Modeling Workgroup Conference Call

December 2, 2014 1 PM – 3 PM

http://www.chesapeakebay.net/S=0/calendar/event/22126/

Announcements – Currey/Linker/Shenk

- Modeling Workgroup meeting on January 14 and 15 will focus on the Airshed and Water Quality Sediment Transport models.
- Modeling Workgroup meeting on January 28 and 29 will be dedicated to the Watershed model.
- Comments on RDM Report are due to Lewis Linker by COB on December 3.
- Draft responses to the STAC lag time report were sent out to the Workgroup on November 17, comments should be returned to Gary Shenk by COB by December 4.
- Draft responses to the phosphorous dynamics and multiple models are to be sent out at some point in the next month before the next Workgroup meeting.

Update on Conowingo Dam Report Public Release and Review – Currey/Linker

- Update on Maryland Department of the Environment Water Quality Certification
    - MDE intends to deny the water quality certification application submitted by Exelon due to insufficient information. Increased scour and decreased sediment and nutrient trapping has led to estimated nonattainment of Chesapeake water quality standards, but the information from the recent Lower Susquehanna River Watershed Assessment Report wasn't in the certification application.
    - January 7 will be the date of the public hearing on the certification application and is the date on which final comments are due. The final certification application decision is to be submitted by the end of January 2015.
- Update on Lower Susquehanna River Watershed Assessment (LSRWA)
    - A STAC review of the LSRWA Report determined that there were no fatal flaws in the analysis.
    - Key dates regarding the LSRWA Report:
        - November 12: Media Call regarding the report
        - November 13: Report made available for public comment
        - December 9: Public meeting at the Harford Community College, Hartford County, MD which will also be broadcast through a webinar.
        - More information regarding the report and public meeting time, location, and agenda can be found at http://mddnr.chesapeakebay.net/LSRWA/report.cfm
- Comments and Discussion:
    - Denial of certification for insufficient information typically results in a timeline for a reapplication process, over which more information may be collected.
        - If a denial of certification comes to pass, it will likely have the effect of bringing key decisions on the Conowingo into alignment around the 2017 time period.
- Presentation Link:
    - http://www.chesapeakebay.net/channel_files/22126/currey_lee_update_on_conowingo_2014_12_02.pdf

Phase 6 Status Report – Bhatt/Shenk/Yactayo

- Updates on different portions of the model were provided. The Modeling Team will be looking for decisions and recommendations on simulated nitrogen and phosphorus sensitivity in the January 28-29 Quarterly Review.
- Status Reports on different aspects of the model:
    - Acquisition of data for the land use types are behind schedule.
    - Scenario Builder Development and Code Versioning has been delayed by decisions that have not been made by the Ag Modeling Subcommittee, as well as the lack of the final land use types. However, the development of the code to incorporate new changes has been progressing well.
    - Meteorological data is progressing well, though atmospheric depositional data acquisition from PSU has encountered delays. This is a concern because if the Penn State begins work now the hourly wet deposition data needed by the watershed and Bay models will be unavailable until August, 2015.
    - ACTION: As decided previously, continue to press the Water Quality GIT for land use data.
- Guido Yactayo's recommendation about dealing with problem of temporal disaggregation of nutrient loads:
    - Comparison of sensitivities in SPARROW, AGCHEM, and APEX models.
    - AGCHEM model sensitivity was determined to be supported by the other models. AGCHEM sensitivities are preferred because they provide total nitrogen sensitivities as well as sensitivities for all different species of nitrogen. Additionally, AGCHEM sensitivity analysis gives the more appropriate marginal, rather than average, sensitivity to inputs. The recommendation is to use the AGCHEM sensitivities rather than the median of all models, although input on the reports is requested.
- Gopal Bhatt discussed UNEC (Unit Nutrient Export Curves)
    - Transit times are variable for inputs that are applied simultaneously. Because we cannot quantify the exact paths traveled by the molecules of nutrients, a stochastic approach that is approximated with a probability density function is a useful method. Work is progressing with the help of Johns Hopkins and USGS researchers.
- Presentation Link:
    - http://www.chesapeakebay.net/channel_files/22126/bhatt_shenk_yactayo_phase_6_status_report.pdf

Chester River Shallow Water Modeling Report - Tian

- The FVCOM CMON observed data, cruise data, and forcing data were described, as well as the model of shallow water in the Chester River and its preliminary results.
- The CMON data availability varies at different stations, most are only available for three to four years. In different deployments the sensors were not deployed continuously, but rather intermittently from dates in late spring to late fall or early winter.

- In the oligohaline region of the Chester River the salinity data does not match well with the model primarily because there is not enough salt introduced into the FVCOM simulated Chester River at the CH3D boundary.
- Presentation Link:
    - http://www.chesapeakebay.net/channel_files/22126/tian_richard_update_on_chester_river_shallow_water_simulation.pdf

RDM Report – Johnson/Julius

- Relevant (dis)advantages identified for use in the Modeling Workgroup:
    - Advantages: Shifts the problem of uncertainty quantification toward uncertainty in management decision-making and also provides, transparency, ability to identify tradeoffs among alternative strategies, systematic, identification of milestones, and course corrections.
    - Disadvantages: Extraordinarily computationally intensive, especially with the number of endpoints used within the model.
- Presentation Link:
    - http://www.chesapeakebay.net/channel_files/22126/johnson_julius_rdm_report.pdf