Modeling Workgroup Conference Call

September 10, 2020

Event webpage:
https://www.chesapeakebay.net/what/event/september_2020_modeling_workgroup_conference_call

Minutes

This meeting will be recorded for internal use to assure the accuracy of meeting notes

10:00 Announcements and Amendments to the Agenda – Mark Bennett, USGS and Dave Montali, Tetra Tech

10:05 Collaborative Progress on the Regional Hydrology Model – Gopal Bhatt, Penn State, Isabella Bertani, UMCES, and Gary Shenk, USGS

Progress on the collaborative CBP Regional Hydrology Model will be discussed.

Discussion:

- Lew mentioned that Management Board expressed interests in our eco flow work with respect as a stream health and fisheries outcomes.
- Robert asked what changes can be made to have better performance. Gopal responded that he did not have to do anything in terms of improving the downscaling technique.
- Lew pointed out the text book approach to downscale monthly wastewater flow to hourly or daily on slide 27 should be applied to the dataset.
- Lew proposed the workgroup to have Isabella to apply the daily and hourly approach to the dataset and start to reporting progress in October Quarterly. Have the two side by side point source inputs: Flows and loads on flows and loads off.
- Dave pointed out that literature is designed to ensure that if you build a new wastewater treatment plant you have hydraulic capacity to deal with. He added that there is a lag in the water volume through the treatment work
- Robert asked if the diurnal pattern can provide information for wastewater treatment plant operators and local state permitting officials who actually permit.
- Karl asked if these proposed methods would just be for downscaling flow, not nutrient loading. Gary responded that his assumption was that flow and load would follow the same pattern. CAST and time-averaged loads would not be affected, but there would be an effect on stream chemistry in a process-based simulation of the streams.
- Karl: Need for caution. Just looking at BPlains data, which is currently being greatly affected by pandemic changes. Not clear if future will be exactly like the past. Gary would like to see the data if available for UMCES (Isabella) to have.
- Guido asked if the observed PS temperature available and factored in simulation
- Gary responded that we need to have some temperature assumption, otherwise HSPF would see ice cubes. Our current assumption is universal and I think it changes seasonally. Looking for a better assumption.

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- Gary recommended having an undergraduate intern to put together a diurnal pattern dataset.
- Karl recommended having waste water treatment workgroup and academic scientist to review the method.

10:45 **Proportion of Atmo Dep N delivered to Chesapeake Tidal Waters – Gopal Bhatt, Penn State**

A new analysis of the proportion of atmospheric deposition of N delivered to tidal waters will be presented.

Discussion:

- Larry asked if there is estimate on how the pandemic has done to decrease the atm deposition.
- Lew mentioned that the analysis on this will be done by airshed model/CMAQ by Jesse Bash.
- Jess commented that some of the data needed takes time to be compiled.

11:10 **A Pilot Study of a Continuous DO Monitor with Multiple Fixed Depth DO and STD Sensors – Peter Tango, USGS**

Initial results will be presented from a pilot study of a continuous DO monitor with multiple fixed depth DO and STD sensors in CB4 that could provide new opportunities for calibration of the next generation Bay model as well as application to better water quality standard assessments.

Discussion:

- Dave asked if Peter have information about how often the sensors have to be serviced. Peter responded that the sensors are working really good within three weeks of time frame.
- Bruce asked if there are any plans to do another deployment or is that it for this particular pilot project. Peter responded that for this project this was what was affordable as far as investing in the infrastructures and then getting the deployment in place.
- Bruce Michael mentioned that the late August cruise results came back and we had less hypoxia. There was less or equal hypoxia than the long term average except for the late July cruise and that July cruise was due to the extreme heat that we had. It was one of the hottest July's on record.
- Bruce Michael added that it looks like for the summer of 2019 we're going to have less than the long term average for hypoxia for the entire summer.
- Dave asked Peter if he is going to be seeking additional money. Peter responded that he is unsure but NOAA is reconsidering their buoy system now can be restructured in some locations to improve their utility with some of their investment.
- Sean Corson added that NOAA is in conversation with EPA USGS DNR and trying to find a good nexus with respect to the model validation and a host of other issues such as a fish habitat perspective and habitat volume in space and time for a variety of species.

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11:35 **Estimated Tidal Bay Nutrient Limitation with Applications to the 2017 Bay Model – Qian Zhang and Richard Tian, UMCES and Lew Linker, EPA-CBPO**

The importance of nutrient limitation to Bay Model calibration and as applied to broad CBP policy such as the Watershed Implementation Plans (WIPs) will be discussed and an examination of estimated nutrient limitation of key scenarios such as the WIP3, No Action, and Progress Scenarios will be described. Modeling Workgroup support for proposing new nutrient bioassay work in the Chesapeake will be requested.

Discussion:

- Carl mentioned that the current model takes account for nutrient ratios. So were looking at how well the water quality model matches these independent variables in CART
- Carl would like to see what the model nutrient limitation actually is.

12:00 ADJOURN

Meeting participants:

Arianna Johns
Bruce Michael
Carl Cerco
Carl Friedrichs
Clifton Bell
Clint Gill
Cuiyin Wu
Dave Montali
Gary Shenk
George Onyullo
Gopal Bhatt
Guido Yactayo
Isabella Bertani
Jesse Bash
Jhih-Shyang Shih
Karl Berger
KC Filippino
Kyle Hinson
Larry Sanford
Lewis Linker
Luke Frankel
Marjy Friedrichs
Mark Bennet
Norm Goulet
Peter Tango
Pouyan Nejadhashemi

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Qian Zhang
Rebecca Murphy
Richard Tian
Robert Burgholzer
Sam Merrill
Sean Corson
Sebastian Hernandez
Ted Tesler
Tom Ihde

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