

Maryland Coastal Bays Program – STAC meeting minutes  
June 27, 2012  
UMCES Horn Point Environmental Laboratory

**Attendees:**

|                          |                                   |
|--------------------------|-----------------------------------|
| Bill Dennison - UMCES    | Steve Doctor – DNR                |
| Roman Jesien - MCBP      | Jane Thomas – UMCES/IAN           |
| Cathy Wazniak - DNR      | Judy O’Neil – UMCES/HPL           |
| Carol McCollough - DNR   | Carol Cain – MCBP                 |
| Mitchell Tarnowski – DNR | Wes Johnson – Ecosystem Solutions |
| Brian Sturgis – NPS      | Bob Murphy – Ecosystem Solutions  |
| Bill Mahoney – MCBP      | Joe Pitula- UMES                  |
| Stephanie Pully – MCBP   | Ron Gutberlet – SU                |
| April Israel - MCBP      | Dave Wilson – MCBP                |
| Darlene Wells – DNR/MGS  | Evamaria Koch – UMCES             |
| Pat Glibert – UMCES      | Bart Wilson - CIB                 |

At 9 a.m. Bill Dennison opened the meeting by welcoming everyone and asking for a round-table of introductions.

Presentations:

**Cathy Wazniak** presented a summary of the 2011 VIMS SAV survey, gave updates on DNR’s diarrhetic shellfish poisoning study, and on the progress of the Coastal Bays Report Card 2011.

In 2011 we lost 4,780 acres of SAV. This brings SAV levels to about their 1992 levels, before we started seeing improvement in years like 1995. The 2010 aerial surveys were conducted data was mapped very early, before an especially hot summer so, much of this loss could have occurred in 2010. Heat, in combination with the usual light absorption attenuation issues, is the suspected cause of the die off. The northern bays saw significant ly large area die-offs whereas the southern bays lost SAV mostly along the edges of beds.

Dinophysis species cause Diarrhetic Shellfish Poisoning. The toxins produced by these algal species have been found in St. Martin River, Turville Creek, and in the Bishopville Prong at above threshold levels for state shellfish area closures. The good news is that these areas are not shellfish areas. Our dinophysis species are creating all three possible toxins whereas on the west coast and in the Gulf of Mexico they usually only produce one of the three toxins. The Bishopville Prong also had protocentrum and karlodium species present.

The 2011 report card projects preview shows that the overall grade this year will be a C with a slight decline in overall health. The projection is based on 2010 Park Service data which will be updated with 2011 data as soon as it becomes available. Stories will include the 25 year ground water legacy of historical fertilizer applications and the last two years of blue crab landings above the long term mean.

The [Park Service](#) water quality data is being processed at the lab now and the Report Card will be ready to go after the numbers from the lab are plugged in.

**Mitch Tarnowski** gave the DNR clam survey update. The annual survey was finished on Monday and SAV ground-truthing information collected during the survey has been given to Bob Orth. There were 260 clam survey samples this year which is the highest since 1993 when the surveys started. No bay saw a decrease in clam density, all were stable or improving. Isle of Wight had the highest density which was about the same as last year with 1.4 clams/m<sup>2</sup>. Assawoman is 50% up, Sinepuxent is up, Chincoteague doubled its density and had the best recruitment, and Newport is still not a good place for clams. Overall recruitment seems low, judging by a low number of sublegal clams.

A bay scallop was found near Seacrets. There is one subtidal oyster bed in Chincoteague. Samples were taken from it for disease analysis. Some oysters were 5-6 inches long, many boxes were present, and a spat set was noted.

Discussion/Action Item:

Little brown tide over the past few years has probably benefited bivalves.

We are surprised to see that water quality and eelgrass declines have not affected certain species such as crabs, clams, and oysters as much as we would have thought.

Scallops are more sensitive to temperature than other bivalves.

We are seeing shifts in algae species population distributions which might also be affecting the health of filter feeders.

DNR is aware of the intertidal oysters living in the bays, but no population studies have occurred.

There is some data relating shellfish populations to SAV beds. SAV has been shown to encourage shellfish life in many instances. When the eelgrass behind the OC Convention Center disappeared the scallops seemed to follow. There are also examples of SAV beds so thick that they actually discourage use by many species.

**Evamaria Koch** presented on the study "Predicting Impacts of Stressors at the Land-Water Interface" including some early numbers and the overall scope of the study which is funded at \$48 million over 5 years. The study, which is led by the Smithsonian Environmental Research Center and started in September 2009, has 17 PIs from 8 institutions.

The study focuses on shallow waters, less than two meters, because these areas are biologically active and provide important habitat for fishery and migratory species.

The main working groups are SAV, macro-fauna, and wetlands. Evamaria is working with the SAV group which is focusing on:

1) *GIS based statistical analyses* which relate variations in SAV coverage among and within subestuaries to watershed & subestuary characteristics, especially shoreline hardening. Correlates of SAV success and failure are also identified this way, and attempts are made to predict SAV responses to changes in land use and shoreline hardening.

2) *bio-optical modeling* to relate light absorption & scattering to water column properties and to create high resolution maps of light penetration and causes of low light availability (chl. a, TSS, CDOM).

3) *Transect studies* to measure SAV density, wave energy, & TSS deposition on leaves near natural and hardened shorelines. Transect studies also quantify responses to shoreline hardening, improve knowledge of optical effects of TSS deposition on SAV, and improve knowledge of wave energy and its effect on SAV.

There are five areas being studied within the coastal bays.

One particularly interesting find in the SAV section is that when a subwatershed has 5.4% or greater of its shoreline in rip rap, SAV health suffers. Another find is that forested watersheds tend to have the best SAV beds.

#### Discussion/Action Item:

There are similar causes of light attenuation in the Chesapeake Bay and coastal bays in the near shore environments, but the overall systems do provide for different light attenuation dynamics.

Rip rap is not only a reflector of wave energy and an occupation of otherwise potential habitat,habitat; it also serves to stop natural sand recruitment which negatively impacts SAV.

**Joe Pitula** presented on Hematodinium in the context of other dinoflagellates.

Hematodinium is a parasite that overwhelms the hemolymph of a variety of crab species worldwide. Very little is known about the transmission of this disease in nature. There is also little known about why these dinoflagellates assume different phenotypes (forms). It ~~is proposed~~ is proposed that their location in the water column vs. sediment could determine the form. Infections in blue crabs peak in mid to late summer and crabs sporulate when they are highly infected. Hematodinium seems to be more common in areas with clay-like soil types.

Study this summer will focus on the succession of dinoflagellate communities.

The purpose of this UMES, UMCES, NSF, and NOAA study is to find potential hotspots of *Hematodinium* in the Maryland Coastal Bays. In this effort the researchers will a) analyze its presence according to seasonal cycles, b) Uncover ecological variables that are associated with free-living *Hematodinium*, and c) discover potential alternate hosts

The hotspots that have been found are: Newport Bay, Trappe Creek, Toms Cove, and Sinnickson, VA.

Conclusions:

- a) We have detected hematodinium in the water column and sediment samples from the MD and VA Coastal Bays. About 9% of samples were detected positive.
- b) *Hematodinium* sp. DNA is present in the environment throughout all seasons although there was a surprising amount detected in early spring, particularly in the water column
- c) We have the expertise to monitor both for *Hematodinium* disease and also for the relationships among resident dinoflagellates, including potential HAB-forming species

#### Future Directions

- a) Quantify *Hematodinium* in environmental reservoirs using QPCR
- b) Understand the nature of the “free-living” samples. I.e. Are they infective dinospores<sup>[c1]</sup>? Are they reproductive forms? Are they in association with zooplankton?
- c) Is there a seasonal succession pattern in the development of HABs?

#### Discussion/Action Item:

DNR has phytoplankton counts that could be helpful in this study.

The dinoflagellates are heterotrophic, with no photo ability at all, and may not actually be dinoflagellates.

Hotspots span the various levels of water quality, yet one would expect infections to be worse in areas with more degraded water quality.

**Roman Jesien** presented on the progress of MCBP’s restoration projects.

Completed:

- 1) Lizard Hill, an Atlantic White Cedar restoration. We are looking for cheap or free plants to further enhance this site.
- 2) Greys Creek, a living shoreline
- 3) Skimmer Island, island restoration for colonial birds and horseshoe crabs

Ayers Creek Kayak Launch, a soft kayak launch, is almost ready to be opened to the public after signage and a gate are installed.

The Bishopville dam removal is moving along with good resident buy-in but a few remaining right of entry issues regarding construction roads.

The West Street project, a stormwater management improvement project in Berlin, is held up because of hydrology issues. Too much water flows through the site to be able to complete the project without installing a much larger culvert.

Hudson Branch, another stormwater management project located in Berlin is stalled due to a lack resident buy-in.

The management plan for the Adkins property on Assateague Road is currently under development.

**Roman Jesien** then announced this year's MCBP Implementation Grant awardees:

Jeff Cornwell (UMCES) - Benthic Nutrient Cycling at the Coastal Bays Land-Sea Interface \$25,000

Evamaria Koch (UMCES) - Engineering with nature: softer and greener seawalls for the Coastal Bays \$24,995

Judith O'Neil (UMCES) - Identifying microbial and nitrogen "hot-spots" in Chincoteague Bay \$25K

Cathy Wazniak (DNR) - Clear and Present Danger: Assessing Diarrhetic Shellfish Poisoning Toxins in MD \$6,242

**Carol Cain** reminded the group about the updating of our CCMP and pointed out that ~~the demands set forth by the now in development the forthcoming~~ TMDL, ~~associated~~ WIP, and ~~Coastal Bays~~ Ecosystem Assessment will all be ~~incorporated into the CCMP in development concurrently~~. This will allow STAC and others to streamline efforts when considering future goals, common indicators, monitoring and research needs, etc. STAC was reminded that the Coastal Bays management plan is designed to be scientifically, rather than politically derived. This effort will also allow STAC and other PIs to see their past studies and recommendations become incorporated into the update.

~~We are now creating a new~~ As we near the end of the first 15 year ~~science-based~~ management plan. ~~m~~ Much more is known about the chemical/physical and social/economic dynamics of the coastal bays since ~~the writing of the first plan in~~ 1999. A challenge in updating the CCMP will be to set up ways to track progress toward achieving the new actions. Indicators of success in addressing the environmental and social needs of the area will need to be chosen (or created) and monitored by the MCBP and our partners.

In order to create the new plan we need the help of the STAC and your connections to data and human resources. In particular we need people to chair the four main sections of the CCMP update. We will also want to have two people for the Fish and Wildlife section, one for aquatic, and one for terrestrial. The other three sections are Water Quality, Recreation and Navigation, and Community and Economic Development.

The proposed schedule of important dates regarding the CCMP, TMDL, WIP, and Eco Assessment can be found on the next page...

After Roman reviewed this schedule Carol asked the STAC to look at her spreadsheet which highlights how past actions have been evaluated for completion. Then, a collection of names for section chair

nominees was developed by STAC and input from technical experts and PI's for each challenge was discussed.

Section Chair nominees:

Water Quality – Cathy Wazniak

Fish – Marek Topolski or Lynn Fagely (DNR) & Wildlife – Ron Gutberlet (SU), Jonathan McKnight (DNR), Scott Phillips/Mark Bennett (USGS wildlife)

Recreation & Navigation – Bill Huslander (NPS), Terry McGean (OC), Chris Spaur (ACOE)

Community & Economic Development – Keith Lackey (DOP)

| <b>Provisional MCBP update/adaptive management efforts</b> (as of June 2012) |          |  |
|--|----------|--|
| Date   | Venue    | Task   |
| June 27, 2012  | STAC     | Recruit CCMP Section Chairs: WQ, FW, RN, CE  |
| July 16, 2012  | IC       | Approve CCMP Section Chairs & IC participants  |
| July 16, 2012  | IC       | Tim Rule (MDE) "Public Meeting on Draft TMDL"  |
| mid- August 2012   |          | Identify PI & tech experts for CCMP actions/edits. Incorporate emerging issues & lead agencies                 |
| September  | IC       | Coastal Bays TMDL Submittal to EPA.  |
| September  | IC       | Updates from Section Chairs given to IC  |
| September, 2012  |          | Report Card Release?   |
| October 1, 2012  |          | Coastal Bays WIP/ milestones   |
| November 1, 2012   | IC       | Melding of CCMP responses from STAC and IC. One workshop/week/section with scientists, managers, stakeholders? |
| November 1, 2012   | CAC/MCBP | Stakeholder presentations on MCBP accomplishments, initiate public perception surveys                          |
| December 1, 2012   | CAC/MCBP | Draft CCMP update ready for public comment.  |
| January 1, 2013  | STAC     | STAC comments on revised draft CCMP.   |
| January 1, 2013  | STAC     | Planning for next Ecosystem Assessment   |
| 41,306.00  |          | Public comments incorporated into CCMP   |
| April 1, 2013  | POLICY   | Formal approval of CCMP  |

|               |      |                                   |
|---------------|------|-----------------------------------|
| June 1, 2014  | STAC | Progress on Ecological Assessment |
| June 1, 2013  | EPA  | EPA Implementation Review         |
| June 15, 2014 | STAC | Ecological Assessment Due 2014    |

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|--------------|
| CCMP efforts |
| TMDL efforts |