Initial Assessment of the Clarity/SAV Water Quality Standard

Water Quality Goal Implementation Team

Gettysburg, PA

April 5, 2010

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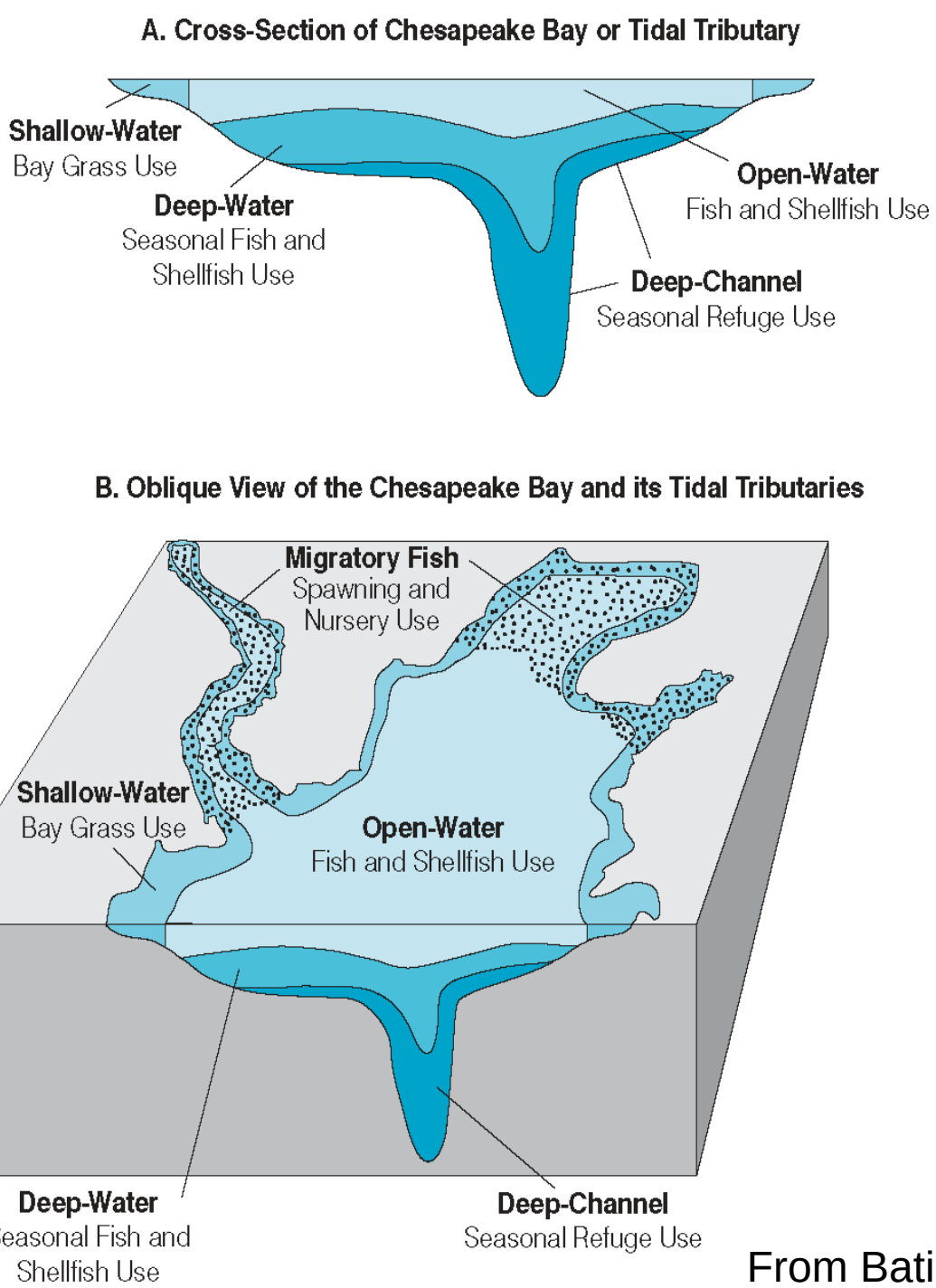
Overview:

- Basis & approach for clarity assessment of the SAV/clarity WQS.
- STAC review key recommendations
- Initial clarity assessment findings
- Follow-up actions

Basis and Approach to the SAV/Clarity Standard

Water quality standards of clarity/SAV are designed to protect SAV and shallow water living resources.



From Batiuk (2003)

VA Water Quality Standards for Clarity/SAV

9 VAC 25-260 March 2005

B. Submerged Aquatic Vegetation and Water Clarity

If the submerged aquatic vegetation (SAV) acres in this subsection are met in any individual Chesapeake Bay Program segment as described in subsection D of this section, then the shallow-water submerged aquatic vegetation use is met in that segment. If the SAV acres in this subsection are not met in any individual Chesapeake Bay Program segment, then the water clarity criteria shall apply to the water clarity acres in that segment. If these water clarity criteria are met to the bottom water-sediment interface for the number of water clarity acres in that segment, then the shallow-water submerged aquatic vegetation use is met; regardless of the number of acres of SAV in that segment.

Designated Use	Chesapeake Bay Program Segment	SAV Acres[1]	Water Clarity Criteria (percent light-through-water)[2]	Water Clarity Acres[1]	Temporal Application
Shallow-Water Submerged Aquatic Vegetation Use	CB5MH	7,633	22%	14,514	April 1 - October 31
	CB6PH	1,267	22%	3,168	March 1 - November 30
	CB7PH	15,107	22%	34,085	March 1 - November 30
	CB8PH	11	22%	28	March 1 - November 30
	POTTF	2,093	13%	5,233	April 1 - October 31
	POTOH	1,503	13%	3,758	April 1 - October 31
	POTMH	4,250	22%	10,625	April 1 - October 31
	RPPTF	66	13%	165	April 1 - October 31
	RPPOH	0	-	0	-
	RPPMH	1700	22%	5000	April 1 - October 31
	CRRMH	768	22%	1,920	April 1 - October 31
	PIAMH	3,479	22%	8,014	April 1 - October 31
	MPNTF	85	13%	213	April 1 - October 31
	MPNOH	0	-	0	-
	PMKTF	187	13%	468	April 1 - October 31
	PMKOH	0	-	0	-
	YRKMH	239	22%	598	April 1 - October 31
	YRKPH	2,793	22%	6,982	March 1 - November 30
	MOBPH	15,901	22%	33,990	March 1 - November 30
	JMSTF2	200	13%	500	April 1 - October 31
	JMSTF1	1000	13%	2500	April 1 - October 31
	APPTF	379	13%	948	April 1 - October 31
	JMSOH	15	13%	38	April 1 - October 31
	CHKOH	535	13%	1,338	April 1 - October 31
	JMSMH	200	22%	500	April 1 - October 31
	JMSPH	300	22%	750	March 1 - November 30
	WBEMH	0	-	0	-
	SBEMH	0	-	0	-
	EBEMH	0	-	0	-
	LAFMH	0	-	0	-
	ELIPH	0	-	0	-
	LYNPH	107	22%	268	March 1 - November 30
	POCOH	0	-	0	-
	POCMH	4,066	22%	9,368	April 1 - October 31
	TANMH	13,579	22%	22,064	April 1 - October 31

1 = The assessment period for SAV and water clarity acres shall be the single best year in the most recent three consecutive years. When three consecutive years of data are not available, a minimum of three years within the most recent five years shall be used.

MD Water Quality Standards for Clarity/SAV

MD 26.08.02.03-3

.03-3 Water Quality Criteria Specific to Designated Uses.

(9) Water Clarity Criteria for Seasonal Shallow-Water Submerged Aquatic Vegetation Subcategory.

(a) Water Clarity Criteria Measurement. The attainment of the water clarity criteria for a given Bay segment can be determined using any of the following methods:

(i) Shallow-water acreage meets or exceeds the percent-light-through-water (PLW) criteria expressed in Secchi depth equivalence (Table 1) at the segment specific application depth specified in Regulation .08 of this chapter (excludes no grow zones);

(ii) Submerged aquatic vegetation (SAV) acreage meets or exceeds the acreage restoration goal (Table 2); or

(iii) Shallow-water acreage meeting or exceeding the secchi depth requirements in combination with actual SAV acreage equal or exceed the SAV restoration goal acreage.

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

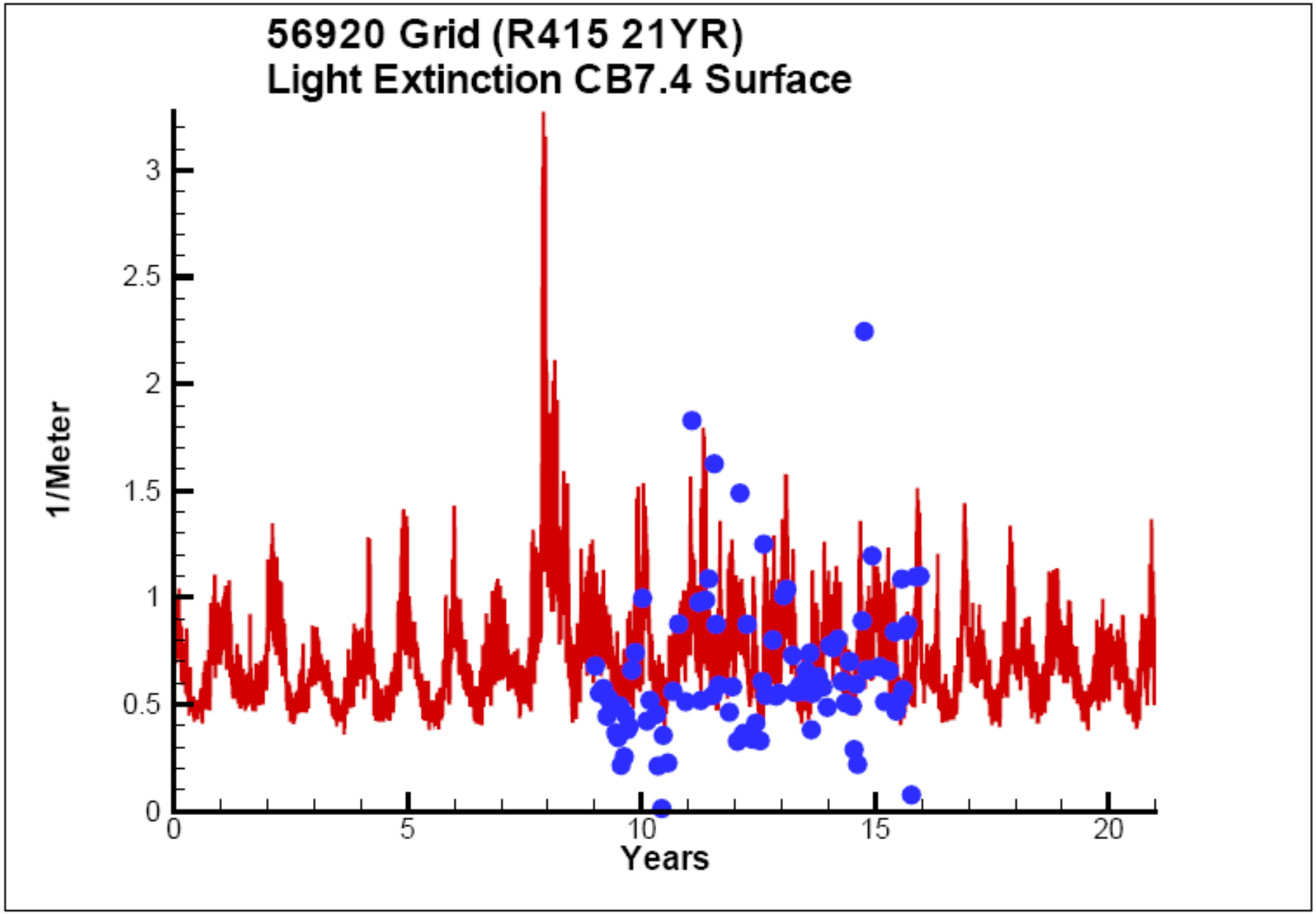
[1] The segments Middle Pocomoke Oligohaline (POCOH-application depth = 0.5 meters), Upper Chester River Tidal Fresh (CHSTP-application depth = 0.5 meters), Back River Oligohaline (BACOH-application depth = 0.5 meters), and West Branch Patuxent River (WBRTF-application depth = 0.5 meters), and Lower 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.

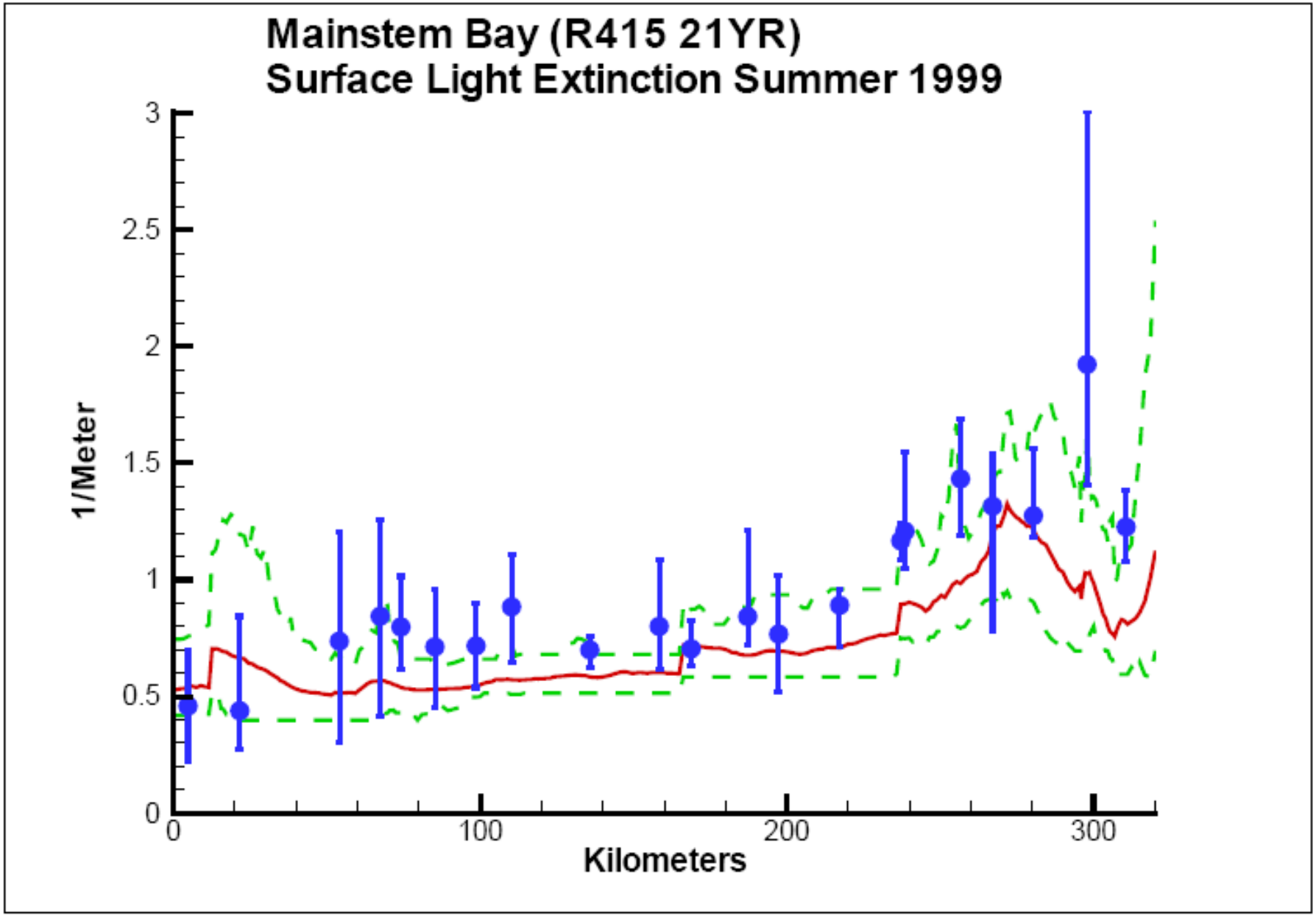
Critical Elements for Assessing the Clarity/SAV Water Quality Standard:

- SAV acres.
- Clarity acres.
- Percent light through the water (PLW = $e^{-ke*z} * 100\%$)
- Application depth.
- When the standard is in effect, or the SAV growing season for three key oligohaline, mesohaline, and polyhaline SAV communities.

How An Assessment of the Clarity Standard is Done:

1. Count monthly clarity acres with data correction.
2. Count all clarity acres at all depths (0.5m, 1.0m, 1.5m, 2.0m) in all SAV cells in the CB/DU segment.
3. Take an average for the month if there's two cruises. Data correction is done in the channel where there's observed ke monitoring data. Data correction in the channel is transposed to the shallows.
4. Take the average of the months of the clarity acres over the growing season for the year. Divide by the clarity acres needed to get % achievement of WQS.
5. Use the single best year of three contiguous years.


56920 Grid (R415 21YR)
Light Extinction CB7.4 Surface
1/Meter
3
2.5
2
1.5
1
0.5
0
0
5
10
15
20
Years


Mainstem Bay (R415 21YR)
Surface Light Extinction Summer 1999
1/Meter
3
2.5
2
1.5
1
0.5
0
0
100
200
300
Kilometers

How An Assessment of the SAV Standard is Done:

- SAV is used as a “boundary condition” in the WQSTM. In order to get clarity right we need to get SAV right.
- The STAC review of the SAV clarity simulation recommended only quantifying the clarity standard with clarity acres using data correction.
- Rather than using the simulated SAV acres we can use the SAV acres that we know exist from our monitoring information.

Taking Credit for the Observed SAV Acres

SAV area data (hectares). See http://www.vims.edu/bio/sav for more information. Units in Hectares.

CBPSEG	state	Segment_Name	1971	1974	1978	1979	1980	1981	1984	1985	2003	2004	2005	2006	2007	2008	2009
CB1TF1	MD	Northern Chesapeake Bay Segment 1	0	0	0	0	0	0	7	17	229	252	301	246	337	408	437
CB1TF2	MD	Northern Chesapeake Bay Segment 2	0	0	834	220	0	0	2,170	2,039	2,834	3,837	3,419	3,538	4,745	5,744	5,739
NORTF	MD	Northeast River	0	0	6	0	0	0	0	0	19	34	32	54	47	74	97
ELKOH1	MD	Elk River Segment 1	0	0	1	0	0	0	14	39	131	684	676	652	643	772	838
ELKOH2	MD	Elk River Segment 2	0	0	0	0	0	0	0	0	9	90	118	153	158	178	187
BOHOH	MD	Bohemia River	0	0	0	0	0	0	0	8	117	295	371	287	234	214	221
C&DOH	MD	Chesapeake & Delaware Canal	0	0	1	0	0	0	0	0	0	3	4	1	1	5	3
CB2OH	MD	Upper Chesapeake Bay	0	0	50	21	0	0	11	127	86	527	433	176	151	256	302
SASOH1	MD	Sassafras River Segment 1	0	0	2	0	0	0	20	28	123	415	455	330	149	223	327
SASOH2	MD	Sassafras River Segment 2	0	0	4	0	0	0	0	0	27	100	142	20	2	21	22
BSHOH	MD	Bush River	0	0	1	0	0	0	2	12	158	414	294	131	260	210	154
GUNOH1	MD	Gunpowder River Segment 1	0	0	180	139	0	0	0	32	8	536	179	95	226	317	346
GUNOH2	MD	Gunpowder River Segment 2	0	0	17	7	0	0	0	16	190	432	522	246	367	379	418
MIDOH	MD	Middle River	0	0	107	216	0	0	0	78	158	271	184	93	223	335	316
BACOH	MD	Back River	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0
CB3MH	MD	Upper Central Chesapeake Bay	0	0	555	380	0	0	382	366	9	368	229	69	50	76	95
PATMH	MD	Patapsco River	0	0	49	2	0	0	0	0	3	82	113	19	4	7	5
MAGMH	MD	Magothy River	0	0	141	192	0	0	10	5	68	121	125	101	34	36	5
CHSMH	MD	Lower Chester River	0	0	1,050	923	0	0	418	369	47	296	187	74	27	34	39
CHSOH	MD	Middle Chester River	0	0	0	0	0	0	0	0	0	2	92	0	0	0	0
CHSTF	MD	Upper Chester River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CB4MH	MD	Middle Central Chesapeake Bay	0	0	103	9	0	0	18	35	9	4	0	0	0	0	0
EASMH	MD	Eastern Bay	0	0	1,339	416	0	0	87	393	663	421	311	229	32	36	192
CHOMH1	MD	Mouth of the Choptank River	0	0	1,843	837	0	0	58	1,405	1,202	1,527	928	422	509	186	263
CHOMH2	MD	Lower Choptank River	0	0	94	79	0	0	0	36	0	0	0	0	0	0	0
CHOOH	MD	Middle Choptank River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHOTF	MD	Upper Choptank River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LCHMH	MD	Little Choptank River	0	0	134	4	0	0	28	367	317	494	105	49	57	33	71
SEVMH	MD	Severn River	0	0	134	130	0	0	0	0	90	157	172	166	132	126	85
SOUMH	MD	South River	0	0	21	0	0	0	0	0	6	19	4	0	3	0	0

Initial WQSTM Scenarios Completed:

- Base Calibration Scenario (TN=420, TP=28.4, TSS=5.7 million tons)

- 2007 Scenario (TN=254, TP=17.1, TSS=3.2 million tons. This was an early run that was updated and corrected with a more recent 2007.)

- Target Load Option 3 Scenario (TN=195, TP=14.3, TSS=same % as TP reduction)

WQSTM Scenarios Pending:

When we receive the final WQSTM calibration with final P5.3 loads and final ocean boundary adjustment capability. We'll rerun two scenarios and add others:

- Base Case 1991-2000 (320 TN & 19.8 TP)
- Target Load Scenario (194 TN & 14.3 TP)
- E3 Scenario (139 TN & 8.6 TP)
- Intermediate Scenarios as Needed (to refine Target Load or to optimize TN and TP Target Loads)
- Tributary Strategy Scenario (P5.3 Loads TBD, P5.2 = 200 TN & 15 TP).

Why the WQSTM Scenarios Aren't Final

• Final refinements to the shallow water SAV-clarity simulation are being made.

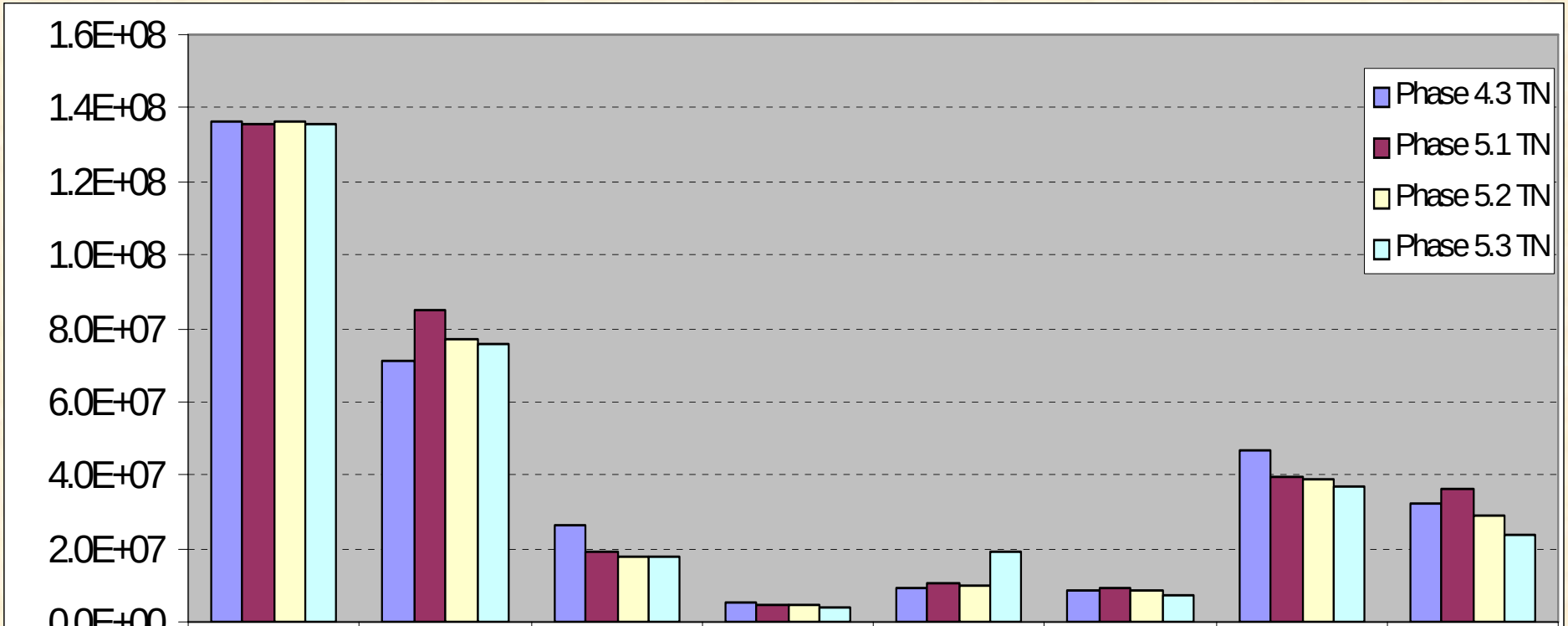
• Final 5.3 loads sent to CoE on 3/22/10 with very small changes.

• The reflected ocean boundary which changes the ocean boundary loads to changes in the Chesapeake loads needs to be implemented.

• The adjustment of the ocean boundary loads to changes in atmospheric deposition to the coastal waters needs to be implemented.

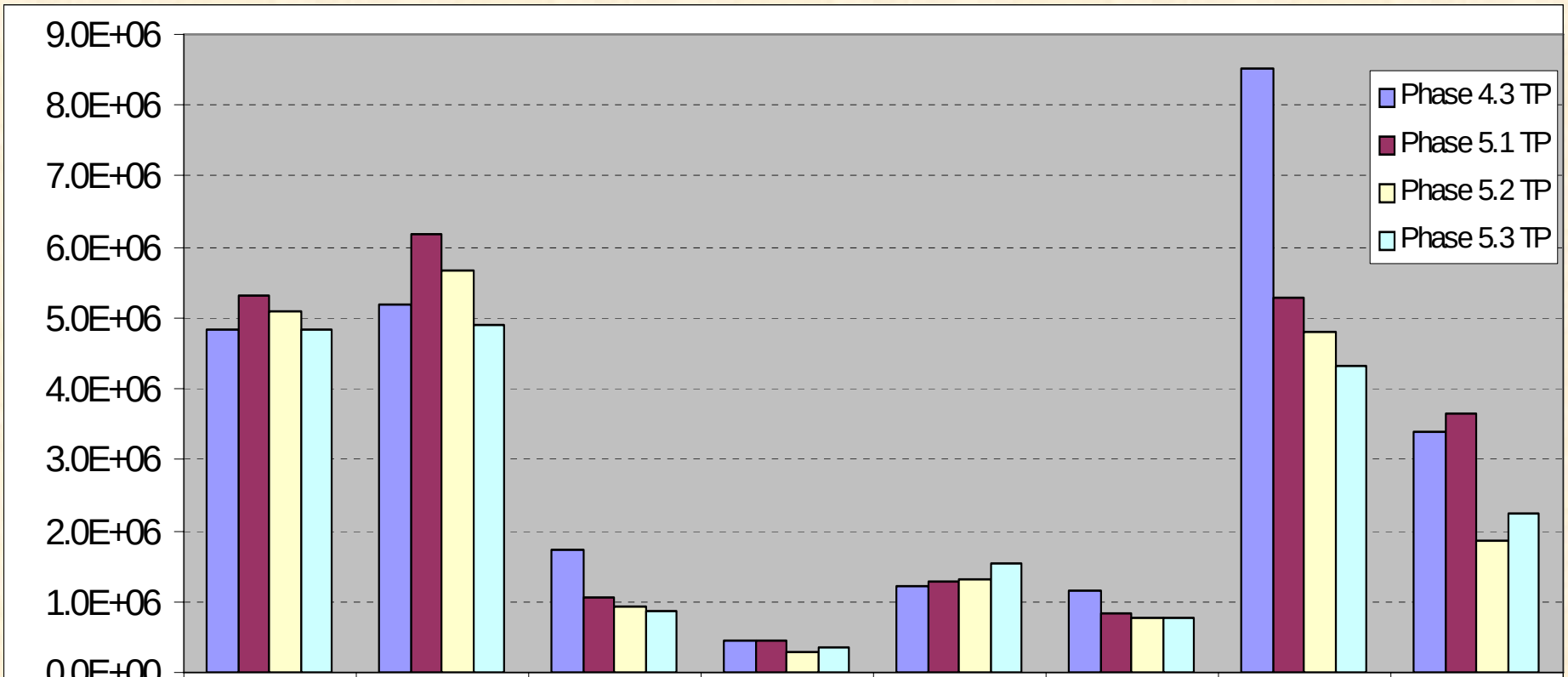
It's expected that these changes will have small but positive influences in achievement of the water quality standards.

Major Basin TN Loads For P4.3 and All P5 Phases



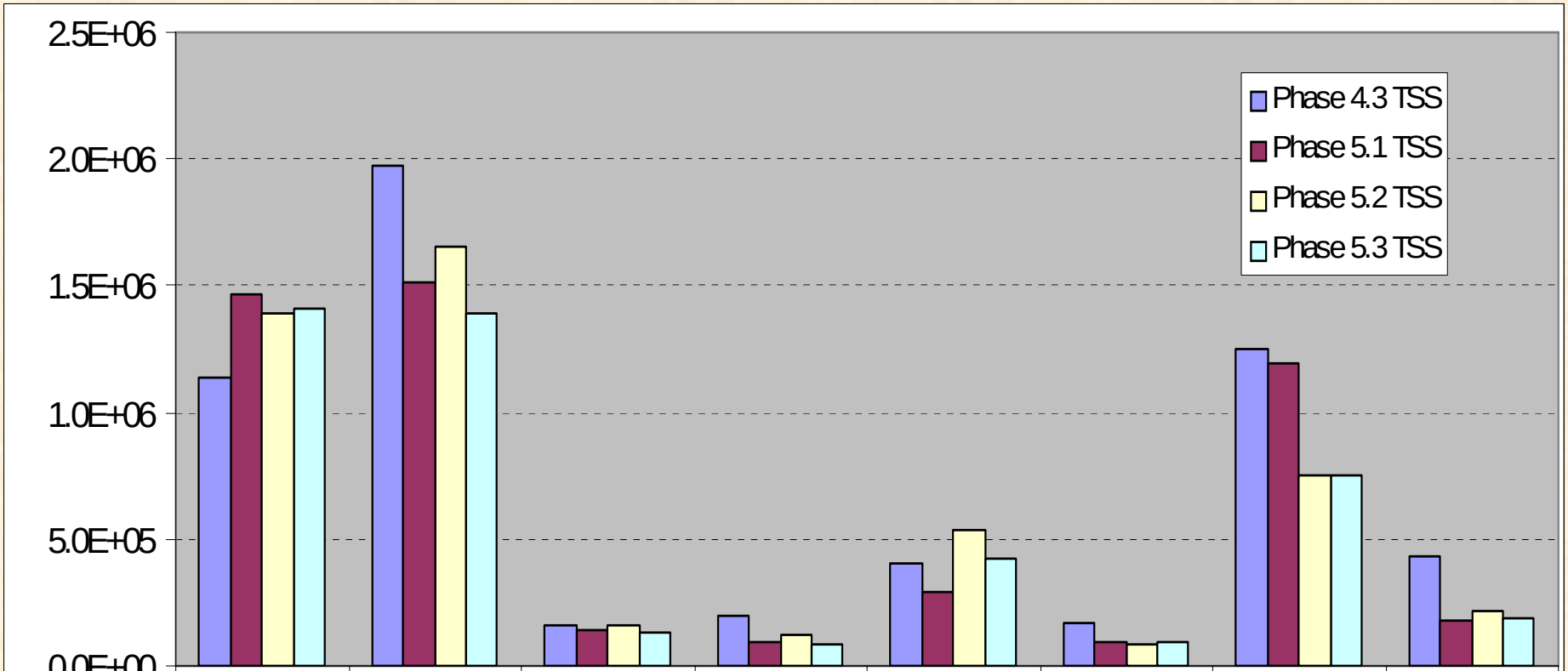
	Susquehanna	Potomac	Western Shore	Patuxent	Rappahannock	York	James	Eastern Shore
Phase 4.3 TN	136,174,538	70,954,364	26,220,938	4,969,330	9,335,952	8,846,418	46,862,659	32,438,342
Phase 5.1 TN	135,957,200	84,709,200	18,792,460	4,610,540	10,496,550	9,112,942	39,400,760	36,527,750
Phase 5.2 TN	136,052,800	77,006,940	17,975,520	4,302,200	9,648,914	8,335,362	39,101,330	29,100,390
Phase 5.3 TN	135,899,500	75,467,740	17,788,320	3,864,584	18,871,510	7,372,240	36,843,840	23,854,720

Major Basin TP Loads For P4.3 and All P5 Phases



	Susquehanna	Potomac	Western Shore	Patuxent	Rappahannock	York	James	Eastern Shore
Phase 4.3 TP	4,840,360	5,191,782	1,744,411	439,371	1,219,356	1,159,214	8,511,112	3,388,834
Phase 5.1 TP	5,315,788	6,189,597	1,070,603	449,849	1,293,852	832,068	5,270,311	3,659,904
Phase 5.2 TP	5,083,855	5,667,111	920,599	301,687	1,305,190	755,586	4,800,928	1,861,943
Phase 5.3 TP	4,843,573	4,897,244	870,467	359,157	1,525,716	760,461	4,336,546	2,234,960

Major Basin TSS Loads For P4.3 and All P5 Phases



	Susquehanna	Potomac	Western Shore	Patuxent	Rappahannock	York	James	Eastern Shore
Phase 4.3 TSS	1,133,682	1,976,652	162,248	199,368	404,941	166,318	1,248,293	433,805
Phase 5.1 TSS	1,463,259	1,515,766	143,034	95,292	294,158	91,056	1,189,197	182,590
Phase 5.2 TSS	1,394,542	1,650,656	156,625	125,359	532,689	88,506	754,658	220,078
Phase 5.3 TSS	1,409,855	1,394,125	133,874	85,663	420,356	89,892	751,012	188,810

STAC Review and Key Recommendations

The STAC Review Group was asked to address the following questions:

Evaluation Theme I: Current SAV/Clarity Simulation Structure and Approach

1. Is the current shallow water SAV and clarity simulation sufficient to evaluate the Chesapeake SAV/clarity water quality standard?

2. Are there any specific improvements that can be implemented in the existing shallow-water water clarity simulation or in the existing SAV model?

3. Are there any recommended tests and/or performance measures for the water clarity model? For the SAV model?

Evaluation Theme II: Future Guidance for SAV/Clarity Simulation and Shallow Water Research

4. To further refine this assessment what improvements can be made to the model structure, processes, and approaches for the next generation of the shallow water simulation to assess the SAV/clarity water quality standard?

5. What are the data, research, or monitoring gaps that need to be addressed in order to improve the simulation of SAV/clarity in the shallow waters of the Chesapeake?

Key Recommendations of the STAC Review:

• "The probability based approach used to make the model output better fit the patterns in the observations appears arbitrary; a different approach is needed. The SAV area simulations are not ready for use in the TMDL process."

• "…the simulations of SAV growth potential* (with corrected clarity simulations) are sufficient for evaluating allocations. Growth potential refers to establishment of conditions favorable to SAV growth, which may or may not be reflected in restored SAV area."

• Additional work in shallow water research, monitoring, and modeling is encouraged and specific approach suggested – much remains to be understood in shallow water dynamics.

* The term SAV grow potential used here means clarity acres.

Initial Clarity Assessment Findings

Keep in Mind That:

- This is the first time ever application and assessment of the SAV/clarity water quality standard in the Chesapeake in contrast to a three decade application of DO criteria and standards.
- Our sense is that we still have a lot to learn in the shallow water SAV habitat. Fortunately, we have ongoing two year assessments of this standard between now and 2025 and ultimately we assess attainment with monitoring data/observations.
- With data correction of the clarity data we believe we can make our first assessment of what's needed to achieve the SAV-clarity water quality standard.
- From the base of this first clarity assessment we'll be able to grow the science and our understanding of the shallow water habitat as we go forward.

This Assessment is Based Solely On An Assessment of Clarity

CB SEG.	State	91-'00 Base '91-93	2007 Scenario '91-93	Target Load '91-93	91-'00 Base '91-93	2007 Scenario '91-93	Target Load '91-93	91-'00 Base '91-93	2007 Scenario '91-93	Target Load '91-93
APPTF	VA	32.79%	23.55%	18.12%	32.79%	30.40%	18.99%	13.96%	10.17%	8.01%
BACOH	MD	78.58%	75.88%	75.65%	78.58%	79.01%	77.75%	78.58%	79.01%	77.75%
BI1MH	MD	36.69%	9.67%	9.67%	36.66%	9.67%	9.67%	36.66%	9.67%	9.67%
BI2MH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BOHOH	MD	59.34%	5.01%	0.00%	51.02%	5.01%	0.00%	10.75%	0.00%	0.00%
BSHOH	MD	3.25%	0.00%	0.00%	5.17%	0.00%	0.00%	6.96%	0.00%	0.00%
C11TF	MD	8.84%	0.00%	0.00%	8.84%	0.00%	0.00%	8.84%	0.00%	0.00%
C12TF	MD	32.77%	12.06%	7.57%	39.10%	11.41%	5.40%	35.75%	11.41%	4.88%
CB2OH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CB3MH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CB4MH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MD5MH	MD	26.72%	5.06%	4.53%	26.72%	5.06%	4.53%	47.58%	12.23%	9.59%
VA5MH	VA	29.64%	1.82%	0.08%	29.64%	1.82%	0.00%	27.09%	2.34%	0.00%
CB6PH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CB7PH	VA	6.05%	0.00%	0.00%	0.68%	0.00%	0.00%	0.68%	0.00%	0.00%
CB8PH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHKOH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHOMH1	MD	23.34%	6.98%	6.32%	23.34%	6.98%	6.32%	33.17%	12.88%	11.47%
CHOMH2	MD	13.97%	0.00%	0.00%	13.97%	0.00%	0.00%	26.99%	0.00%	0.00%
CHOOH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHSMH	MD	6.41%	0.00%	0.00%	6.41%	0.00%	0.00%	0.75%	0.00%	0.00%
CHSOH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHSTF	MD	100.00%	100.00%	83.99%	96.94%	94.20%	91.45%	96.94%	94.20%	89.47%
CDDOH	DE	58.33%	54.55%	51.75%	58.79%	54.55%	51.75%	47.67%	45.23%	41.96%
CMDOH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CRRMH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DCATF	DC	72.85%	50.28%	40.30%	65.74%	50.28%	40.30%	61.29%	56.99%	49.67%
MDATF	MD	21.26%	0.00%	0.00%	21.26%	0.00%	0.00%	28.57%	28.57%	28.57%
EASMH	MD	2.20%	0.00%	0.00%	2.20%	0.00%	0.00%	16.50%	0.00%	0.00%

This Assessment is Based On Clarity and Existing SAV Acres

CB SEG.	State	91-'00 Base '91-93	2007 Scenario '91-93	Target Load '91-93	91-'00 Base '91-93	2007 Scenario '91-93	Target Load '91-93	91-'00 Base '91-93	2007 Scenario '91-93	Target Load '91-93
APPTF	VA	32.79%	23.55%	18.12%	32.79%	30.40%	18.99%	13.96%	10.17%	8.01%
BACOH	MD	78.58%	75.88%	75.65%	78.58%	79.01%	77.75%	78.58%	79.01%	77.75%
BI1MH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BI2MH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BOHOH	MD	51.98%	0.00%	0.00%	46.19%	0.00%	0.00%	0.00%	0.00%	0.00%
BSHOH	MD	1.92%	0.00%	0.00%	1.92%	0.00%	0.00%	1.92%	0.00%	0.00%
C11TF	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C12TF	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CB2OH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CB3MH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CB4MH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MD5MH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
VA5MH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CB6PH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CB7PH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CB8PH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHKOH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHOMH1	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHOMH2	MD	13.52%	0.00%	0.00%	13.52%	0.00%	0.00%	25.05%	0.00%	0.00%
CHOOH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHSMH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHSOH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CHSTF	MD	100.00%	100.00%	83.99%	96.94%	94.20%	91.45%	96.94%	94.20%	89.47%
CDDOH	DE	58.33%	54.55%	51.75%	58.79%	54.55%	51.75%	47.67%	45.23%	41.96%
CMDOH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CRRMH	VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DCATF	DC	72.85%	50.28%	40.30%	65.74%	50.28%	40.30%	61.29%	56.99%	49.67%
MDATF	MD	21.26%	0.00%	0.00%	21.26%	0.00%	0.00%	28.57%	28.57%	28.57%
EASMH	MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

The Naming of the Parts – A Key to Clarity Subsegments

CB SEGMENT	NUMBER OF SUB-SEGMENTS	SUBSEGMENTS
ANATF	2	DCATF,MDATF
BIGMH	2	BI1MH,BI2MH
CB1TF	2	C11TF,C12TF
CB5MH	2	MD5MH,VA5MH
CNDOH	2	CDDOH,CMDOH
ELKOH	2	EL1OH,EL2OH
GUNOH	2	GU1OH,GU2OH
JMSTF	2	JMSTFL,JMSTFU
MANMH	2	MA1MH,MA2MH
NANTF	2	DENTF,MDNTF
PAXMH	5	PA1MH,PA2MH,PA3MH,PA4MH,PA5MH
POMOH	3	PO1OH,PO2OH,PO3OH
POCMH	2	MPCMH,VPCMH
POCOH	2	MPCOH,VPCOH
POTMH	2	POMMH,POVMH
POTOH	4	POVOH,PO1OH,PO2OH,PO3OH
POTTF	3	DCPTF,MDPTF,POVTF
SASOH	2	SA1OH,SA2OH

Follow-Up Actions

Follow-up Actions:

- Look at current monitoring assessments of clarity to examine consistency with model assessments of recent years such as 2005, 2010 and other recent years.
- Generally tighten up assessment approach.
- Examine the sensitivity of the WQSTM simulation in the shallow water and make adjustments if warranted.
- Examine reasons for persistent nonattainment in some designated uses.

Feedback Requested:

WQGIT feedback on the water clarity/SAV restoration acreage standard assessment procedures and the proposed next steps leading up an initial basinwide sediment target load to present to the PSC at their April 29th – 30th, 2010 meeting.