Modeling Lab Action Team Meeting
January 23rd, 2013 10:00AM – 3:00PM
http://www.chesapeakebay.net/calendar/event/19084/

MINUTES

ACTION ITEMS

- **NEXT MLAT MEETING** – February 21st, 2013 10AM – 3PM
  Location: USGS Baltimore Office Conference Room A, 522 Research Park Drive
  Baltimore, MD 21228
  Event Webpage: http://www.chesapeakebay.net/calendar/event/19220/

- **ACTION**: Lewis Linker and Gary Shenk will discuss having the operations and operational development at the Modeling Laboratory with CBP managers before the next meeting.
  - A dialogue needs to occur between EPA, jurisdictions, and other partners.

TIMELINE

(Note: The timeline is subject to change)

FEBURARY 21st, 2013
MLAT will meet to discuss the modeling laboratory tasks, governance, and budget.

MARCH 2013
MLAT will meet to draft initial report.

MARCH 30th, 2013
DRAFT REPORT – Send out to members for internal review March 30th, 2013.
- Members should review the draft report before the April meeting.

APRIL 2013
The final report and presentation will be reviewed at the April meeting in preparation for the May 16th, 2013 Management Board meeting.

MAY 16th, 2013
DRAFT FINAL REPORT – Deliverable before summer 2013 – Draft final report to present to Management Board at May 16th, 2013 MB Meeting

Knowledge System for Sustainability (KSS) Meeting

- Knowledge System for Sustainability (KSS) Meeting will be a 2 day meeting held sometime between May 1st and 3rd, 2013.
  - Components:
    - Introducing KSS and the CBP
    - Modeling Laboratory Discussion

        - How Social Science Can Effect These Types of Issues
    - MLAT members are invited to the meeting
    - Location: TBD

Briefing on presentation to the Management Board – Mark Bennett

- The presentation covered the rational of the Modeling Laboratory and asked for initial questions and concerns. To view the presentation click here.

- The Management Board urged the need to discuss the cost of the Modeling Laboratory.
    - The Model Laboratory has a cost associated with it. Must weigh the cost and benefits and determine the funding available.

Discussion on research component of Modeling Laboratory – Gary Shenk

- Example: The CBP Model needed to include light attenuation in the model. Researcher went out and collected information on light attenuation. Then equations were developed and incorporated in the model.

- Although the Modeling Laboratory could handle small research projects, such as the above light attenuation example, but this group must discuss what is "research" and what research should be done at the Modeling Laboratory. The level of effort and scale of certain types of research projects may be out of the reach of the Modeling Laboratory.

- Detailed field research (data collection research) vs. modeling research
    - Data collection research is integral to the Modeling Laboratory success, but the research at the Modeling Laboratory should be oriented toward modeling research.
    - Modeling research should be the focus of the Modeling Laboratory. Must be careful when adding a non-modeling research component.
        - Focus must be modeling and applied modeling research.
        - The research needed for modeling is usually extremely specific and is directly connected to the modeling research.
            - The activity of collecting the data for the modeling is not necessarily research (i.e. land use and bathymetry).
                - "Data input needed for the model."
                - The modeling activity that this data is feeding is the actual research.
                - Versus a field study – Research question, hypothesis, analysis, hopefully answer the question.
            - What about developmental research (ex. Climate change)?

    - Components that should be included in the Modeling Laboratory: developing models, data collection, modeling research, research on modeling methods.

- Funding options discussed:
    - Applied research component that is funded through the Modeling Laboratory.
        - Set aside a portion of the dedicated funding for applied research.
            - Research the Modeling Laboratory would request through a RFP process.
            - Flexibility to fund research that is needed to improve the models.
            - Builds relationships with the research community.
            - Can focus the research and structure to CBP needs.
    - The sustained funding should include all components for Modeling Laboratory operations. Management identified research needs that require detailed field research should be funded through some other resource.
        - In the past, the CBP has supported research when it is imperative (i.e. if we don't, we will have a model that doesn't work or is technical limited). The research was funded through requesting extra funding for a limited amount of time.

- There is already a large list of research needs for modeling. Must prioritize and determine the level of effort (i.e. Carl Cerco, STAC, and the WQGIT have different lists of research needs).

Discussion on Structure of the Modeling Laboratory – All

- The governance of the Modeling Laboratory has to have authority the make decisions. The Management Board should not have to approve everything the Modeling Laboratory does.

- Virtual Laboratory
    - Cooperative agreement
        - The governance would set the guidance and boundaries, but allow flexibility.
        - Must be a management driven Modeling Laboratory.
        - If the Modeling Laboratory is funded through another source (ex. KSS), that funding organization will be part of the discussion of what they will be working on and where the funding is going.

- Options discussed:
    - ~~Expand the current operations staff to fulfill the needs of the partnership.~~
    - Add a modeling laboratory and keep operations separate.
        - The governance of the Modeling Laboratory would not govern the components that are already part of the CBP.

        - Operations team must be separate from the other components of the Modeling Laboratory. The regulatory need must stay within the Bay Program.
        - Add a modeling laboratory and keep operations separate, but should not limit the expansion of the modeling to the Modeling Laboratory (i.e. could add staff to the operations team).
    - Add a modeling laboratory and include operations in the Modeling Laboratory.
        - In this scenario, the current modeling operations at CBP will be under the Modeling Laboratory governance.
        - Could facilitate including jurisdictions in the modeling process.
        - The jurisdictions believe this will create will federal control of the model.
        - Concerns:
            - Don't want the operations to overtake the Modeling Laboratory.
            - Dedicated staff must be part of the operations.
            - A complicated RFP/RFS/Cooperative Agreement when stating that the Modeling Laboratory must include the operations.
            - Need to make sure that the Modeling Laboratory does not turn into extended model operations. Need dedicated funding for research.
            - Costs more and is less efficient?
                - May make certain aspects more efficient (i.e. research).

- The states urged that they would like more accessibility to the models. First task of the Modeling Laboratory could be to make the models accessible to others.
    - Calibration and changes to the model must be clear and communicated.
    - Updates to the model must be easily transferred.
    - Would need more resources: training, transferring the model, validation of the information produced by others.
    - Would require jurisdiction specific liaisons.
    - There needs to be formal process and documentation for changing the models.
        - The Modeling Laboratory would test these changes to the model before using it.
        - In the past, jurisdictions were asking for most of the quick changes that were made to the model, but the jurisdictions are urging a more formal process for changing the model in the future. This will slow changes to the model down, but it is suggested that if this process were in place there would be less need for changes in the model because it would be tested and vetted through the jurisdictions before use.

- Currently, EPA is funding the operations, but has little input for changes to the model.
    - Who is making the decisions?
        - CBP – WQGIT and Modeling WG
        - SAIC

        - Aqua Terra
        - USACE
    - When the states bring fourth issues in the model, EPA decides to continue moving forward.
        - The timeline seems independent of the modeling.
            - Would moving the operations to the Modeling Laboratory correct this problem? Seems unlikely.

- If this group only recommends a modification of the current modeling structure, Virginia management will most likely want to spend funding on implementation rather than the development of the Modeling Laboratory.
    - What elements would need to be changed?
        - It is not exactly clear what Virginia would need to change, but they want a major restructuring.
        - One solution: The changes that need recalibration and extensive new code development should be done through the Modeling Laboratory.
            - Even if it does not require to be vetted through the Modeling Laboratory, it still needs to be well documented and communicated.
        - Virginia stated that they would like to see more academic involvement in all components of the CBP modeling.
        - There needs to be formal process and documentation for changing the models.
    - What are the opinions of the other jurisdictions?

      Maryland:
        - Cannot keep track of a constantly changing model – Need stability.
        - Where the different components are housed is not necessarily of concern.
        - Outline of the needs: Transparent systematic process that has stability and addresses research.

- Note: The current model is locked down until 2017. No model changes that would affect the calibration, but the scenarios are "open" (i.e. BMP efficiencies).

Examples of how changes to the model would be processed – All

- Example: Lag times
    - Gather research related to the specific issue (i.e. groundwater lag times, BMP lag times, etc.), calibrate the model, test, provide to jurisdictions and request feedback, finalize the model.
    - Adding lag times would ultimately improve the model calibration, but the model would have to be run two different ways (1) without the lag times for TMDL purposes and (2) with lag times to determine how long it will take to see improvements.

        - Could use the lag time model to answer "After 2025, how long will it take to meet water quality?" May not ever have to incorporate into the CBP Model that is used for the TMDL.
        - These could be incorporated into the CBP model OR information could be used for management of particular components (i.e. a specific BMP lag time), but not incorporated into the CBP model.
        - If incorporated, when will it be incorporated? 2025 timeline
            - If there is a major change that is outside of the 2017 and 2025 model upgrade, all of the jurisdictions must agree.
    - Without any entity like a Modeling Laboratory, taking on a research topic like this would be extremely difficult.

- Many of these large research oriented changes seem like they would be processed the same way: Explore the current model and other models and data, gather research and generate data related to the specific issue, create new model code, test, vet through the WQGIT, Modeling WG, and jurisdictional partners, and adopt new model (the new model doesn't necessarily have to be incorporated directly into the CBP Model, but could be used as a tool to inform decision making).

- Example: Phosphorus concentrations in soils.
    - Would need to create a map over time of these concentrations. This is basically a new model based on inputs and uptakes, which would inform how CBP would model in the future.

- If there seems to be a fundamental issues that would ultimately change the way BMPs are implemented and targeted, investment in research is needed.
    - The science needs to improve and as this occurs the science could point in a different. If the science and the model begin to diverge, there is a problem.
    - Water Quality is the ultimate goal.

- The Modeling Laboratory would benefit from having an operational component, where they are able to run the model to answer research based questions.

- Example: Change in the way the model redistributes manure.
    - This is considered operational development, but who is this
    - VA and MD – The changes that need recalibration and extensive new code development should be done through the Modeling Laboratory.
        - Although, other people can make these changes to the models, but with a large learning curve, while people in the current CBP structure, such as Gary Shenk, have experience with the model and can make these changes very quickly.
            - Why can't people like Gary Shenk be part of the Modeling Laboratory?

        - Can't move people, only functions.
    - VA – Why can't the existing Modeling Team part of the Modeling Laboratory?
        - Currently the Modeling Team is governed by the Modeling WG and the WQGIT. Would this change the governance structure?
  - Even if a change to the model it does not require to be vetted through the Modeling Laboratory (it does not affect the calibration), it still needs to be well documented and communicated.

- There are many different research topics that the Modeling Laboratory could work on: Climate change, sea-level rise, re-scale to incorporate local areas, etc.

- Governance
    - Modeling WG and WQGIT and other GITs
        - The current Modeling WG has input from outside the GITs (STAC, jurisdictions, academics).
            - Re-structure the Modeling WG to have some decision making authority.
            - These members are the modeling technical experts.
        - The WQGIT is a key policy group.
        - Voting and non-voting members
            - Need voting academics on the extended Modeling WG.
        - Although there isn't a decision on whether or not the operational component is directly in the Modeling Laboratory or not, this governance could work with both scenarios.
    - If this is EPA (or another large group) funded, than EPA will decide the general function (RFP/RFS/Cooperative Agreement) of the Modeling Laboratory, the governance structure will prioritize the goals, whoever wins the RFP will determine how/who will complete the goals/tasks.
        - This would require frequent reporting. If the Modeling Laboratory includes the current Modeling Team, there would need to be even more frequent reporting (i.e. weekly).
            - A cooperative agreement can easily incorporate this.
                - Modeling at CBP is currently under a cooperative agreement.
                - Must determine who would be under the Modeling Laboratory cooperative agreement and who would be in charge of prioritizing the overall goals and also the day-to-day tasks.
    - The current funding and operations would have to be fixed. These are essential to the CBP.

- Clarification: The Modeling Laboratory is part of the Chesapeake Bay Program, but not part of the Chesapeake Bay Program Office.

- Summary of the parts of operations that some MLAT members think should be moved to the Modeling Laboratory. Do operations and operational development have to be directly under the Modeling Laboratory?
    - Dave Montali (WV) – Would be fine either way, but thinks that the operations would have to be in at Chesapeake Bay Program.
    - Lee Currey (MDE) and VA (Bill) – A certain of operational development would benefit the Modeling Laboratory, but most of the operations would continue at CBP. The changes that need recalibration and extensive new code development should be done through the Modeling Laboratory.
        - Even if it does not require to be vetted through the Modeling Laboratory, it still needs to be well documented and communicated.
    - Ted Tesler (PA DEP) – There could be benefits to incorporating the operations and operational development in a Modeling Laboratory.
        - Need to make sure there are opportunities for the jurisdictions to be involved in the process.
    - Mark Bennett (USGS), Lewis Linker (EPA/CBPO), and Gary Shenk (EPA/CBPO) – Operations and operational develop should continue to be directly under the Modeling Team at the CBP.
        - Note: Gary Shenk and Lewis Linker are not officially in this group. They participate to facilitate discussion and help with the understanding of the current modeling system.
    - Need more academic input on this subject.

- Clarification of how the Chesapeake Bay Program Modeling currently runs: The Scenario Builder Team is basically split into two teams. One team interacts with the jurisdictions and creates the scenarios and the other team, currently Vistronix, does all of the development. Therefore, the current Scenario Builder Team could be easily divided up into the CBP Team and Modeling Laboratory. The WSM Model is different. One staffer basically runs all of the scenarios, while other work is short term and very ad-hoc. Work that is currently being done to analyze the AGCHEM Model could easily be under a Modeling Laboratory instead of the Modeling Team, but most of the work that the Team is currently doing is not like this.
    - Gary Shenk: If the Modeling Laboratory only took over large separate tasks, this could work.
    - Lee Currey: Need to be flexible in making decisions on what would be sent to the Modeling Team vs. Modeling Laboratory.
        - Re-calibration would require the Modeling Laboratory.

- **ACTION**: Lewis Linker and Gary Shenk will discuss having the operations and operational development at the Modeling Laboratory with CBP managers before the next meeting.
    - A dialogue needs to occur between EPA, jurisdictions, and other partners.

PARTICIPANTS

Last Name	First Name	Affiliation	Email
Bennett	Mark	USGS/MLAT Chair	mrbennet@usgs.gov
Pruzinsky	Amanda	CRC/CBPO/MLAT Staffer	apruzinsky@chesapeakebay.net
Cisar	Heather	USACE	Heather.R.Cisar@usace.army.mil
Currey	Lee	MDE	lcurrey@mde.state.md.us
Dillaha	Theo	VA Tech/STAC	dillaha@vt.edu
Keeling	William	VA DCR	William.Keeling@dcr.virginia.gov
Linker	Lewis	EPA/CBPO	linker.lewis@epa.gov
Montali	David	WV DEP	david.a.montali@wv.gov
Sellner	Kevin	CRC/STAC	sellnerk@si.edu
Shenk	Gary	EPA/CBPO	gshenk@chesapeakebay.net
Tesler	Theodore	PA DEP	thtesler@pa.gov
Townsend	Howard	NCBO	Howard.Townsend@noaa.gov
Weller	Donald	SERC	wellerd@si.edu