01639000	Primary
TUK0181	Tuckahoe Creek	01491500	Primary
WIL0013	Wills Creek	01601500	Primary

Monitoring sites (continued)

Station name	Stream	USGS gage	Station type
GEO0009	Georges Creek	01599000	Primary
GUN0258	Gunpowder River	01582500	Primary
PXT0972	Patuxent River	01591000	Primary
CAC0148	Catoctin Creek	01637500	Primary
MGN0062	Morgan Creek	01493500	Primary
WCK0001	Wheel Creek	015875320	Primary
MBK0016	Manokin Branch	01486000	Primary
NWA0016	Northwest Branch Anacostia River	01651000	Primary
LTX0200	Little Patuxent River	01593500	Primary

Station locations



Parameters monitored

- Nutrients
 - Total dissolved nitrogen
 - Ammonia
 - Nitrite + nitrate
 - Nitrite
 - Orthophosphate
 - Total dissolved phosphorus
 - Particulate phosphorus
 - Particulate nitrogen
- General chemistry
 - Dissolved oxygen
 - pH
 - Conductivity
 - Water temperature
 - Total suspended solids
 - Particulate carbon
 - Dissolved organic carbon
 - Total suspended sediment
 - Sand concentration
 - Fines concentration

Quarterly sampling results

January - March

Station	January		February		March		Total Routine	Total Storm
	Routine	Storm	Routine	Storm	Routine	Storm		
ANT0047	1		1		1	2	3	2
BEL0053	1		1	2	1	1	3	3
DER0015	1		1	2	1	1	3	3
GEO0009	1		1	3	1	1	3	4
GWN0115	1		1	2	1	1	3	3
NPA0165	1		1	1	1	2	3	3
MON0546	1		1	2	1	2	3	4
TF1.2	1		1	1	1	2	3	3
TUK0181	1		1	1	1	2	3	3
WIL0013	1		1	3	1		3	3
CAC0148	1		1		1	2	3	2
GUN0258	1		1		1	1	3	1
PXT0972	1		1	1	1	1	3	2
Total	13		13	18	13	18	39	36

Quarterly sampling results

April - June

Station	April		May		June		Total Routine	Total Storm
	Routine	Storm	Routine	Storm	Routine	Storm		
ANT0047	1	3	1		1		3	3
BEL0053	1	1	1		1	1	3	2
DER0015	1	1	1		1	1	3	2
GEO0009	1		1	1	1	1	3	2
GWN0115	1	2	1		1		3	2
NPA0165	1	1	1		1		3	1
MON0546	1	2	1		1		3	2
TF1.2	1	1	1		1	1	3	2
TUK0181	1	1	1		1		3	1
WIL0013	1	2	1		1		3	2
CAC0148	1	1	1		1		3	1
GUN0258	1	2	1	1	1		3	3
PXT0972	1	1	1		1		3	1
Total	13	16	13	2	13	4	39	24

Quarterly sampling results

July - September

Station	July		August		September		Total	Total
	Routine	Storm	Routine	Storm	Routine	Storm	Routine	Storm
ANT0047	1		1	1	1	1	3	2
BEL0053	1		1	2	1		3	2
DER0015	1		1	1	1	1	3	2
GEO0009	1		1	2	1	1	3	3
GWN0115	1	1	1	2	1	1	3	4
NPA0165	1		1	2	1	1	3	3
MON0546	1		1	1	1	1	3	2
TF1.2	1	2	1	2	1		3	4
TUK0181	1	1	1	2	1		3	3
WIL0013	1		1	1	1	1	3	2
CAC0148	1		1	2	1	1	3	3
GUN0258	1		1	3	1	1	3	4
PXT0972	1	1	1	1	1	1	3	3
Total	13	5	13	22	13	10	39	37

Quarterly sampling results

October - December

Station	October		November		December		Total	Total
	Routine	Storm	Routine	Storm	Routine	Storm	Routine	Storm
ANT0047	1		1	1	1	1	3	2
BEL0053	1		1	1	1		3	1
DER0015	1		1		1	2	3	2
GEO0009	1	1	1		1		3	1
GWN0115	1	1	1		1	1	3	2
NPA0165	1	1	1		1	1	3	2
MON0546	1	2	1		1		3	2
TF1.2	1	1	1	1	1		3	2
TUK0181	1	1	1		1	1	3	2
WIL0013	1	1	1		1		3	1

Quarterly sampling results

October – December (continued)

Station	October		November		December		Total	Total
	Routine	Storm	Routine	Storm	Routine	Storm	Routine	Storm
CAC0148	1	1	1	1	1	1	3	3
GUN0258	1		1		1	2	3	2
PXT0972	1		1		1	2	3	2
LTX0200	1	1	1		1	1	3	2
MGN0062	1		1	2	1		3	2
NWA0016	1	2	1		1		3	2
WCK0001	1	1	1	1	1		3	2
MBK0016	1		1	1	1		3	1
Total	18	13	18	8	18	12	54	33

Annual sampling summary

January - December

Station	Routine	Storm
ANT0047	12	9
BEL0053	12	8
DER0015	12	9
GEO0009	12	10
GWN0115	12	11
NPA0165	12	9
MON0546	12	10
TF1.2	12	11
TUK0181	12	9
WIL0013	12	8

Annual sampling summary

January – December (continued)

Station	Routine	Storm
CAC0148	12	9
GUN0258	12	10
PXT0972	12	8
LTX0200	3	2
MGN0062	3	2
NWA0016	3	2
WCK0001	3	2
MBK0016	3	1
Total	171	130
Percent of goal met	100%	114%

Funding sources

- 117d grant – funds ten sites
- 106 grant – upgraded three sites from secondary to primary
- Maryland general funds – cooperatively funds flow gages on Big Elk Creek, Tuckahoe Creek, and the Monocacy River (jointly with PA)

Challenges and concerns

- Given current and expected funding levels, will the network reach the monitoring goals outlined during the MRAT process, or is further expansion planned
- Are funding sources available long enough to obtain meaningful results (five years for loads, ten years for trends)