



Tidal Monitoring and Analysis Workgroup

Wednesday, December 4, 2013

Meeting Calendar:

<http://www.chesapeakebay.net/S=0/calendar/event/21021/>

LEADERSHIP:

Walt Boynton (Chair)	UMCES CBL	boynton@CBL.UMCES.EDU
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MINUTES

Welcome, Introductions, Announcements – Walter Boynton, Chair (UMCES-CBL)

- [First Global Seminar Series Panel, December 6, 2013](#)
 - **Objective:** STAR will review, through panel discussions, how other long-term monitoring programs conduct and fund their networks activities, looking for approaches to ensure long-term sustainability of our (CBP) monitoring networks. The first panel will include:
 - Norm Grannemann, USGS Great Lakes Coordinator
 - Dr. Nathalie Hamel, Puget Sound Partnership
- [Second Global Seminar Series Panel, January 10, 2014](#)
 - The second panel will include:
 - Dr. Gerhard Kuska, Executive Director, Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS)

- Dave Hokanson, Water Quality Program Director, Upper Mississippi River Basin Association (UMRBA)
- Dr. Simon Costanzo, Moreton Bay Ecosystem Health Monitoring Plan, Australia

Overview of STAR Midpoint Assessment Priority Work Plan and 2014 TMAW Draft Work Plan – Liza Hernandez (UMCES-CBPO) and Scott Phillips (USGS)

Attachments: [*STAR Midpoint Assessment Priority Work Plan*](#)
[*Management Effects on Estuarine Water Quality Trends*](#)
[*2014 TMAW Workplan*](#)

S. Phillips gave an overview of the STAR Midpoint Assessment Priority Work Plan as an integrated effort by the Tidal and Nontidal Networks to keep trying to provide better information on explaining water quality trends to improve understanding, enhance model, advancing towards the 2017 mid-point assessment.

L Hernandez provided TMAW with an overview of the Management Effects on Estuarine Water Quality Trends Meeting held on August 16, 2013. The purpose of the meeting was to develop a strategy for assessing factors affecting estuarine trends. This work will later be integrated with the Nontidal workgroup to investigate connections between trends in watershed management actions, watershed loads, and estuarine water quality and living resources.

The group of core analysts that participated in the August 16th meeting put together a list of forcing variables to consider when examining estuarine responses. Elgin Perry did some follow up analysis which was presented at this meeting (see below - Generalized Additive Model Development for Patuxent River Horizontal Chlorophyll *a* – Elgin Perry) to evaluate the level of effort required to perform these trend analysis. This work will be brought to a CBP STAC workshop in the spring of 2014.

L. Hernandez reviewed the draft 2014 Workplan for the Tidal Monitoring and Analysis Workgroup. TMAW was asked to provide the 2014 Workplan to STAR at the January 23, 2014 meeting. Over 2014 the TMAW will be supporting the CAP Workgroup in the completion of the 2014 Criteria Protocols Assessment Technical Addendum, and the STAR Team with the “Building and Sustaining an Integrated ‘Monitoring’ Network (BASIN) process as well as continuing work on Tidal Indicators and the efforts towards the STAR Midpoint Assessment Priority Work Plan.

Discussion

- STAC will be providing an independent “third party perspective” in contributing to the Building Environmental Intelligence (aka BASIN) process.
- **ACTION:** TMAW members are welcomed to provide feedback on 2014 TMAW Workplan by January 16, 2014.
- Where in the TMAW Workplan reflects upon the monitoring efforts by the states?

- Currently it is not represented as a separate item in the Workplan.

Chesapeake Bay Nontidal Network: Loads and Trends through WY2012 – Doug Moyer (USGS)

Attachment: [*D. Moyer – Nontidal Network Loads and Trends through WY2012*](#)

D. Moyer presented trend work from the Nontidal Network (NTN) to give the Tidal workgroup an idea of what is happening on the Nontidal side for potential of innovative integration of the two networks. Moyer gave an overview of the new tool used by the NTN, WRTDS, for computing Nitrogen, Phosphorus, and Sediment loads to the Bay. WRTDS was found to provide the least bias and most accurate load estimates. The NTN has been working on communicating trends and loads in a variety of methods:

- How annual loads have changed once the year-to-year variation in flow (Q) has been removed, and in
- Tabular form of improving, degrading, and minimal (less than 10%) change for Short-Term (2002-2012) and Long-Term (1985-2012) trends in loads.

Moyer reviewed the process the NTN has undergone in order to explain water quality conditions and the steps that are being taken to better link Nontidal and Tidal water quality trends. Ideas for linkages include:

- Relating nutrient loads and flow to the extent of Baywide hypoxia, and
- Trends in seasonal loads because of the potential with WRTDS (i.e. Q. Zhang et al. 2013)

Discussion

- A meeting participant asked if USGS will be able to scale loads at the fall lines to the actual loading the Bay experiences (i.e. the Choptank and Patuxent Rivers currently have USGS Gauges that do not capture the full loading to the Bay)?
 - There is an effort to estimate the total contribution of loads beyond the fall line, to contribute to the measure of total loads which also including atmospheric deposition and model outputs. This data is available (contact: D. Moyer).
- Many members of the scientific community are looking into hypoxic trends and have evaluated similar trends shown in D. Moyer's presentation, and determined that the response of hypoxia is more complex. A recognized driver for hypoxia is circulation or mixing, influenced by summer and winter wind fields.

Generalized Additive Model (GAM) Development for Patuxent River Horizontal Chlorophyll *a* – Elgin Perry (Statistics Consultant)

Supplemental Material: [*E. Perry – GAM approach Presentation*](#)

Elgin Perry applied a General Additive Model (GAM) to examine trends in Chlorophyll a in the Patuxent River. The elements he examined as drivers for Chlorophyll a trends include season, flow, and light.

Discussion

- Adding light would be a difficult addition to WRTDS but it is a simple addition in GAM from programming perspective.