Tidal Monitoring and Analysis Workgroup
Thursday, September 20th, 2012

http://www.chesapeakebay.net/calendar/event/18372/

MINUTES

Participants

Walt Boynton, UMCES/TMAW Chair	Liza Hernandez, UMCES/TMAW Coordinator	Peter Tango, USGS	Richard Tian, UMCES
Jonathan Kellogg, EcoCheck/UMCES	Bill Romano, MD DNR	Jackie Johnson, ICPRB	Caroline Wicks, EcoCheck/UMCES
Elgin Perry, Independent Consultant	Amanda Pruzinsky, CRC/CBPO	Mark Trice, MD DNR	Bruce Michael, MD DNR
Donald Smith, VA DEQ	Cindy Johnson, VA DEQ	Ben Cole, MD DNR	Cathy Wazniak, MD DNR
Katie Foreman, UMCES	Mike Mallonee, ICPRB	Doug Moyer, USGS	

Welcome, introductions, announcements (W. Boynton)

- Next Meeting: Thursday November 1st, 2012 10AM – 3:30PM Joe Macknis Conference Room (Fish Shack) CBPO 410 Severn Ave Annapolis, MD
  - For more information http://www.chesapeakebay.net/calendar/event/18374/

- Peter Tango discussed the recent conference "Impacts of Tropical Storms Irene and Lee" which was held in NY on September 19th, 2012
  - For more information http://www.hres.org/joomla/

- Chesapeake Watershed Forum September 28-30th, 2012
  - For more information https://allianceforthebay.org/initiatives/connecting-people/chesapeake-watershed-forum/

- MD Water Quality Monitoring Council December 6th, 2012
  - For more information http://mddnr.chesapeakebay.net/MWMC/MWMC2010/annualConference.asp

The PIBI Issue (J. Johnson & B. Michael)

The current status of phytoplankton monitoring program was discussed.

Discussion and Questions

- Virginia – Continued funding of their program, with no additional changes to the phytoplankton monitoring.

- Maryland – Phytoplankton program was formally defunded three years ago, against recommendations from the Monitoring Re-alignment (MRAT) report. In 2010 and 2011 reduced plankton sampling was funding through a NOAA fisheries Food Availability Index project. However this funding is not available in 2012.
  - In 2012 spring and summer, the samples have been collected, but waiting for funding for analysis. With the promise of funding in the future, sample collection will continue.
    - Maryland is currently looking for funding (50K).
    - This program is a priority of MD DNR.
    - If partial funding is found (25K), spring data will be analyzed. With only spring data, the indicator would have to be reorganized, but it is workable.
    - TMAW will continue to advocate reinstatement of this monitoring program.
      - TMAW and STAR will be drafting letter to send to NOAA to request funding.

- The importance of phytoplankton program
  - Who funds it? Fisheries or Water Quality
  - May need to press the issue and explain that it is important to water quality issues.

- Would the removal of PIBI create a gap? Yes.
  - Not sufficient. Must cover the entire water column.
  - Best recommendation for 2012 PIBI Indicator – Present the assessment with available VA data and map with MD stations grayed out.

- Health and Restoration Index – Benthic and bottom DO would continue as standalone indicators

- Possibility of creating an Estimator for PIBI
  - Must explore funding options.
  - It would advance the understanding of the connections between these indicators in the Bay.

- HABS are still monitored in MD waters through DNR. Have funding and will continue with the program. Currently looking for a replacement for Walt Butler since he is soon retiring.

Development of Water Temperature Indicator (P. Tango)

At the April STAR meeting water temperature indicator was suggested and TMAW was chosen to discuss the feasibility. TMAW will present the outcomes of this discussion to the Management Board.

Discussion and Questions

- Most of the data is mid channel and ConMon monitoring is limited on the shoals, but there is not sufficient data for SAV monitoring purposes (ConMon sondes are only in a limited number of places).
- Frequency of days where temperature was over a particular threshold.
  - Test case – Temperature exceeding some limit for some duration.
- There are many reasons to report out on the data, but not necessarily as an index/indicator.
  - Context sensitive issue. This is an uncontrollable factor that affects the other indicators being measured. It should not be an index, but it should help to form the context of the other indicators.
  - Annual condition relevant verse climate change tracking.
  - Temperature effects – Bacteria, virus, harmful algae blooms, fisheries closure, SAV, etc.
  - Possibility for model predictions and sensitivity analysis.
- Mark Trice is on the NASA workgroup for real time satellite data and working with the NOAA Sentinel Site Program and will look for opportunities there.
- Salinity as an important contextual parameter should also be considered.
- Peter Tango will discuss with Nita Sylvester and this topic will be discussed again at the next TMAW meeting.

Dynamic Indices (W. Boynton, C. Wicks, J. Kellogg, M. Trice)

Caroline Wicks discussed the requests from the Governor. Requests: (1) flow adjusted Report Card, (2) show improving grades based on management actions, (3) a visualization of the improvements in the Chesapeake Bay over the years due to management actions, and (4) include other parameters including living resources, nutrients, and sediments.

Mark Trice discussed different tools that could help guide the visualization of the Report Card and other aspects of Chesapeake Bay Program reporting.

For more information on Mark Trice's presentation:
http://www.chesapeakebay.net/channel_files/18372/mark_trice_-_dynamicindices_20120920.pdf

Discussion and Questions

- ACTION: The Governor's requests will be discussed and incorporated into the Report Card over the next year.

DO Webinar Series (L. Hernandez)

Liza Hernandez discussed the proposed 2013 DO Webinar Series. The objective of webinar series is to review various methods for examining DO through a webinar series.

Discussion and Questions

- Format: Voice with PowerPoint webinar. Recorded webinar that will be uploaded to the CBP website. One hour duration tops for each session.

- Timeline: Twice a month series beginning in January

- Potential Topics:
    - CBP Interpolator – Baywide current conditions (L. Hernandez or B. Romano)
    - EcoCheck report card (C. Wicks)
    - 303d DO Assessment (L. Hernandez or R. Tian)
    - DO prediction load and wind (W. Boynton et al.)
    - Wind direction changes and effects on DO patters (M. Sculley)
    - Kriging findings (R. Murphy)
    - DO assessments related to management implications (L. Harding)
    - DO model study and implications of the findings to monitoring, modeling and management (C. Friedrichs)
    - Shallow water/vertical profiler
    - DO and Physics (Ning)
    - Post Sea Grant (Kemp)
    - Assessment and understanding of DO in the Chesapeake Bay

    ACTION ITEMS:
- Continue to research options for webinar format.
- Liza Hernandez and Walt Boynton will discuss the potential topics further and contact presenters.
- Continue to contact Liza Hernandez and Walt Boynton about presentation topic suggestions.

Storm Conference/Meeting Update (P. Tango)

Peter Tango led the discussion of the possible Storm Conference/Meeting.

Discussion and Questions

- ACTION: Consider this for the Spring AERS Conference as a session. Peter Tango and Walt Boynton will begin discussing this with AERS organizers.

Choptank Synthesis (W. Boynton)

Walter Boynton led the discussion of the USGS study in the Choptank. Results of this will be available at the end of this year. TMAW, in conjunction with the NTWG, has been asked to develop a Choptank Synthesis in 2013 as a counterpart to the basin work done by USGS.

- USGS will be moving focus to the Potomac next year – New study area every two years
- Linking nontidal and tidal – How can we respond to the substantial USGS effort that was taken in the Choptank?

Discussion and Questions

- Time series of data that would improve our load estimates and how they have changed.
- Mass Balance Models – Wet and dry periods
- Take loads and examine chlorophyll characteristics and couple it with other sites in the Bay.
- How does the Choptank fit into the loads and sea grass studies?
- Measurements of denitrification
- ACTION: Peter will send around Fisher reports.
- ACTION: Explore funding sources.
- ACTION: Work with the states and have a specific product to report.

GAM work with Estimator (E. Perry)

Elgin Perry discussed the Generalized Additive Model (GAM), which employs a regression on a cubic spline basis and would be a tool that is intermediate in structure to the low order polynomial basis in the Estimator model and the local smoothing approach in WRTDS. This presentation was to answer whether or not GAM can work with censored data.

For more information:
http://www.chesapeakebay.net/channel_files/18372/elgin_perry_-_censoreddatagam.pdf

Discussion and Questions

- Intermediate solution between transition from Estimator and WRTDS.
- ACTION: Compare results with WRTDS and Estimator results.

- Prediction vs. hypothesis tests
  - WRTDS does a good job of predicting instream concentrations of constituents, but does not offer any statistical inference tools to tell us if changes in concentrations are statistically significant. For USGS, looking at the non-tidal, a focus on accurate prediction is appropriate because prediction of concentration feeds into estimation of loads which for them is the end point of greatest interest. For TMAW, looking below the fall line, the concentrations of constituents is less important than the direction of change. It is more important for us to determine if we are getting a response to management actions that is statistically significant. Thus, the lack of statistical inference in WRTDS makes it less useful to TMAW than the GAM, which does offer statistical inference.
- Public communication – Figure one
  - This type of data and graphs can be used to tell stories.
  - Possibility of interactive animation.
  - Inset graph that includes population increase, but the continued cut off of increasing phosphorus.

Absolute Status Work Update (P. Tango & E. Perry)

Elgin Perry revisited the development of an absolute status scoring function based on a parametric CDF.

Discussion and Questions

- Choose one or two parameters and begin to push it through bay-wide.
- Reference curve needs to be developed
- Complete rewrite of computing machinery is both R and SAS.
- Introduction to R (steep learning curve)
- Elgin Perry with the help of Mike Mallonee and/or Liza Hernandez to obtain necessary data for exploratory chlorophyll analysis.
- ACTION: Chlorophyll as a parameter to be used as first bay-wide example of measuring the Absolute Status