Modeling Lab Action Team Meeting

December 10th, 2012 10AM – 3PM

http://www.chesapeakebay.net/calendar/event/18844/

PARTICIPANTS

Mark Bennett – USGS	Amanda Pruzinsky – CRC/CBPO	Gary Shenk – EPA/CBPO	Lewis Linker – EPA/CBPO
Howard Townsend – NOAA	Kevin Sellner – STAC/SERC	Heather Cisar – USACE	Ted Tesler – PA DEP
Don Weller – SERC	Claire Welty – USACE	Dave Montali – WV DEP	Lee Currey – MDE
Marjy Friedrichs – VIMS/STAC	Theo Dillaha – VA Tech	Bill Keeling – VA Dep. Of Conservation and Recreation	Larry Band – UNC

ACTION ITEMS

- NEXT MEETING: January 23rd, 2013 10AM – 3PM
  Suggested Topics:
  - Questions for KSS and the Oak Ridge National Laboratory
  - Must determine the functions of the Modeling Laboratory, Modeling Team, and the Chesapeake Bay Program
    - Level of effort for open-source
  - List of tasks – Rank them
  - Governance
  - Budget and budget justification

- January 10th, 2013 Management Board Presentation – Progress Report and Feedback – Present initial findings and recommendations
  - **Mark Bennett** will send out a draft presentation to **MLAT members** for comment.

- **MLAT members** were invited to the Feb. 25 – 26th STAC Workshop on Multiple Models at the Chesapeake Bay Program.

- **MLAT members** will write up recommendations and send them to **Amanda Pruzinsky** and **Mark Bennett** by COB January 4th, 2013 on the following topics:
  - Tasks of the Modeling Laboratory
  - Structure and tasks of the Governance
  - Ideas for how the Modeling Laboratory will engage the scientific community

- **MLAT members** are invited and encouraged to attend the KSS and Oak Ridge National Laboratory meeting.
  - Date: Late winter/early spring
  - Attendees: Lead people at Oak Ridge National Laboratory, Administrators of KSS, CBP Modelers, Academics, Management, Skeptics, Jurisdictions, and other Stakeholders

- **MLAT members** will send specific attendee recommendations to **Kevin Sellner** and **Gary Shenk**.

- **Kevin Sellner** will send a list of people involved with KSS and ORNL and their affiliations/expertise.

- **MLAT members** will send recommendations for the draft document "Discussion of the Elements of Research, Development, and Operations relative to a proposed Chesapeake Bay Modeling Laboratory."
  - **Gary Shenk** will update the document to clearly state the linkage between the four elements.
  - Contact National Weather Service from advice, information, etc.
    - Inter-Regional Integrated Services (IRIS)
      - NWS, USACE, USGS, NOAA

- **Amanda Pruzinsky** will finish summarizing the modeling recommendations from STAC Reports.

TIMELINE

JANUARY 10th, 2013
PROGRESS REPORT AND FEEDBACK – Present initial findings and recommendations to the Management Board at January 10th, 2013 meeting.

JANUARY 23rd, 2013
NEXT MLAT MEETING – January 23rd, 2013 10AM – 3PM

FEBURARY – MARCH 2013
MLAT will meet monthly 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.

MINUTES

Knowledge System for Sustainability – Kevin Sellner

As part of the Nov 26-28 meeting at Oak Ridge National Laboratory, Kevin Sellner and Gary Shenk were invited to lay out the CBP partnership's organizational and scientific structure and its needs that might be addressed by this large spectrum of skills and infrastructure. The presentation was well received with ample discussion, and two breakouts followed to discuss options for the NAS-identified Modeling Laboratory and with less attention, other needs were had identified (including social science, higher spatial resolution of land use effects at small scales, models linking WQ to fisheries). Following some dinner discussions after the first day, the Oak Ridge National Laboratory (ORNL) was offered as a possible modeling capacity to assist modeling needs in multiple geographic regions that KSS covers, with specific initial focus on the Chesapeake and Australia's Great Barrier Reef (Australia's CSIRO and Bureau of Meteorology are active KSS members).

Kevin Sellner discussed the purpose of KSS and the pros, cons, challenges, and next steps involved in their offer.

To view supporting document:
http://www.chesapeakebay.net/calendar/event/18997/

Discussion and Questions

- **ACTION**: KSS and Oak Ridge National Laboratory committed to a meeting
    - Date: Late winter/early spring
    - Attendees: Lead people at Oak Ridge National Laboratory, Administrators of KSS, CBP Modelers, Academics, Management, Skeptics, Jurisdictions, and other Stakeholders

- **ACTION**: Kevin Sellner will send a list of people involved with KSS and ORNL and their affiliations/expertise.

- Questions that will be answered through further discussion with KSS and the Oak Ridge National Laboratory:

(1) Is the ORNL Modeling Laboratory a 'service organization'? Service organization implies task-driven, with ORNL staff completing R&D on management-identified needs submitted by a KSS region.

(2) Governance of the ORNL Modeling Laboratory: How would CB and other KSS regions direct tasks to be undertaken at the Laboratory? How would the Laboratory prioritize its tasks?

(3) Can an ORNL Modeling Laboratory include modelers from the CB region in completing these tasks? If so, by what mechanism?

(4) Is the ORNL Modeling Laboratory funded through existing ORNL sources or expansion of those sources through KSS leader advocacy, and can it be a sustained (long-term, >10 year) project?

(5) If the expansion of funding by KSS leadership occurs, need it be directed to ORNL or alternatively to another organization that could undertake region-specific modeling R&D?

(6) What would the scope of the ORNL Modeling Laboratory be? (Chesapeake Bay, Great Barrier Reef, Puget Sound, other?)

(7) What expertise does ORNL currently have on the watershed/hydrology side?

(8) How would Oak Ridge facilitate incorporating research that is happening in the Bay?

- Topics for MLAT to discuss:
    - Must determine what we want from the Modeling Laboratory.
    - Must also search for and consider other funding methods.

Review of draft of Modeling Lab Recommendations – Gary Shenk

Gary Shenk, with input from Don Weller and Lewis Linker, drafted a summary of the discussion MLAT had regarding research, development, and operations. The document divides these elements into four sections: Operations, Operational Development, Research-Oriented Development, and Research.

To view the draft document:
http://www.chesapeakebay.net/channel_files/18997/operations_development_research_mlat_2012_12_10.pdf

Discussion and Questions

- Linkage between the four elements
    - If you separate the research and operations too much, they may never meet.
    - How will the model be updated, open source, translated?
    - Must clearly state the linkage between the four elements and eventually state how the governance will interact with and facilitate interactions between the elements.
    - **ACTION**: Gary Shenk will update the document to clearly state the linkage between the four elements.

- Translation
    - Is the translation more research or operations?
        - Very close working relationship between the CBPO Modeling Team and research teams.

- **ACTION**: Contact National Weather Service from advice, information, etc.
    - Inter-Regional Integrated Services (IRIS)
        - NWS, USACE, USGS, NOAA

Discussion on January presentation to the Management Board – All

- Emphasize that the focus of research will be on Management Board issues

- Structure
    - What we have now – Need operations, development, AND research
        - What is missing?
    - Distinguish between the Modeling Team and Modeling Laboratory
    - The model is center to decision making: Mile Stones, Progress Runs, TMDL, WIPs

- Rational
    - Gaining buy-in from stakeholders
    - Communicating understanding
    - Testing of the Model
    - Credibility
        - Research
        - Academics and more independent expert opinion
    - Adaptive management
    - In order to make the changes that the jurisdictions would like to see in the modeling structure, we must invest in it.
    - How has improving the modeling research has already improved implementation of the TMDL?
        - Example: Stream Restoration
    - The Modeling Team is not able to address all of the priorities/recommendations/requests (include date of recommendation):
        - Lag times, connection of water quality and fish, integration of small and large scales, climate change, effects of spatial placement of land within a watershed
        - Long term development is not currently being addressed. For example, shallow water modeling. There needs to be simultaneous development.
        - Supporting documents:
            - STAC reports
            - WQGIT Midpoint Assessment Priorities
                - Address the fact that the Modeling Team cannot cover all of the priorities of the partnership with the current structure
                - 454 items – About 31% Research, 47% Development, and 22% Operations
            - NAS Recommendation

- Must be a sustained effort
    - Core foundation and funding
        - Not based on proposals
        - Sustainable funding for core functions and staff with flexibility for work plans
    - Core professional staff that is sustainable
        - Research AND software professionals

- Vision Statement: (1) 5 year deliverables and (2) compare to what CBP would have without the Modeling Lab

- Could include an example of a Modeling Laboratory.

- Possible Presentation Breakdown: Objectives/Mission, Justification, Resource Needs, Funding Options, Governance, Vision Statement, Implication Scenarios.

- **ACTION**: Mark Bennett will draft a PowerPoint presentation and send to MLAT members for review.

- **ACTION**: Amanda Pruzinsky will contact Management Board staff to get on the January meeting agenda – 20 minute presentation.

Discussion on Governance of the Modeling Laboratory – All

- Who is involved now? Where does the Modeling Laboratory fit into the current CBP framework?

  Water Quality GIT
  - Agriculture Workgroup
  - Best Management Practices (BMP) Verification Committee
  - Forestry Workgroup
  - Land Use Workgroup
  - Milestones Workgroup
  - Reevaluation Technical Workgroup
  - Sediment Workgroup
  - Trading and Offsets Workgroup
  - Urban Stormwater Workgroup
  - Wastewater Treatment Workgroup
  - Watershed Technical Workgroup

  Scientific, Technical Assessment and Reporting (STAR) Team
  - Modeling Workgroup

  Scientific & Technical Advisory Committee (STAC)

  Management Board

- Who is funding? If not funded through CBP, how will the funding source interact with CBP Management?

- Tasks of the governance?
  - Finalizing decisions
    - Management identified priorities
  - Prioritization

- Must act as a service to all of the GITs and not just WQGIT. It may fall under the Management Board, STAC, or as its own supporting role (much like the Communications WG and STAR).

- How is the modeling done?
    - Request for proposal, request for services, vs. cooperative agreement
        - Cooperative agreement may be the best choice

- SUGGESTION: Modeling Workgroup expanded to include decision making jurisdictional members.

- SUGGESTION: Voting and non-voting members
    - Voting Members: Management Board Members, Modeling WG Members, STAC Members, jurisdictions, and other decision makers (?)
    - Non-voting Members: Goal Implementation Teams, Scientists, Modeling Team, Technical Modeling Laboratory Staff, and other stakeholders and advisory members (?)

- SUGGESTION: 7 jurisdiction representatives, federal representatives, academic representatives.

- **ACTION**: MLAT Members will write up recommendations and send them to Amanda Pruzinsky and Mark Bennett by COB January 4th, 2013 on the following topics:
    - Tasks of the Modeling Laboratory
    - Structure and tasks of the Governance
    - Ideas for how to engage the scientific community

Initial discussion on cost of the Modeling Laboratory – All

- Current annual modeling budget: 2.5 million – 3 million

- The cost of the Modeling Laboratory alone may be about the same or more than the total annual cost of current CBP Modeling.

- Will have to include a budget and budget justification in the recommendation.
    - Should include potential staff
    - The more detailed the better

Review of draft Mission Statement and Guiding Principles – Mark Bennett

Revised Mission Statement and Guiding Principles are below.

Discussion and Questions

- Community Modeling
    - Currently, open-source community code
    - Will continue to upload onto CCMP

- What level of support does will the new Modeling Framework have? Does CBP want to include an educational component?
- Are local jurisdictions interested in running the actual watershed model?
  - More interested in CAST, VAST, MAST tools
    - Need some familiarity with the model to use the tools
    - Facilitates discussion of the model

- Must determine the functions of the Modeling Laboratory, Modeling Team, and the Chesapeake Bay Program
  - Code development and transfer as a major task of the Modeling Laboratory
  - Any outreach, training, and distribution of the code should be part of the CBP framework

- Other goals:
  - Incorporate post doc programs
  - Cost effective

MISSION STATEMENT

The purpose of the Modeling Laboratory is to improve and communicate watershed and estuarine modeling to support the protection and restoration science which informs and guides management decisions in Chesapeake Bay Program Partnership

- Accelerate the translation of research into operational models and utilities

- Facilitate testing and bench marking of appropriate models for Chesapeake Bay Program operations

- Allow rapid modification of the code to improve the predictive skill of the models and foster adaptive management

- Maximize operational efficiency of the Chesapeake Bay Program Models

- Build credible open-source community modeling tools and data for stakeholders and facilitate operations for states, researchers, and other partners

- Provide a framework that would be responsive to input from major stakeholders

MODELING LABORATORY GUIDING PRINCIPLES

1) Research, development, and operations must all be addressed

   a. Clear budgeting between the three components

   b. These three components do not necessarily need to be physically located in the same place, but must have regular communication

c. Operations need to be connected to the Chesapeake Bay Program and Office

2) Sustainable dedicated core funding

3) Research and development is management focused

4) Research must be of publishable quality

5) Formal methods to track and openly distribute model input data and products of the data (with meta data according to current standards)

6) Consider both regional and local issues across the watershed and estuary

7) Open-source and modular

8) Transparency and communication should be considered in development and operations

    a. Timely modeling documentation

    b. Communication includes introductory operations documentation, programs, and training

9) Support co-development of Chesapeake Bay models

10) Transferability

    Regional focus with the ability to expand