Developing Virginia's Watershed Implementation Plans

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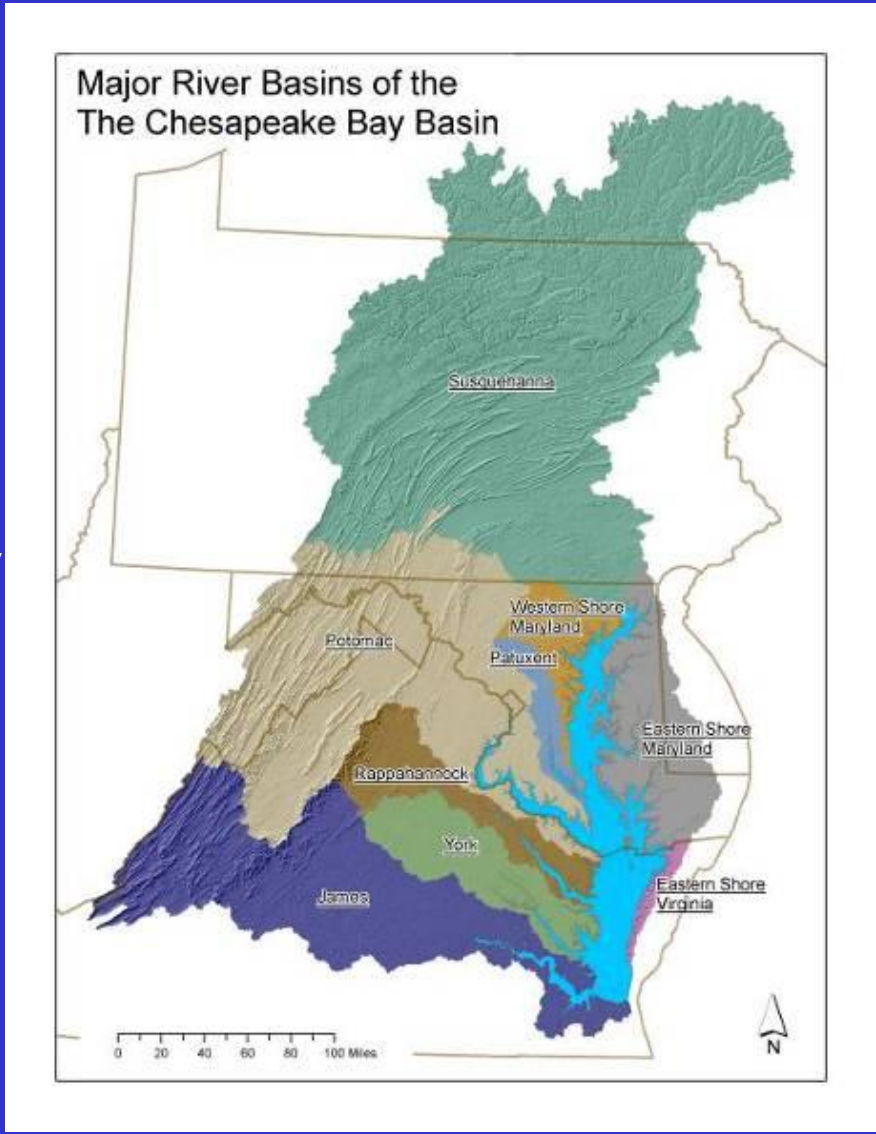
Chesapeake Bay TMDL

- EPA sets pollution diet to meet states' Bay clean water standards
- Caps on nitrogen, phosphorus and sediment loads for all 6 Bay watershed states and DC
- States allocate loads to point and non-point sources so not to exceed TMDL cap [i.e., diet]



Watershed Implementation Plans

- EPA expects States to develop Plans that provide roadmap of how TMDL will be achieved and maintained
- Challenge is for States to equitably allocate nutrient and sediment loads to source sectors, such as:
  - Wastewater, municipal and industrial
  - Agriculture
  - Storm Water
  - On-site septic systems
  - Forest
- Some sectors are regulated, some are not
- All sectors very concerned over impact TMDL allocations will have on their future activities and costs

Virginia TMDL Stakeholder Advisory Group

Membership

- Formed under previous administration
- 36 members representing agriculture, wastewater, developed and developing lands, local and federal government, NGOs, seafood industry and consultants

Charge

- Provide for a transparent process, a forum for open discussion, advice on pollutant load reductions by sector and on the ability of current, expanded, and new programs to achieve needed pollution reductions

SAG has met twice, primarily for information exchange; next meeting scheduled for April 15

Watershed Implementation Plans Eight Elements

1. Interim and Final Nutrient and Sediment Target Loads
2. Current Loading Baseline and Program Capacity
3. Account for Growth
4. Gap Analysis
5. Commitment and Strategy to Fill Gaps
6. Tracking and Reporting Protocols
7. Contingencies for Slow or Incomplete Implementation
8. Appendix with Detailed Targets and Schedule

Illustration of
Draft WIP
Using Wastewater Sector

WIP – Element #1:

Interim and Final Nutrient and Sediment Target Loads

- Significant Dischargers:
  - Total Nitrogen = 18.44 MPY*
  - Total Phosphorus = 1.68 MPY*

→ Allocations based on WQMP regulation adopted in 2005 with subsequent amendments and contained in Watershed GP

- Non-significant Municipal and Industrial Dischargers
  - Total Nitrogen = XX.X MPY
  - Total Phosphorus =XX.X MPY

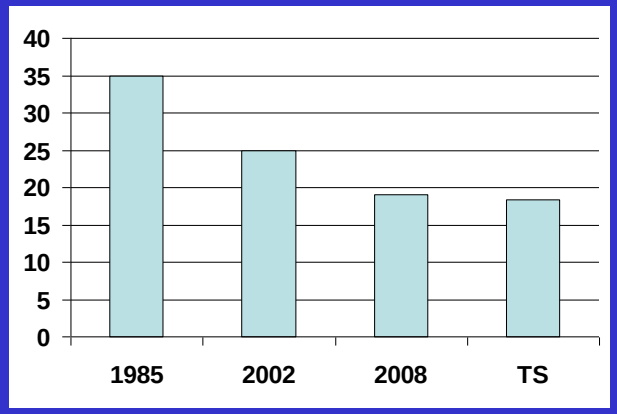
→ Allocations based on procedure in VA Code adopted in 2005 to maintain load cap upon plant expansion; data being compiled; expect WLAs for municipals ~5% of allocations of significant dischargers

*These loads are "delivered loads" using CBP Watershed Model 5.2; TMDL allocations will be expressed as delivered loads based on model run that achieves water quality standards using WSM 5.3

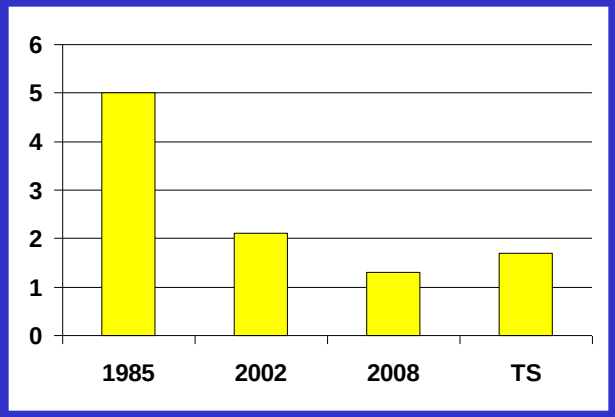
WIP – Element #2:

Current Loading Baseline and Program Capacity

Wastewater – Nitrogen [MPY]



Wastewater – Phosphorus [MPY]



<u>Program Capacity</u> - Basis for waste load allocations for wastewater dischargers contained in VA Code [§62.1-44.19:12] and two regulations: Water Quality Mgmt Planning Regulation [9 VAC 25-720] and Chesapeake Bay Watershed General Permit Regulation [9 VAC 25-820].

WIP – Element #3:

Account for Growth

- EPA provides two approaches:
  - Designate explicit target loads in TMDL for anticipated growth; this decreases allocations available for existing sources; OR,
  - Do not designate explicit target loads for growth, but “offset” any new or increased loads in the future with reductions elsewhere

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- VA Code and regulation provides for combination of these approaches for wastewater:
  - Allocations set at 2010 design capacity of wastewater plants to recognize planning and investment made to provide wastewater treatment for future growth into foreseeable future
  - Regulatory nutrient caps call for offsetting new loads from future expansions of existing wastewater plants
  - VA Code calls for no allocation provided for new wastewater plants
    - 2005 legislation: this applies to only new plants > 40,000 gpd
    - 2010 legislation: this applies to only new plants > 1,000 gpd

WIP – Element #4:

Gap Analysis

- EPA expects states to identify gaps between current capacity and the capacity necessary to fully attain the interim and final target loads.

- Current VA law, regulation and permits generally provide the assurance needed to meet the wastewater nutrient target loads
- 2010 VA General Assembly provided new authorities:
  - HB1290 - Eastern Shore facilities can acquire credits from facilities in Potomac and Rappahannock basins
  - HB1135 – New dischargers [>1,000 gpd but < 39,999 gpd] commencing to discharge after January 1, 2011 must offset nutrient loads
- Remaining issues for small dischargers:
  - Existing dischargers that expand to <40,000 gpd are not included
  - New dischargers < 1,000 gpd [SFH] are not included

WIP – Element #5:

Commitment and Strategy to Fill Gaps

- EPA expects states to develop and commit to a strategy to systematically fill gaps identified

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- Wastewater dischargers operate under permit; Commonwealth's overall commitment of ensuring compliance is through these permits

- Options for existing small dischargers expanding to under 40,000 gpd:
  - Seek legislation to set allocations based on existing design capacity; future expansions would be treated like other non-significant dischargers that need to offset beyond existing capacity, or;
  - Assign allocation to each of these discharges based on 40,000 gpd; this will use more of the existing allocation compared to first option

- Options for small dischargers < 1,000 gpd [Single Family Homes]:
  - Provide allocations in TMDL for all existing AND NEW dischargers <1,000 gpd, or:
  - Possibly seek legislation setting up program that provides offsets for new SFH dischargers
  - NOTE: should coordinate with approach used for on-site systems for SFHs

WIP – Element #6:

Tracking and Reporting Protocols

- Wastewater dischargers are required to track and report under their discharge permits [Watershed General Permit or individual permits]

- Under Nutrient Credit Exchange Program, DEQ is required to report results of wastewater nutrient loads by April 1 of each year for the prior year annual loads

WIP – Element #7:

Contingencies for Slow or Incomplete Implementation

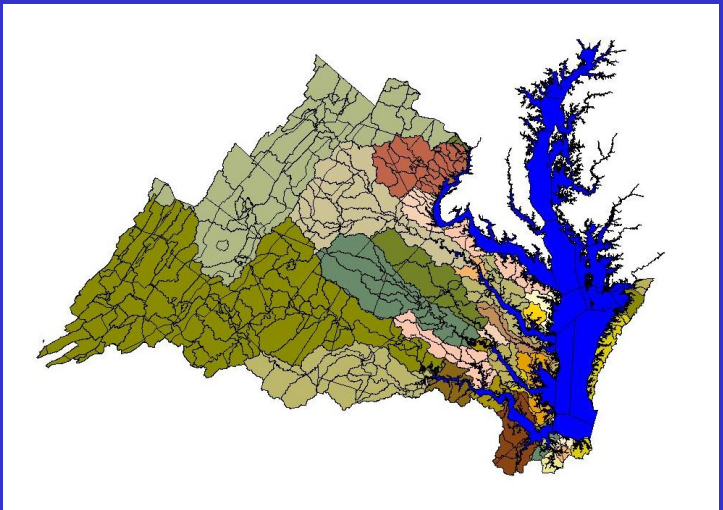
- Compliance and Enforcement Program for wastewater permit requirements is the mechanism to ensure timely implementation to achieve waste load allocations

- <u>Contingency: Offsets among source sectors</u>
  - Assessing compliance with 2-year milestones based upon total loadings, not by compliance with individual source sector allocations
  - Wastewater treatment plants can operate below their assigned allocations:
    - During early years, treatment efficiency is better while wastewater flows are below the design capacity
    - Operating to meet permitted nutrient concentrations attainable by installed technology
  - Excess “credits” from the wastewater sector can be used to offset loads in other sectors that exceed their allocations; this will aid in meeting the Commonwealth’s overall target load for the 2 year milestone period

WIP – Element #8:

Appendix with Detailed Targets and Schedule

- Wastewater targets loads will be included in the TMDL for the segment shed where the facility is located; there are 40[?] segment sheds in Virginia



- Schedule for meeting the wastewater nutrient allocations is contained in the Watershed General Permit

Role of Costs and Benefits in Developing VA WIP

- EPA guidance for WIPs expects states to include projected funding needed to close any gaps
- Under VA Code, TMDL Implementation Plans are to include "…associated costs, benefits, and environmental impact of addressing impairment…"
- Investment by Wastewater Sector:
  - >$1.5 billion for projects eligible for WQIF grants
  - ~millions for projects installed by VA industries
  - Annual O&M cost of several million dollars for nutrient removal
- Investments needed by other Sector will also be significant

- <u>Challenge for WIP Development</u>: factoring in cost-benefit analysis to aid in setting the final source sector allocations in VA WIP

WIP Considerations

Agriculture
Urban/Suburban Stormwater
Onsite/Septic
and Forest Sectors

WIP – Element #1:

Interim and Final Nutrient and Sediment Target Loads

- Agriculture:
  - Total Nitrogen = TBD
  - Total Phosphorus = TBD
- Urban/Suburban Stormwater:
  - Total Nitrogen = TBD
  - Total Phosphorus = TBD
- Onsite/Septic:
  - Total Nitrogen = TBD
  - Total Phosphorus = TBD
- Forest:
  - Total Nitrogen = TBD
  - Total Phosphorus = TBD

→ Allocations based on projected coverage of best management practices (BMPs) capable of being implemented by 2017 and 2025

→ Allocations based on projected retrofit and redevelopment BMPs and other practices on existing developed land capable of being implemented by 2017 and 2025

→ Allocations based on projected level of replacement onsite systems with new systems capable of reducing nutrients, tank pump-outs, and sewer hook-ups

→ Allocations based on enhanced compliance with forest harvesting BMPs

Agriculture

- DCR staff consulted subject matter experts to formulate a DRAFT enhanced program implementation level (EPIL) of BMP coverage to 2017. Need to develop for 2025.
- Not possible without significant funding increases, increased technical assistance, and/or additional legal authorities.

BMPs (partial list)	2008 % Treatment	2017 % Treatment
Continuous No-till	7.84%	25%
Cover crops - all types	8.98%	22%
Forest Buffers - Pasture	5.55%	10%
Grass Buffers - Pasture	10.17%	15%
Grass Buffers-Cropland	8.08%	20%
Livestock Exclusion Fencing	11.34%	25%
Nutrient Management - Cropland	51.16%	65%

Agriculture

Additional BMPs

- Animal mortality composters - 1,023 poultry, 50 swine, 50 dairy
- Poultry litter transport – 35,000 tons out of Bay WS, 125,000 tons out of surplus counties
- Phytase feed P reductions – 30% reduction poultry, 35% swine
- Precision agriculture – 50,000 acres eastern VA
- Ammonia source reduction – 63% of chickens, 37% of turkeys
- Others

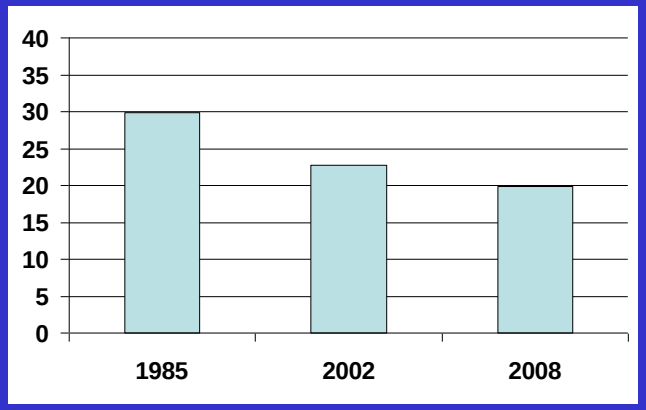
Urban/Suburban Stormwater

- DCR staff consulted subject matter experts to formulate a DRAFT enhanced program implementation level (EPIL) of BMP coverage for 2017. Need to develop for 2025.
- Not possible without significant funding increases (both state and local sources), increased technical assistance, and additional legal authorities.
- New Urban Development – post-development loads established consistent with the TMDL.
- Existing Developed Lands
  - High efficiency urban BMPs applied to 0.9% of impervious urban land per year and 0.3% of pervious urban land per year.
  - Urban nutrient management on 175,000 acres by 2017 (current progress is 27,000 acres).
  - Street sweeping on 20,000 acres annually.

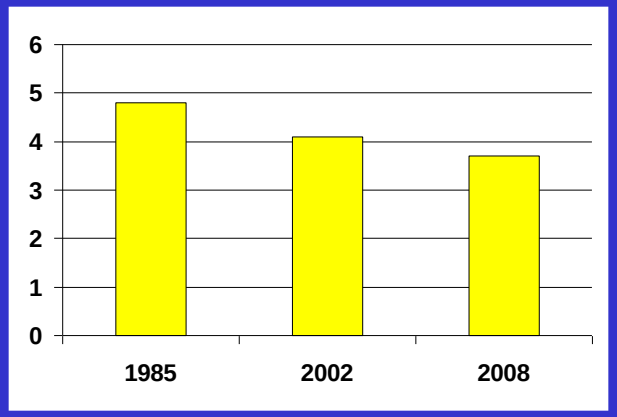
WIP – Element #2:Agriculture

Current Loading Baseline and Program Capacity

Agriculture – Nitrogen [MPY]



Agriculture – Phosphorus [MPY]

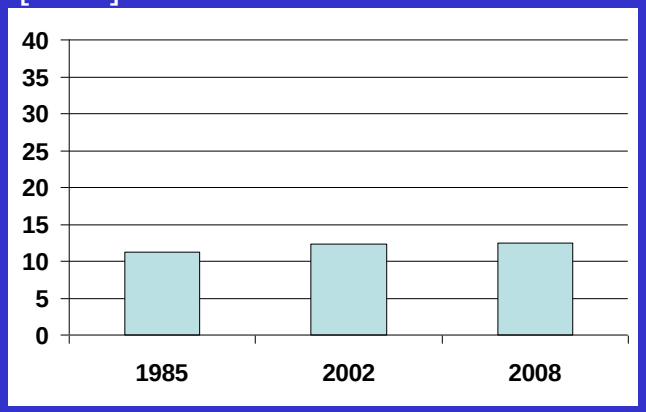


<u>Program Capacity</u> = Existing programs and historic funding

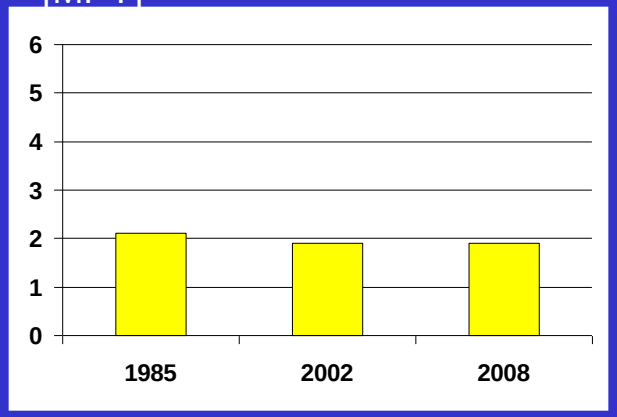
WIP – Element #2:Urban/Suburban

Current Loading Baseline and Program Capacity

Urban/Suburban – Nitrogen [MPY]



Urban/Suburban – Phosphorus [MPY]

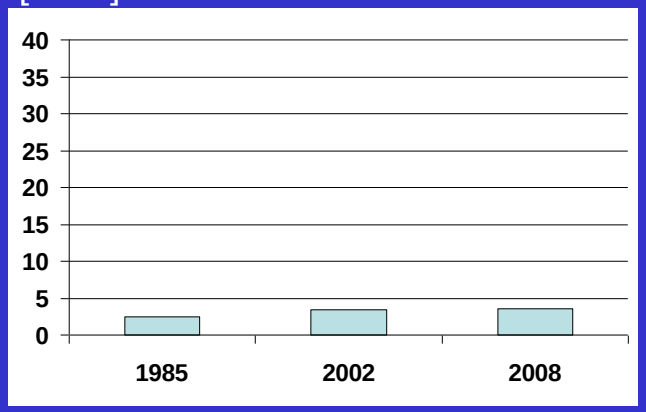


<u>Program Capacity</u> = Existing regulations and programs and historic funding

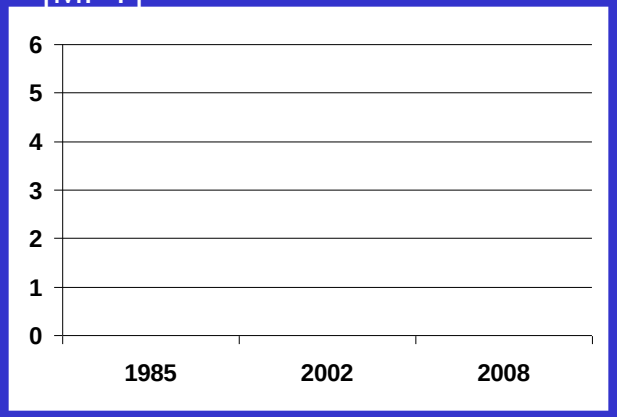
WIP – Element #2:Onsite/Septic

Current Loading Baseline and Program Capacity

Onsite/Septic – Nitrogen [MPY]



Onsite/Septic – Phosphorus [MPY]

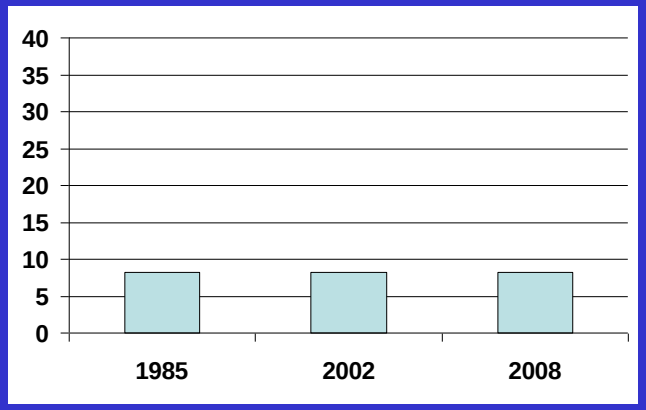


<u>Program Capacity</u> = Existing regulations and programs and historic funding

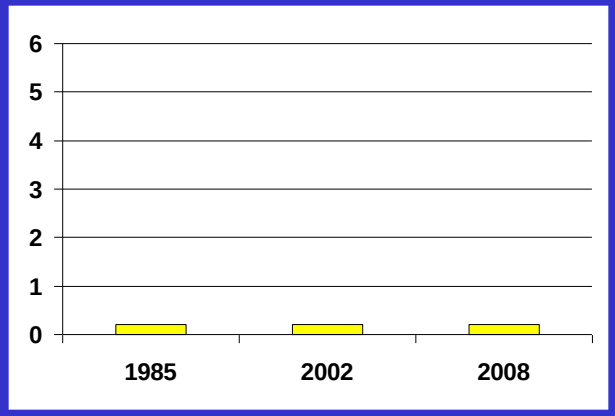
WIP – Element #2:Forest

Current Loading Baseline and Program Capacity

Forest – Nitrogen [MPY]



Forest – Phosphorus [MPY]



<u>Program Capacity</u> = Existing regulations and programs and historic funding

WIP – Element #3:

Account for Growth

- EPA provides two approaches:
  - Designate explicit target loads in TMDL for anticipated growth; this decreases allocations available for existing sources; OR,
  - Do not designate explicit target loads for growth, but “offset” any new or increased loads in the future with reductions elsewhere

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- Agriculture
  - No net growth expected except for some subsectors such as nursery
- Urban/Suburban Stormwater
  - Transfer allowable load from sum of previous land uses after being treated to TMDL levels of reduction ?
- Onsite/Septic ?
- Forest – No net growth expected

WIP – Element #4:

Gap Analysis

- EPA expects states to identify gaps between current capacity and the capacity necessary to fully attain the interim and final target loads.

- By sector the difference between current progress and allocation, once determined.

WIP – Element #5:

Commitment and Strategy to Fill Gaps

- EPA expects states to develop and commit to a strategy to systematically fill gaps identified

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- Current programs, regulations, technical assistance and funding not likely to fill gaps for agriculture, urban/suburban stormwater, septic or forest sectors

- Once levels of BMPs are determined for sectors, agencies, with input from Bay TMDL Stakeholder Group will need to consider potential ways to fill gaps

WIP – Element #6:

Tracking and Reporting Protocols

- Agriculture - tracked through permit and NMP data and cost-share program data. Future need to track voluntary BMPs
- Urban/Suburban Stormwater – MS4 permits, construction permits. Future need for enterprise website. Need to geospatially locate all existing and future BMPs
- Onsite/Septic – VDH and DCR have some data, need for better tracking
- Forest – Additional need for compliance checking on forest harvesting BMPs

WIP – Element #7:

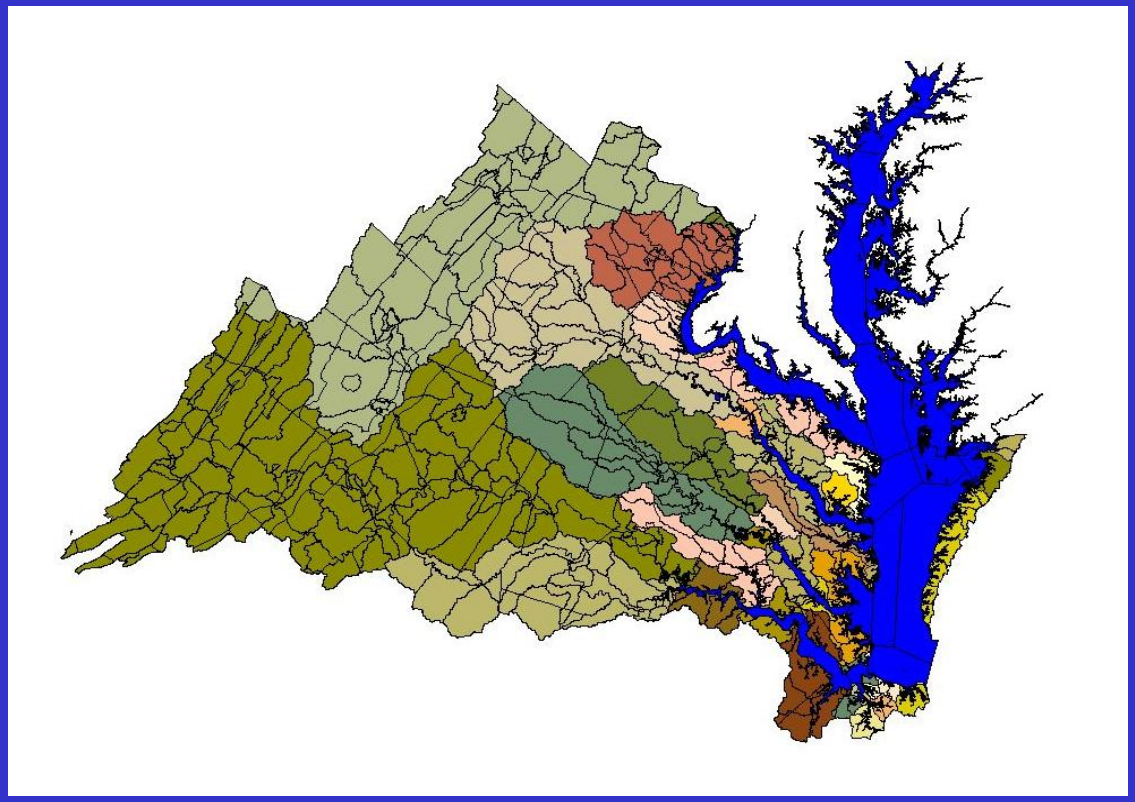
Contingencies for Slow or Incomplete Implementation

- Needs to be determined once sector allocations and primary strategies for achievement are identified.

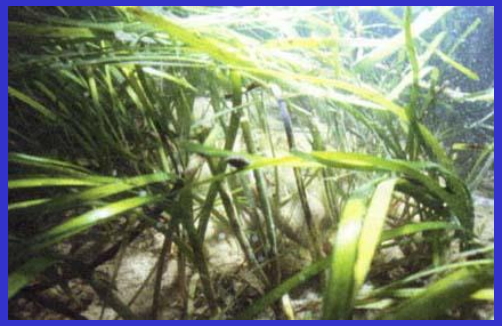
WIP – Element #8:

Appendix with Detailed Targets and Schedule

- Agriculture, Urban/Suburban Stormwater, Onsite/Septic, and Forest targets loads will be included in the TMDL for the segment shed; there are 40[?] segment sheds in Virginia



Schedule for Developing Phase I WIPs

- **Nov. 4, 2009** – Initial EPA guidance issued
- **Dec. 17, 2009** – 1st meeting of SAG
- **Feb. 26, 2010** – 2nd meeting of SAG
- **April 15, 2010** – 3rd meeting of SAG; review results of VA-EPIL model scenario; next steps
- **April 30, 2010** – PSC meeting; CBP agreement on draft nutrient and sediment target loads
- **May 1, 2010** – Additional EPA guidance expected
- **May 2010** – meeting of SAG; finalize draft source sector working targets & discuss prelim WIP
- **June 1, 2010** - Submit preliminary Phase I WIP to EPA
- **July 2010** – meeting of SAG; discuss draft WIP
- **August 1, 2010** – Submit draft Phase 1 WIP to EPA
- **Nov. 1, 2010** – Submit FINAL Phase I WIP to EPA

Question & Answer