Review/Approval of Revised Basinwide Nutrient Target Loads

Water Quality Goal Implementation Team Conference Call

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WQSTM Scenarios Completed & Pending:

- 1985 Scenario - 342 TN, 24.1 TP (pending)
- Base Case Scenario - 309 TN, 19.5 TP (completed)
- 2007 Scenario - 254 TN, 17.1 TP (completed)
- Tributary Strategy Scenario - (being prepared for P5.3 run)
- Target Load Scenario – 194.4 TN, 14.3 TP
- Loading Scenario - 189 TN, 13.4 TP (completed)
- Loading Scenario - 186 TN, 10.9 TP (completed)
- E3 - CBPO - 141 TN, 8.5 TP (pending)

An Estimate of the Deep Water DO Response

- The Target Load achieves the CB4 Deep Water WQS with the 7% variance and is less that 1% nonattainment in CB3 and CB5.
- Areas where we've seen persistent low level DO nonattainment with this model such as the Chester Mesohaline (CHSMH) and Eastern Bay (EASMH) remain to be investigated.
- The E3 Scenario is being post-processed today for the stoplight plots.
- All loads in millions of pounds.

Cbseg	'91 -'00 Base Scenario 309TN, 19.5TP, 8950TSS '93-'95 DO Deep Water	2007 Scenario 254TN, 17.1TP, 6498TSS '93-'95 DO Deep Water	Target Load Scenario 194.4TN, 14.3TP, 6255TSS '93-'95 DO Deep Water	Loading Scenario 190TN 13.4TP, 5913TSS '93-'95 DO Deep Water	Loading Scenario 186TN 10.9TP, 5510TSS '93-'95 DO Deep Water	E3 2010 Scenario 141TN 8.5TP, 5060TSS '93-'95 DO Deep Water
APPTF	N/A	N/A	N/A	N/A	N/A	
BACOH	N/A	N/A	N/A	N/A	N/A	
BIGMH	N/A	N/A	N/A	N/A	N/A	
BOHOH	N/A	N/A	N/A	N/A	N/A	
BSHOH	N/A	N/A	N/A	N/A	N/A	
CB1TF	N/A	N/A	N/A	N/A	N/A	
CB2OH	N/A	N/A	N/A	N/A	N/A	
CB3MH	2.0%	0.7%	0.1%	0.1%	0.1%	
CB4MH	19.7%	10.8%	5.7%	5.6%	4.3%	
CB5MH	6.9%	1.6%	0.4%	0.3%	0.2%	
CB6PH	0.0%	0.0%	0.0%	0.0%	0.0%	
CB7PH	0.0%	0.0%	0.0%	0.0%	0.0%	
CB8PH	N/A	N/A	N/A	N/A	N/A	
CHKOH	N/A	N/A	N/A	N/A	N/A	
CHOMH1	N/A	N/A	N/A	N/A	N/A	
CHOMH2	N/A	N/A	N/A	N/A	N/A	
CHOOH	N/A	N/A	N/A	N/A	N/A	
CHOTF	N/A	N/A	N/A	N/A	N/A	
CHSMH	24.7%	15.6%	1.8%	1.9%	1.6%	
CHSOH	N/A	N/A	N/A	N/A	N/A	
CHSTF	N/A	N/A	N/A	N/A	N/A	
CNDOH	N/A	N/A	N/A	N/A	N/A	
CRRMH	N/A	N/A	N/A	N/A	N/A	
DCATF	N/A	N/A	N/A	N/A	N/A	
DCPTF	N/A	N/A	N/A	N/A	N/A	
DENTF	N/A	N/A	N/A	N/A	N/A	
EASMH	5.7%	2.0%	0.7%	0.8%	0.2%	
EBEMH	N/A	N/A	N/A	N/A	N/A	
ELIPH	N/A	N/A	N/A	N/A	N/A	

An Estimate of the Deep Channel DO Response

- The Target Load is within 1.8% of achieving the Deep Channel WQS in CB4 with the 2% variance, and 0.1% within achievement in CB3.
- Local areas of nonattainment in CHSMH and EASMH remain to be investigated.
- All loads in millions of pounds.

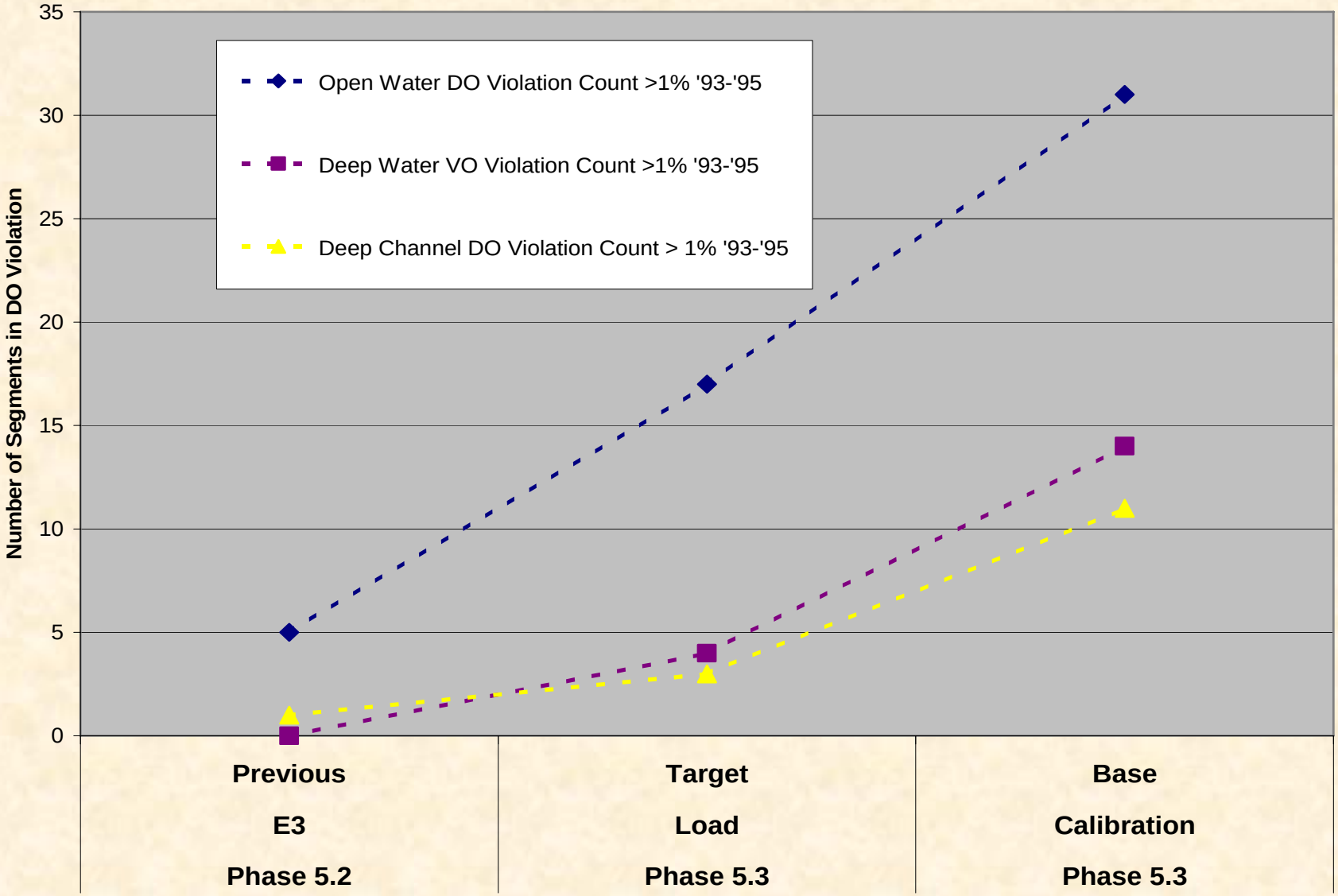
Cbseg	'91 -'00 Base Scenario 309TN, 19.5TP, 8950TSS '93-'95 DO Deep Channel	2007 Scenario 254TN, 17.1TP, 6498TSS '93-'95 DO Deep Channel	Target Load Scenario 194.4TN, 14.3TP, 6255TSS '93-'95 DO Deep Channel	Loading Scenario 190TN 13.4TP, 5913TSS '93-'95 DO Deep Channel	Loading Scenario 186TN 10.9TP, 5510TSS '93-'95 DO Deep Channel	E3 2010 Scenario 141TN 8.5TP, 5060TSS '93-'95 DO Deep Channel
APPTF	N/A	N/A	N/A	N/A	N/A	
BACOH	N/A	N/A	N/A	N/A	N/A	
BIGMH	N/A	N/A	N/A	N/A	N/A	
BOHOH	N/A	N/A	N/A	N/A	N/A	
BSHOH	N/A	N/A	N/A	N/A	N/A	
CB1TF	N/A	N/A	N/A	N/A	N/A	
CB2OH	N/A	N/A	N/A	N/A	N/A	
CB3MH	14.5%	7.0%	0.1%	0.0%	0.0%	
CB4MH	46.2%	23.9%	3.8%	2.9%	0.4%	
CB5MH	22.3%	1.8%	0.0%	0.0%	0.0%	
CB6PH	N/A	N/A	N/A	N/A	N/A	
CB7PH	N/A	N/A	N/A	N/A	N/A	
CB8PH	N/A	N/A	N/A	N/A	N/A	
CHKOH	N/A	N/A	N/A	N/A	N/A	
CHOMH1	N/A	N/A	N/A	N/A	N/A	
CHOMH2	N/A	N/A	N/A	N/A	N/A	
CHOOH	N/A	N/A	N/A	N/A	N/A	
CHOTF	N/A	N/A	N/A	N/A	N/A	
CHSMH	38.0%	29.4%	14.0%	14.0%	13.7%	
CHSOH	N/A	N/A	N/A	N/A	N/A	
CHSTF	N/A	N/A	N/A	N/A	N/A	
CNDOH	N/A	N/A	N/A	N/A	N/A	
CRRMH	N/A	N/A	N/A	N/A	N/A	
DCATF	N/A	N/A	N/A	N/A	N/A	
DCPTF	N/A	N/A	N/A	N/A	N/A	
DENTF	N/A	N/A	N/A	N/A	N/A	
EASMH	26.1%	15.6%	3.9%	2.5%	0.3%	
EBEMH	N/A	N/A	N/A	N/A	N/A	
ELIPH	N/A	N/A	N/A	N/A	N/A	

An Estimate of the Open Water DO Response

- There are 17 CB segments of Open Water DO nonattainment (>1%) in the Target Load Scenario.
- Reasons for persistent Open Water nonattainment remain to be investigated.
- Loads in millions of pounds.

Cbseg	'91 -'00 Base Scenario 309TN, 19.5TP, 8950TSS '93-'95 DO Open Water Summer Monthly	2007 Scenario 254TN, 17.1TP, 6498TSS '93-'95 DO Open Water Summer Monthly	Target Load Scenario 194.4TN, 14.3TP, 6255TSS '93-'95 DO Open Water Summer Monthly	Loading Scenario 190TN, 13.4TP, 5913TSS '93-'95 DO Open Water Summer Monthly	Loading Scenario 186TN, 10.9TP, 5510TSS '93-'95 DO Open Water Summer Monthly	E3 2010 Scenario 141TN 8.5TP, 5060TSS '93-'95 DO Open Water Summer Monthly
APPTF	0.0%	0.0%	4.6%	0.0%	0.0%	
BACOH	0.0%	0.0%	0.0%	0.0%	0.0%	
BIGMH	0.0%	0.0%	0.0%	0.0%	0.0%	
BOHOH	0.0%	0.0%	0.0%	0.4%	0.0%	
BSHOH	0.0%	0.0%	0.0%	0.0%	0.0%	
CB1TF	0.0%	0.0%	0.0%	0.0%	0.0%	
CB2OH	0.0%	0.0%	0.0%	0.0%	0.0%	
CB3MH	0.0%	0.0%	0.0%	0.0%	0.0%	
CB4MH	0.0%	0.0%	0.0%	0.0%	0.0%	
CB5MH	0.0%	0.0%	0.0%	0.0%	0.0%	
CB6PH	2.9%	0.0%	0.0%	0.0%	0.0%	
CB7PH	7.0%	2.0%	0.5%	0.1%	0.1%	
CB8PH	0.0%	0.0%	0.0%	0.0%	0.0%	
CHKOH	0.0%	0.0%	0.0%	0.0%	0.0%	
CHOMH1	1.8%	0.1%	0.0%	0.0%	0.0%	
CHOMH2	4.0%	0.0%	0.0%	0.0%	0.0%	
CHOOH	1.1%	0.0%	0.0%	0.0%	0.0%	
CHOTF	0.0%	0.0%	0.0%	0.0%	0.0%	
CHSMH	0.1%	0.0%	0.0%	0.0%	0.0%	
CHSOH	0.0%	0.0%	0.0%	0.0%	0.0%	
CHSTF	0.0%	0.1%	0.0%	0.5%	0.0%	
CNDOH	0.0%	0.0%	0.0%	0.0%	0.0%	
CRRMH	24.5%	3.9%	0.0%	1.9%	0.0%	
DCATF	27.5%	21.4%	12.4%	5.4%	4.5%	
DCPTF	0.6%	0.0%	0.0%	0.0%	0.0%	
DENTF	0.0%	0.0%	0.0%	0.0%	0.0%	
EASMH	0.0%	0.0%	0.0%	0.0%	0.0%	
EBEMH	22.7%	21.5%	4.7%	4.7%	3.0%	
ELIPH	4.3%	0.2%	0.0%	0.0%	0.0%	

DO Stoplight Plot Summary Information



Estimated Chlorophyll Response in the James

- Under the Target Load Scenario some nonattainment remains in the James for the chlorophyll WQS. This may be addressed by load reductions to the tidal fresh James region.
- Loads in millions of pounds.

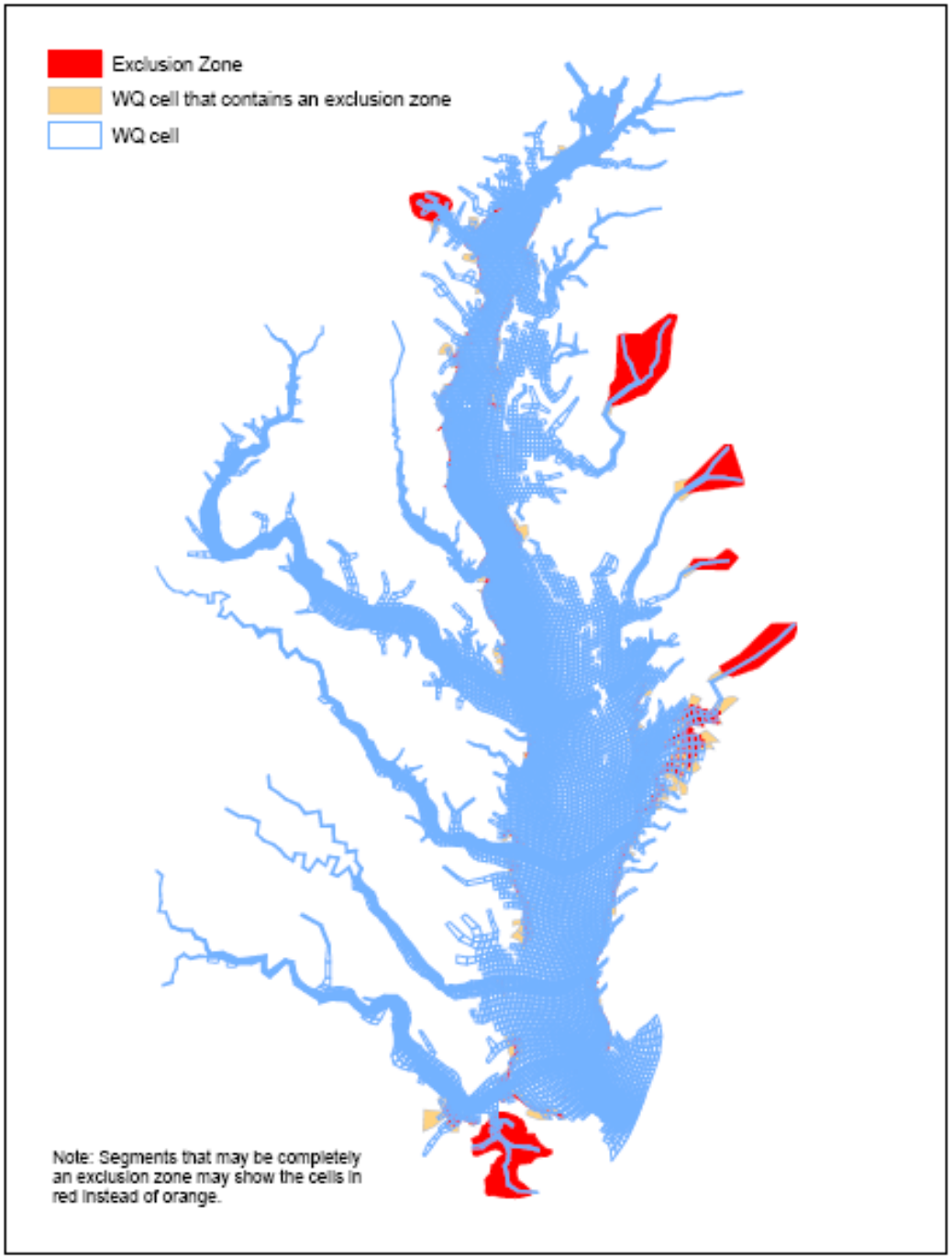
Cbseg	'91 -'00 Base Scenario 309TN, 19.5TP, 8950TSS '93-'95 CL Spring Seasonal	2007 Scenario 254TN, 17.1TP, 6498TSS '93-'95 CL Spring Seasonal	Target Load Scenario 194.4TN, 14.3TP, 6255TSS '93-'95 CL Spring Seasonal	Loading Scenario 190TN 13.4TP, 5913TSS '93-'95 CL Spring Seasonal	Loading Scenario 186TN 10.9TP, 5510TSS '93-'95 CL Spring Seasonal	E3 2010 Scenario 141TN 8.5TP, 5060TSS '93-'95 CL Spring Seasonal
DCATF	N/A	N/A	N/A	N/A	N/A	
DCPTF	N/A	N/A	N/A	N/A	N/A	
JMSTFL	5.6%	5.7%	4.6%	3.7%	2.7%	
JMSTFU	0.0%	0.0%	0.0%	0.0%	0.0%	
JMSOH	0.0%	0.0%	0.0%	0.0%	0.0%	
JMSMH	0.0%	0.0%	0.0%	0.0%	0.0%	
JMSPH	5.4%	0.9%	0.0%	0.0%	0.0%	

Cbseg	'91 -'00 Base Scenario 309TN, 19.5TP, 8950TSS '93-'95 CL Summer Seasonal	2007 Scenario 254TN, 17.1TP, 6498TSS '93-'95 CL Summer Seasonal	Target Load Scenario 194.4TN, 14.3TP, 6255TSS '93-'95 CL Summer Seasonal	Loading Scenario 190TN 13.4TP, 5913TSS '93-'95 CL Summer Seasonal	Loading Scenario 186TN 10.9TP, 5510TSS '93-'95 CL Summer Seasonal	E3 2010 Scenario 141TN 8.5TP, 5060TSS '93-'95 CL Summer Seasonal
DCATF	NoData	NoData	NoData	NoData	NoData	
DCPTF	33.6%	27.1%	21.8%	46.1%	0.0%	
JMSTFL	20.2%	0.0%	0.0%	0.0%	0.0%	
JMSTFU	17.1%	7.5%	0.0%	5.3%	0.0%	
JMSOH	0.0%	0.0%	0.0%	0.0%	0.0%	
JMSMH	0.0%	0.0%	0.0%	0.0%	0.0%	
JMSPH	3.7%	0.0%	0.0%	0.0%	0.0%	

Follow-Up to the Clarity/SAV WQS

- Have incorporated the SAV No-Grow areas into the clarity/SAV WQS assessment
- Identified DUs needing reference curve assessment.
- Developing reference curve assessment postprocessors for stoplight plots.
- The clarity assessment was completed late last night and we're evaluating results.

SAV –No Grow areas are here referred to as “exclusion zones” which either cover an entire WQSTM cells (red) or a portion of a WQSTM cell (yellow).



Maryland's SAV Acreage Restoration Goals and Application Depths

Segment Description[1]	Segment Designator	SAV Acreage Restoration Goal	Secchi Application Dep
Northern Chesapeake Bay	CB1TF2	12,149	2 meters
Northern Chesapeake Bay	CB1TF1	754	1.0 meters
Lower Pocomoke River Mesohaline	POCMH	877[2]	1.0 meters
Manokin River Mesohaline	MANMH1	4,294	2.0 meters
Manokin River Mesohaline	MANMH2	59	0.5 meters
Big Annemessex River Mesohaline	BIGMH1	2,021	2.0 meters
Big Annemessex River Mesohaline	BIGMH2	22	0.5 meters
Tangier Sound Mesohaline	TANMH1	24,683[2]	2.0 meters
Tangier Sound Mesohaline	TANMH2	74	0.5 meters
Middle Nanticoke River Oligohaline	NANOH	12	0.5 meters
Lower Nanticoke River Mesohaline	NANMH	3	0.5 meters
Wicomico River Mesohaline	WICMH	3	0.5 meters
Fishing Bay Mesohaline	FSBMH	197	0.5 meters
Middle Choptank River Oligohaline	CHOOH	72	0.5 meters
Lower Choptank River Mesohaline	CHOMH2	1,621	1.0 meters
Mouth of Choptank River Mesohaline	CHOMH1	8,184	2.0 meters
Little Choptank River Mesohaline	LCHMH	4,076	2.0 meters
Honga River Mesohaline	HNGMH	7,761	2.0 meters
Eastern Bay	EASMH	6209	2.0 meters
Middle Chester River Oligohaline	CHSOH	77	0.5 meters
Lower Chester River Mesohaline	CHSMH	2,928	1.0 meters
Chesapeake & Delaware (C&D) Canal	C&DOH	7	0.5 meters
Northeast River Tidal Fresh	NORTF	89	0.5 meters
Bohemia River Oligohaline	BOHOH	354	0.5 meters
Elk River Oligohaline	ELKOH1	1,844	2.0 meters
Elk River Oligohaline	ELKOH2	190	0.5 meters
Sassafras River Oligohaline	SASOH1	1,073	2.0 meters
Sassafras River Oligohaline	SASOH2	95	0.5 meters
Bush River Oligohaline	BSHOH	350	0.5 meters
Gunpowder River Oligohaline	GUNOH2	572	2.0 meters
Mouth of Gunpowder River	GUNOH1	1,860	0.5 meters
Middle River Oligohaline	MIDOH	879	2.0 meters
Patapsco River Mesohaline	PATMH	389	1.0 meters
Magothy River Mesohaline	MAGMH	579	1.0 meters
Severn River Mesohaline	SEVMH	455	1.0 meters
South River Mesohaline	SOUMH	479	1.0 meters
Rhode River Mesohaline	RHDMH	60	0.5 meters
West River Mesohaline	WSTMH	238	0.5 meters
Upper Patuxent River Tidal Fresh	PAXTF	205	0.5 meters
Middle Patuxent River Oligohaline	PAXOH	115	0.5 meters
Lower Patuxent River Mesohaline	PAXMH1	1,459	2.0 meters
Lower Patuxent River Mesohaline	PAXMH2	172	0.5 meters
Lower Patuxent River Mesohaline	PAXMH4	1	0.5 meters
Lower Patuxent River Mesohaline	PAXMH5	2	0.5 meters
Lower Potomac River Tidal Fresh	POTTF	2,142[2]	2.0 meters
Piscataway Creek Tidal Fresh	PISTF	789	2.0 meters
Mattawoman Creek Tidal Fresh	MATTF	792	1.0 meters
Lower Potomac River Oligohaline	POTOH1	1,387[2]	2.0 meters
Lower Potomac River Oligohaline	POTOH2	262	1.0 meters
Lower Potomac River Oligohaline	POTOH3	1,153	1.0 meters
Lower Potomac River Mesohaline	POTMH	7,088[2]	1.0 meters
Upper Chesapeake Bay	CB2OH	705	0.5 meters
Upper Central Chesapeake Bay	CB3MH	1,370	0.5 meters
Middle Central Chesapeake Bay	CB4MH	2,533	2.0 meters
Lower Central Chesapeake Bay	CB5MH	8,270[2]	2.0 meters

[1] The segments Middle Pocomoke Oligohaline (POCOH-application depth = 0.5 meters), Upper Chester River Tidal Fresh (CHSTP-application depth = 0.5 meters), Back River Oligohaline (BACOH-application depth = 0.5 meters), and West Branch Patuxent River (WBRTF-application depth = 0.5 meters), and Lower Patuxent River Mesohaline Subsegments 3 and 6 (PAXMH3 & PAXMH6-application depths = 0.5 meters), and the Anacostia River Tidal Fresh (ANATF-application depth = 0.5 meters) are not listed above because the SAV Restoration goal for each segment is 0 acres, based on the required historical SAV presence criteria used to set the restoration goal for each segment. These segments have been assigned a water clarity criteria and application depth. Attainment of the shallow-water designated use will be determined using the method outlined in §C(9)(a)(i)—(iii) and (c) of this regulation.

Ways of Assessing the Clarity/SAV Water Quality Standard:

- SAV acres.
- Clarity acres.
- A combination of SAV and clarity acres
- When no SAV restoration goal is defined use a reference curve.

Key Points:

- Overall, the input nutrient and sediment loads are relatively stable among the different Watershed Model versions.
- The response to the current Target Load Scenario (195TN,14.3TP) approximates the response of the previous Target Load Scenario evaluated in 2009.
- Regions of persistent nonattainment need the be examined and the target load refined as we move forward.

DECISION REQUESTED:

WQGIT recommendation to the Principals' Staff Committee for a new basinwide nutrient target load.