

# CHESAPEAKE BAY PROGRAM WATERSHED MODEL ANALYSIS

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WRTC Meeting  
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Metropolitan Washington  
Council of Governments

# Current Status

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- Phase 6 watershed model now (mostly) final
  - Full range of scenarios available on CAST, including 1984 – 2014 Progress runs, two WIP2 scenarios and 2010 No Action and E3 scenarios
  - <https://cast.chesapeakebay.net/>
  - A few scenarios, including more recent progress runs and 2025 scenarios, still to be added or slightly updated



# Phase 6 vs 5.3.2 Comparison

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- Used 2013 progress runs
  - Should be representative of changes in general
- Compared P 5.3.2 delivered loads to P6 edge of tide loads – same thing
- Used two different geographic scales
  - MD-statewide / VA–statewide / DC
  - MD-Potomac / VA–Potomac / DC
- Only looked at loads by source sector: wastewater, septic, urban, agriculture, natural



# Questions

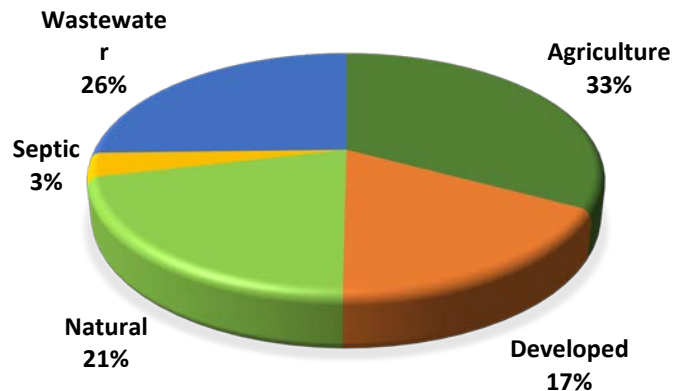
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- Phase 6 has made significant changes from previous versions
  - New structure, loading formulas, land use, BMPs, etc.
- What are the implications for the Phase 3 WIPs?
  - Do urban sources have the same level of effort, more or less?
  - Are we getting the same amount of credit for BMPs as we were before?
  - Is reaching nitrogen reduction targets still the biggest challenge (as compared to phosphorus or sediment)?

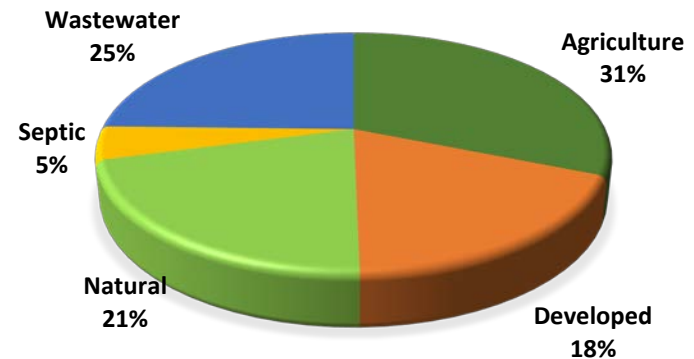


# Virginia Statewide

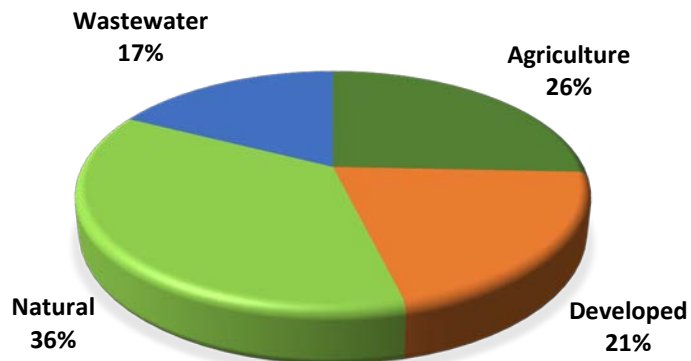
**PHASE 6 VA TN**



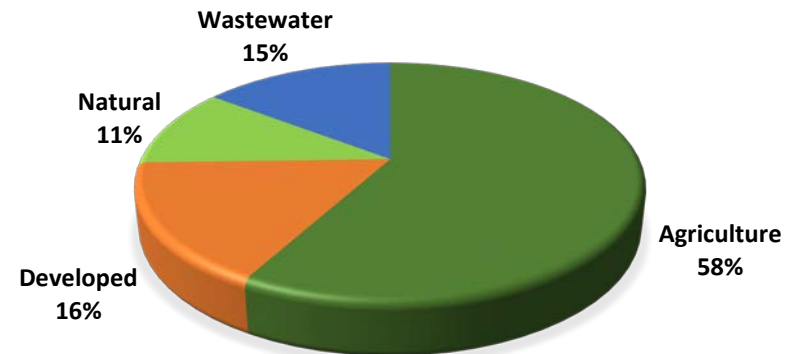
**PHASE 5.3.2 VA TN**



**PHASE 6 VA TP**

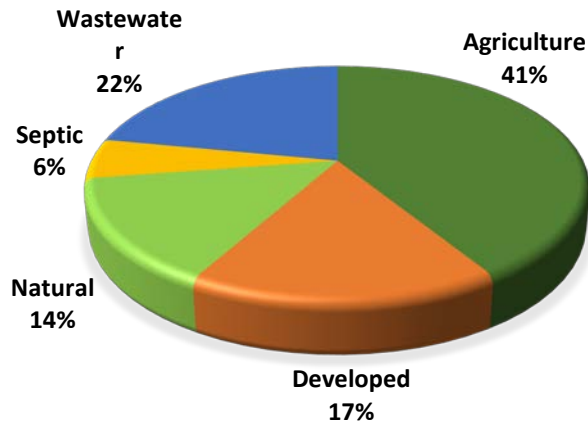


**PHASE 5.3.2 VA TP**

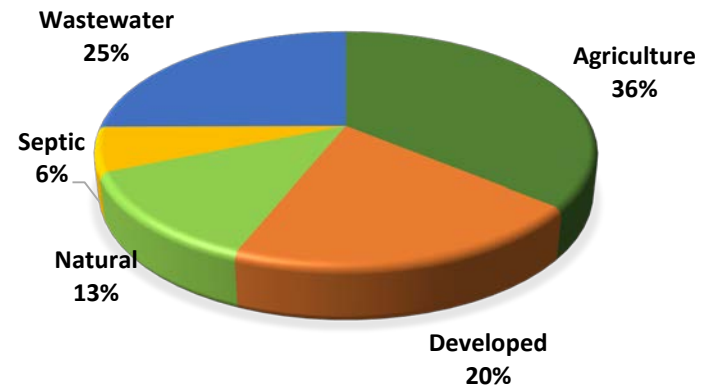


# Maryland Statewide

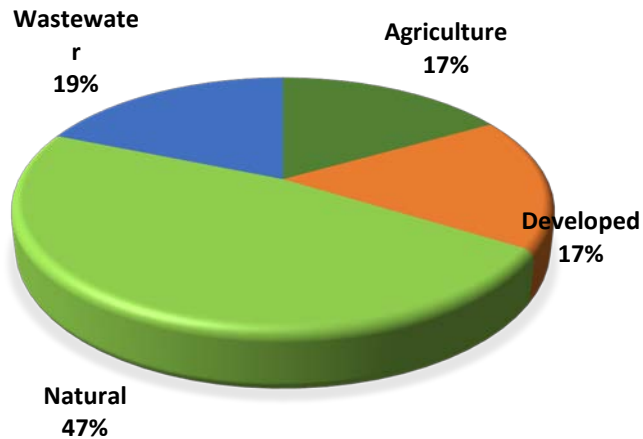
**PHASE 6 MD TN**



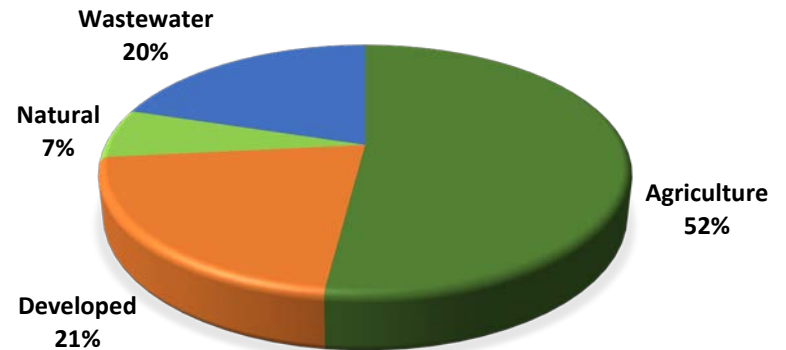
**PHASE 5.3.2 MD TN**



**PHASE 6 MD TP**

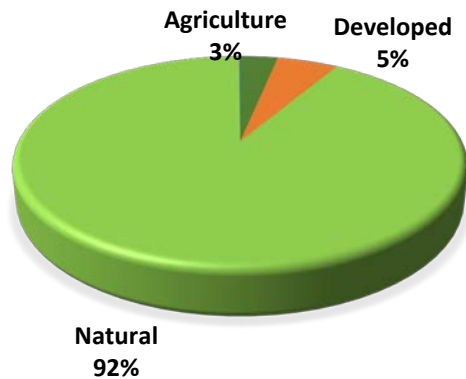


**PHASE 5.3.2 MD TP**



# Maryland and Virginia Statewide - Sediment

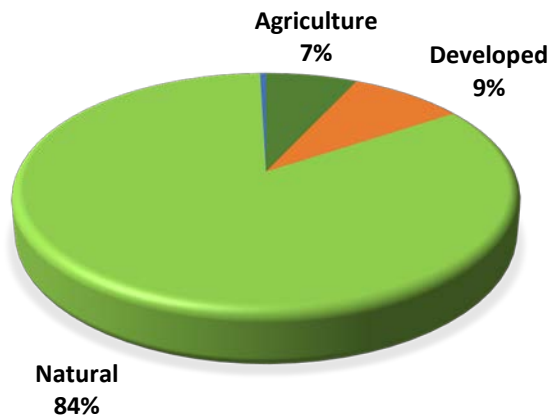
**PHASE 6 MD SEDIMENT**



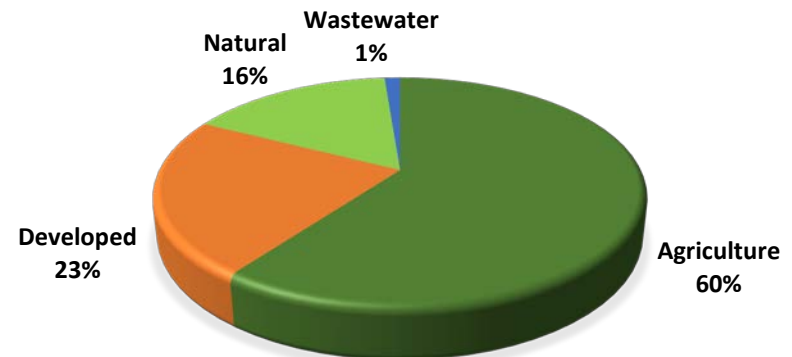
**PHASE 5.3.2 MD SEDIMENT**



**PHASE 6 VA SEDIMENT**

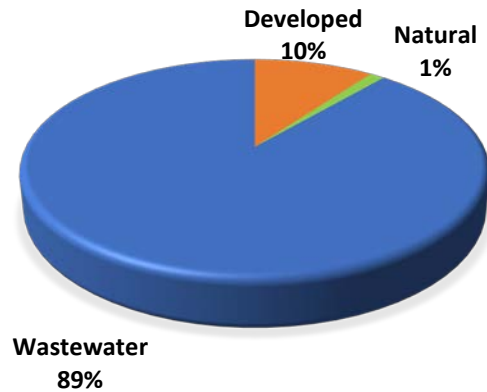


**PHASE 5.3.2 VA SEDIMENT**

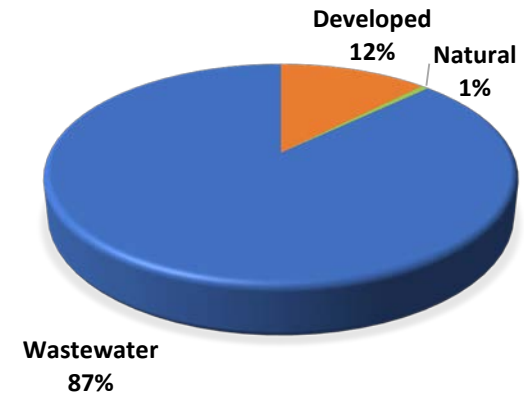


# District of Columbia

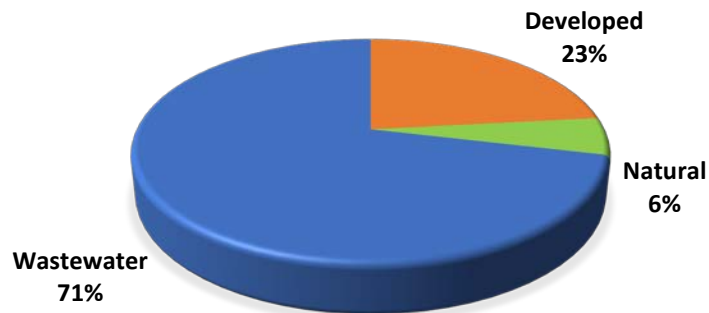
**PHASE 6 DC TN**



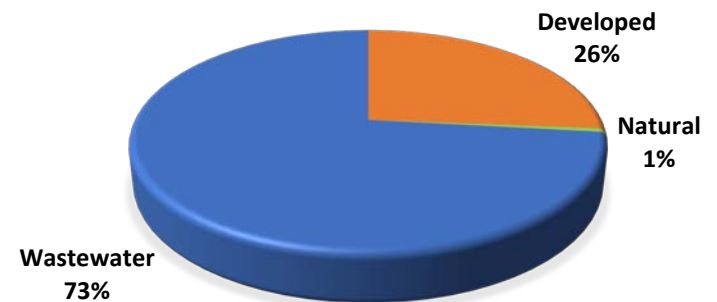
**PHASE 5.3.2 DC TN**



**PHASE 6 DC TP**



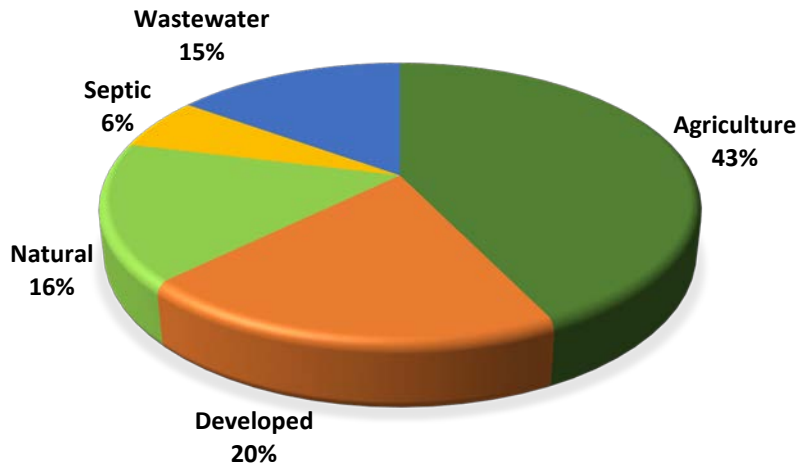
**PHASE 5.3.2 DC TP**



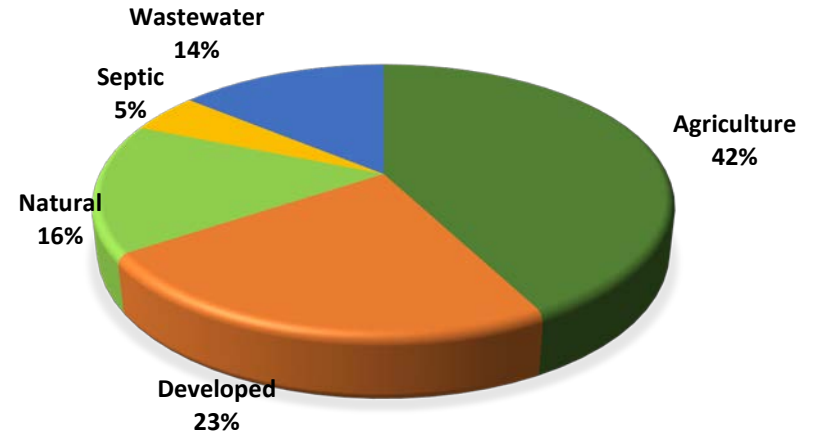


# Maryland Potomac

**PHASE 6 POTOMAC MD TN**

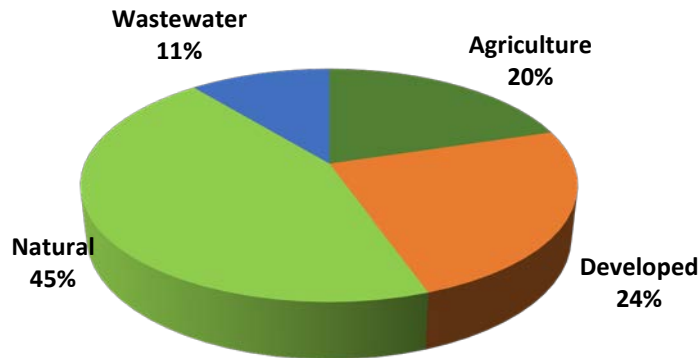


**PHASE 5.3.2 POTOMAC MD TN**

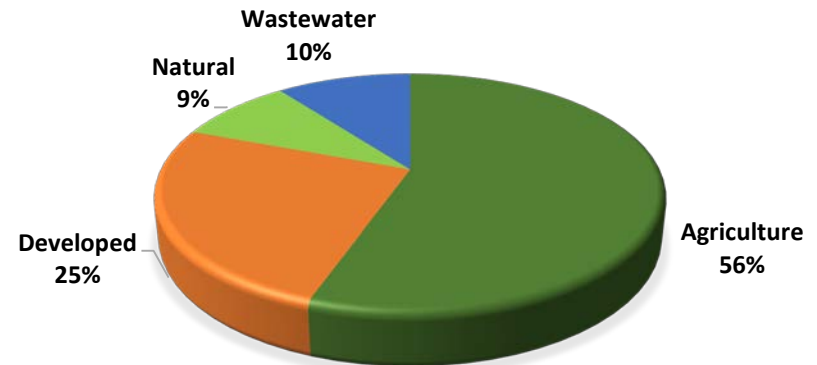


# Maryland Potomac

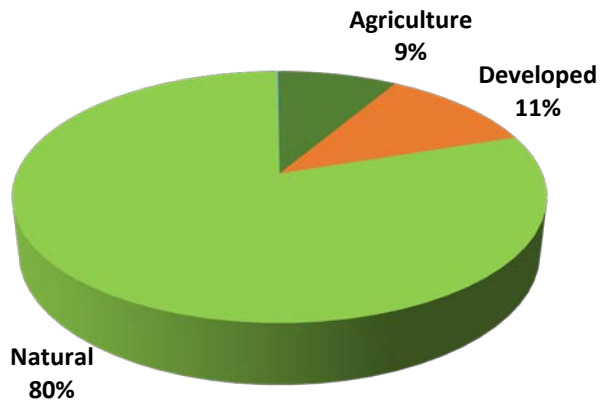
**PHASE 6 POTOMAC MD TP**



**PHASE 5.3.2 POTOMAC MD TP**



**PHASE 6 POTOMAC MD SEDIMENT**

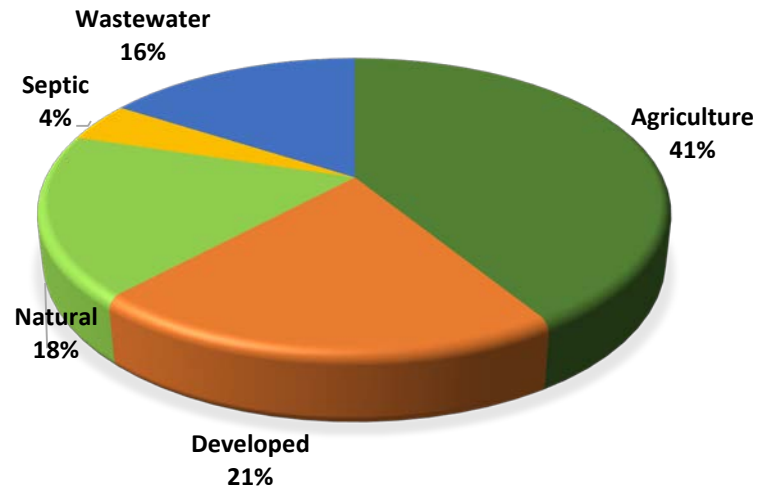


**PHASE 5.3.2 POTOMAC MD SEDIMENT**

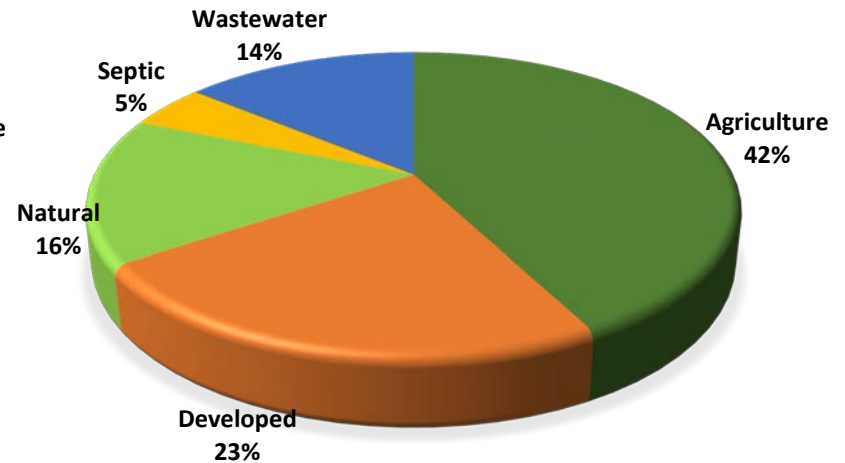


# Virginia Potomac

**PHASE 6 POTOMAC VA TN**

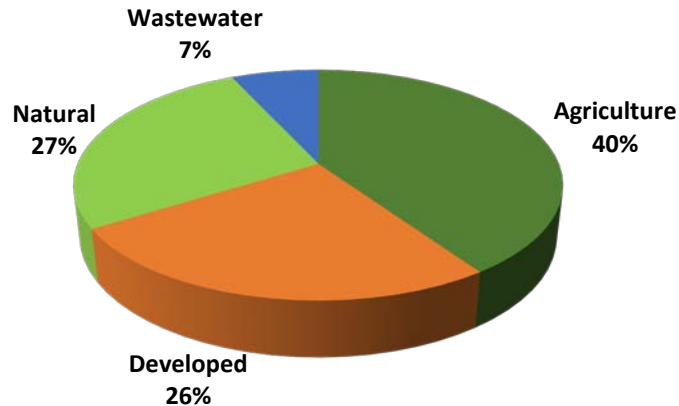


**PHASE 5.3.2 POTOMAC VA TN**



# Virginia Potomac

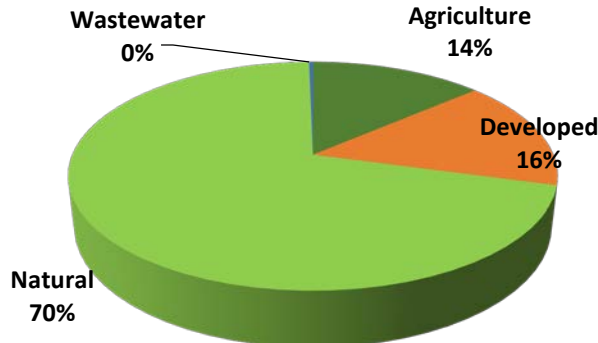
**PHASE 6 POTOMAC VA TP**



**PHASE 5.3.2 POTOMAC VA TP**



**PHASE6 POTOMAC VA SEDIMENT**



**PHASE 5.3.2 POTOMAC VA SEDIMENT**



# Total Loads by Source Sector

## State Potomac basins

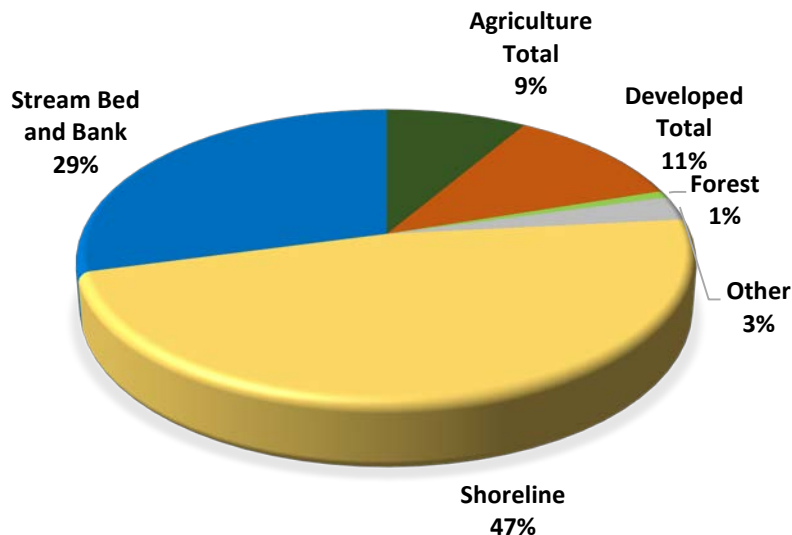
Potomac River Phase 6: 2013 Progress			
	TN (million lbs/year)	TP (thousand lbs/year)	Sediment (million lbs/year)
DC			
Agriculture	0.00	0.00	0.00
Developed	0.18	14.54	21.56
Natural	0.02	3.36	16.84
Septic	0.00	0.00	0.00
Wastewater	1.56	44.52	2.95
DC Total	1.75	62.42	41.35
MD			
Agriculture	7.36	195.18	155.83
Developed	3.41	234.31	207.92
Natural	2.78	428.17	1460.69
Septic	1.05	0.16	0.00
Wastewater	2.58	105.34	2.20
MD Total	17.19	963.15	1826.64
VA			
Agriculture	7.20	793.50	259.09
Developed	3.62	506.24	297.31
Natural	3.12	529.41	1339.12
Septic	0.76	0.38	0.00
Wastewater	2.77	135.60	5.73
VA Total	17.47	1965.13	1901.26

Potomac River Phase 5.3.2: 2013 Progress			
	TN (million lbs/year)	TP (thousand lbs/year)	Sediment (million lbs/year)
DC			
Agriculture	na	na	na
Developed	0.13	6.85	10.88
Natural	0.01	0.13	0.23
Septic	0.00	0.00	0.00
Wastewater	1.54	43.62	2.90
DC Total	1.68	50.60	14.01
MD			
Agriculture	6.08	463.90	374.33
Developed	3.36	211.51	189.25
Natural	2.24	74.83	63.49
Septic	0.68	0.00	0.00
Wastewater	2.01	86.34	4.03
MD Total	14.38	836.57	631.10
VA			
Agriculture	7.48	1684.55	647.85
Developed	4.53	333.20	277.96
Natural	2.95	130.09	99.56
Septic	0.63	0.00	0.00
Wastewater	2.29	111.45	9.57
VA Total	17.88	2259.30	1034.93

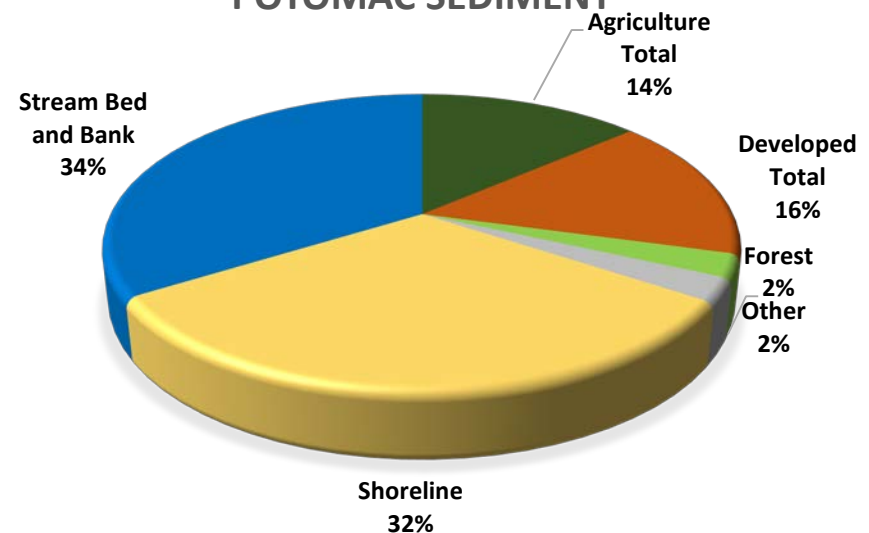


# MD and VA Potomac Basin: Sediment by Source (Phase 6 only)

PHASE 6: 2013 PROGRESS MD  
POTOMAC SEDIMENT



PHASE 6: 2013 PROGRESS VA  
POTOMAC SEDIMENT



“Other” category includes headwater or isolated wetland, non-tidal floodplain wetland, mixed open, water, and wastewater



# Next Steps

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- COG-NVRC watershed model session
  - April – date to be determined
- What do members want to focus on?
  - Further analysis of model changes
    - 5.3.2 vs. 6
    - BMP impacts
  - Gap analysis
  - How to use model analysis tools - CAST

