

Maryland Coastal Bays Program – STAC meeting minutes
January 13, 2010
UMCES Horn Point Environmental Laboratory

Attendees:

Bill Dennison - UMCES	Stephen VanRyswick – DNR/MGS
Roman Jesien - MCBP	Woody Francis – ACOE
Lee Karrh - DNR	Joseph Kincaid – MDE
Brooke Landry - DNR	Mary Phipps-Dickerson – MDE
Cathy Wazniak - DNR	Gary Tyler – DNR
Edythe Humphries - DNREC	Pat Glibert – UMCES
Carol McCollough - DNR	Carrie Kennedy – DNR
Drave Brinker – DNR	Matt Hall – DNR
Chris Spaur – ACOE	Steve Doctor – DNR
Denise Clearwater – MDE	Ben Fertig – UMCES/IAN
Tom Jones – SU	Jane Thomas – UMCES/IAN
Mitchell Tarnowski – DNR	Judy O’Neil – UMCES/HPL
Brian Sturgis – NPS	Carol Cain – MCBP
Clement Counts – SU	Tim Rule - MDE
Darlene Wells – DNR/MGS	

At 9 a.m. Bill Dennison opened the meeting by welcoming everyone and asking for a round-table of introductions. Additionally, he reminded everyone of the upcoming [AERS conference](#) in Atlantic City, NJ on March 4-6, 2010.

Presentations:

Dave Brinker gave a presentation on Island Loss & Colonial Nesting Birds in the Coastal Bays.

Discussion/Action Item:

The Coastal Bays needs a sediment management plan. *It was suggested that buy-in for such a plan could be accelerated during an Assateague Nourishment Meeting on Feb. 25th. Additionally, regulators have approached by numerous marinas and property owners regarding where to put sand and the potential quality of the sand. Potential partners: Jordan Lorar, Terry McGean, Dave Brinker, ACOE Water Resources group, Assateague Island NPS, & others.*

Pat suggested that the decrease in bird abundance in 2000-2001 may reflect a correlation in decreasing water quality during that time, as well as an increase in Brown Tide counts.

The DNR contingent provided a tag-team presentation regarding Current Topics in Maryland Coastal Bays Water Quality: Seagrass and Prop Scarring, Traditional Status & Trends, and CUMSUM Trends.

Brooke Landry presented SAV concerns on behalf of JJ Orth, regarding visible scarring in SAV beds in two areas of the northern Coastal Bays. Aerial photos suggest that scarring may be due to recreational boating activities. These impacts are counterproductive to SAV conservation efforts since boat propellers resuspend sediments & nutrients, remove SAV, increase erosion, and decrease water clarity. Studies in Virginia suggest that prop scar recovery of SAV beds require 2-5 years, while studies in Florida suggest recovery will occur in 2-10 years. Restoration expenses range between \$350,000 and \$400,000 per acre. As such, the prevention of prop scarring is much more cost effective and ecologically beneficial. Prevention measures might include increased signage, boater education & outreach and increased on-the-water enforcement.

Discussion/Action Item:

Have the Natural Resources Police been notified? The areas experiencing scarring are relatively deep, could jet skis be responsible? A meeting with homeowner associations, boating clubs & jet ski rental proprietors can convey the importance of SAV. Additionally, the beds should be marked with buoys and outreach materials should include a map of SAV beds.

Matt Hall presented the most recent iteration of nutrient & chlorophyll a trend analysis using linear and non-linear statistical methods and based upon the following thresholds:

Indicator	TN (mg/L)	TP (mg/L)	Chlorophyll a (ug/L)	Dissolved Oxygen (mg/L)
Better than SAV objective	<0.55	<0.025	<7.5	>7
Meets SAV objective	<0.64	<0.037	<15	7-6
Does not meet SAV objective	0.65-1.0	0.038-0.043	15-30	6-5
Does not meet STAC objective	1-2	0.044-0.1	30-50	5-3
Does not meet any objectives	>2	>0.1	>50	<2

Findings & discussion:

Parameter	Linear trend	Non-linear trend	Status
Total Nitrogen	-significant increase in Chincoteague -significant decrease in northern tributaries	-significant U-shape in Chinc. Bay, except Johnson Bay -signif. Inverse U-shape	Southern Chincoteague and Sinepuxent "passes" thresholds for the most part, but

		in Turville (2004), Herring, and lower St. Martin River (2003)	the channel seems to be retaining TN. Northern tribs are as degraded as they were in the past.
Total Phosphorus	-signif. Increasing trends in southern Chincoteague, some decreases in northern tribs`	-signif. U-shape trends in Sinepuxent & Chincoteague. -signif. Inverse U-shape trends in Turville (2004), Herring & lower St. Martin River (2003).	(3 year status) indicates that all of Chincoteague and Sinepuxent, as well as most of the norther tribs are currently degraded, so the system is moving from degraded to more degraded.
Chlorophyll a	-significant increasing trends in southern Chincoteague, northern tributaries are holding	-not much going on, one significant inverse U-shape in St. Martin's River shows that TN & TP reduction has led to a reduction in CHLA (2003)	Status is generally good, except for expected degraded condition in the tributaries. Lack of trends in the tribs indicates that they are remaining degraded.
Dissolved oxygen			DO degraded throughout the Coastal Bays. Question for future discussion: Is a 3 year minimum the best way to assess status of DO?

Discussion/Action Item:

STAC needs to determine if a 3 year minimum is the appropriate measure for DO concentrations.

Carol McCollough presented summary information from the Cumulative Sum of Z-Scores using state and federal water quality data for 23 subwatersheds within the Coastal Bays. The Z-Scores were calculated for 6 parameters: ammonium, nitrate, TN, PO4, TP, Chlor a, TSS and Secchi depth.

This analysis indicates that nutrients are declining in the Newport Bay watershed at Beaverdam Creek, Kitt's Branch, Bottle Branch, Ayer's Creek and Trappe Creek. There also appears to be declines in the Isle of Wight watershed as well, particularly in Birch Branch, Middle Branch, upper Bishopville Prong, Manklin, Turville, & Herring Creeks.

In summary, there appears to be an overall declining trend in nutrients in some degraded areas, while reversals were found in Chincoteague and Sinepuxent bays, with more significant linear trends and non-linear reversals showing declines in chlorophyll a. Future analyses will look to match anthropogenic changes/activities to inflection points or trends, match climatological events/trends to inflection points or trends, and identify potential drivers within watershed.

Discussion/Action Item:

Carol Cain asked why MCBP data had not been incorporated into the analysis.

Bill Dennison asked the MCBP to determine the dates that WWTPs stopped discharging into the bays.

Pat Glibert presented “Eutrophication”

She contends that nutrients are not nitrate driven as 80% of the 2,900 water samples were <1 uM. Blooms are summer events.

How has climate and landuse activities contributed to long term water quality declines?

CUSUM inflection doesn't reflect the inflections found in other trends (i.e. monthly or 3 month averages).

Phosphate levels dropped in 2001, Nitrate dropped in Fall 2002, & Ammonium dropped in 2003

CUSUM of freshwater flow (Snow Hill)

2001- Tropical Storm Alison corresponds with the decrease in Phosphate.

Nitrate variability was directly related to freshwater flows.

Changes in phytoplankton community is currently unclear.

It was climatically more dry before 2002, after 2002 wetter conditions saw increases in ammonium. Conversely nitrate was more abundant before 2002, and less afterwards.

Dissimilatory reduction of N after 2002

Phosphate and nitrate are not driving chlorophyll. Ammonium however is correlated and is driving the changes in chlorophyll increases.

Tim Rule of MDE TMDL Program provided an update on the Coastal Bays TMDL development. Currently the numeric criteria for nutrients are a hang-up. In response a work group has been established with the following goals:

March- technical work group will meet, comprehensive update

April- TMDL scenario development

June- MDE internal review

July- Interagency Review – STAC opportunity

Aug- public comment period

Sept- submit the TMDL to EPA

Discussion/Action Item:

STAC should be proactive by preparing a list of questions and concerns for MDE's consideration prior to March. The list might include:

1. A Chlorophyll a standard should be lower in a shallow lagoon than in an open estuary.
2. Which land segments will correspond to which water segments? This information will be helpful when estimating nutrient reduction via best management practices, restoration efforts and changes in management priorities.
3. Will the nitrogen model include a sensitivity analysis?
4. How will macroalgae/brown tide/phytoplankton be incorporated into the model? N:P ratios are different for each species.

Denise Clearwater discussed MDE plan to prepare a Wetland Monitoring Strategy.

Due to EPA Sept. 30, 2010

Roman Jesien updated the STAC on recent/up-coming restoration projects:

-Herring Creek soft shoreline installation

- Ditch plugs at the Showell property.

-Bishopville Dam

Roman also discussed the pre-approved areas/maps for clam aquaculture in the Coastal Bays. Unlike the Chesapeake Bay, the Coastal Bays do not have Enterprise Zones for aquaculture. One particular project that has been proposed is a 49 acre oyster & clam aquaculture site near South Point in Newport Bay. Woody Francis has been receiving public comments and is wondering how do we control commercial interests where no land base to stage from? What are the implications for enforcement and permitting in pre-approved areas that aren't enterprise zones? Further, there appears to be a managerial conflict in who may use a public boat ramp for commercial uses. Lastly, will the pre-approved areas interfere with island restoration sites?