

**Bay Program Committee, Subcommittee, and Workgroup Activities for STAC
May 2006**

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Communications and Education Subcommittee Meeting (March 14, 2006)

Jill Bieri (NOAA) presented the Chesapeake Bay Interpretive Buoys Project and updated members on the ongoing communications and education scoping process. NOAA's Office of Education was appropriated \$500K for this project and NOAA Chesapeake Bay Office is currently facilitating meetings of interested parties and partners. The three key elements in the development of the buoys project are: Education and Outreach, the John Smith Water Trail, and Chesapeake Bay Observing Systems. Focus groups have been developed to help determine buoy usage needs and wants and have been comprised of educators, water trail users, scientists, and other key user groups. The buoy deployment timeline aims for the Jamestown 2007 commemorate celebration. It was suggested that VA's Clean Marina's program along with MD DNR Eyes on the Bay and radio frequency hook-ups as partners to this project. In addition, it was recommended that data collection from the buoys be tied into water quality data analysis efforts and attention be paid to soliciting community involvement with the buoy system.

Shannon Sprague (NOAA CBPO) gave an overview of the plan the keystone briefing on Meaningful Watershed Educational Experience (MWEE) to the Implementation Committee for their April meeting. She specifically highlighted lessons learned about the challenges of developing tracking mechanisms and quantitative and qualitative indicators for MWEE progress. A 2005 status report and implementation plan has been compiled which summarizes the tracking of MWEE's in MD, PA, VA, and DC.

Bob Campbell (NPS CBPO) discussed the Bay Program's efforts to organize management around a set of strategic pillars and efforts to quantify stewardship for the environmental indicators redesign process as well as the recent adoption of the Chesapeake Stewardship Agreement at the November 2005 Executive Council meeting.

To help accurately quantify efforts, members suggested the inclusion of programs that are related to the Bay Program structure. The subcommittee recognizes the fact that there are hundreds of stewardship programs taking place throughout the Bay watershed and that it would be impossible to track all of them for this project. Bay program related projects that could possibly be included are:

- Chesapeake Bay Gateways Network
- Chesapeake Club Outreach Initiative
- Businesses for the Bay
- Bay Partner Communities Program
- Meaningful Watershed Educational Experience (MWEE)
- Non-point Education of Municipal Officials (NEMO)

Communications Workgroup Session (March 14, 2006)

Mary Lynn Wilhere (ACB CBPO) discussed recent conversations between the Scott's Fertilizer Company and nutrient experts from the Bay Program partners. The group is currently discussing opportunities to work together to reduce the amount of nutrients, especially phosphorus flowing into the Bay and its tributaries.

Mike Land (NPS CBPO) is the Bay Program Administrator and provided an update on the progress of the redesign of the Bay Program website which will be launched in January 2007.

Katherine Mull (Northern VA Regional Commission) provided an overview of their upcoming storm water outreach campaign in the Washington DC market. Local jurisdictions throughout Northern VA are combining funds to purchase radio spots on several DC stations that will run in April. A pre- and post survey will allow them to assess the campaign's success.

Gary Waugh (VA DCR) presented an update on VA's agricultural practices marketing taking place throughout the state. DCR is working with a local marketing and communications firm to hold eight focus groups throughout the state to better understand how to most effectively communicate with agricultural stakeholders.

Later this spring/summer, VA plans to release water trail guides for the York and James Rivers in observance of the 400th anniversary of the settlement of the VA colony at Jamestown and Captain John Smith's voyages of exploration of the Bay.

Bob Campbell (NPS CBPO) gave an update on the Bay Gateways Network's marketing partnership with MD, VA, and Coastal Living magazine. The group is working together to produce a special marketing section for the magazine to help raise public awareness of the Bay and opportunities for exploration provided through Bay Gateways.

Chris Conner (ACB CBPO) provided an update on several programs currently under development at the Bay Program office. The Communications office will be hiring two new staff members, a web editor position and media relations associate. The Chesapeake Club campaign will run in the DC market during March and April. This year's campaign is largely funded by the Commonwealth of VA and includes a television advertisement, and partnerships with local lawn care providers and restaurants and a web-based marketing component. The spring 2006 Social marketing Quarterly Journal features an article on the Chesapeake Club approach to marketing environmental issues.

Chris also included an update on the progress of the Chesapeake Bay 2005 Ecosystem Health and Restoration Assessment. Both pieces were reviewed by Bay Program subcommittees, advisory committees, and partners for comment in January and were released March 31 with a 60-day comment period. This allows for the Bay Program to meet its obligation to provide the report by the end of March and employ a process that allows for significant stakeholder input into the report.

Education Workgroup Session (March 14, 2006)

Shannon Sprague (NOAA CBPO) led a discussion on the final data needed to complete the 2005 Status Report and implementation Plan on MWEE. The data received from PA was 808,000 students in the watershed and 75% receiving MWEE's.

Shelby Laubhan (CRC fellow) provided an update on the current status of the Chesapeake Academic Resources for Teachers (ChART). Currently there are available online approximately:

- 241 teacher resources
- 160 field studies
- 59 professional development opportunities

The following recommendations were made:

- A teacher-rating system be developed (similar to Amazon.com)
- Upgrade ChART as "porthole" (similar to "My Cart" option on websites)

- Solicit partnerships with United Streaming Video of Discovery Channel (for video gallery) and Weather Bug (for webcams).

Announcements:

DC will be hosting their annual Anacostia Fair on May 12th with 500 students in attendance. Watershed Wise DC: On the River, On the Bank is a professional development day for teachers scheduled for June 20th.

For a list of more upcoming events, please visit the following:

http://www.chesapeakebay.net/pubs/calendar/CESC_03-14-06Handout_1_6645.pdf

Tributary Strategy Meeting (April 3, 2006)

Tom Simpson (UMD) presented a proposal from Scott's Fertilizer Company to reduce phosphorus in its lawn fertilizer by 50% by 2008. This will be a pilot change in the Bay watershed. At their points of sale (big box stores), there will be signage that highlights the linkage between nutrients and water quality. Specifically discuss impervious surface, precipitation and over-application. There will be a tear away sheet consumers can take with them that has this information and a link to a website for more information. Scott's supplies 50% of the market and is committed to bringing the rest of the market on board to reduce phosphorus. With the next discussion involving reducing nitrogen in lawn fertilizer. Pressure for this change is coming from the threat of various states and local governments around the country passing laws restricting the percent of nitrogen and phosphorus that can be in fertilizer.

Peter Claggett (USGS CBPO) and **Menchu Martinez (EPA CBPO)** made a presentation on 2030 land use projection for the Bay watershed.

Please see the following link to view this presentation:

http://www.chesapeakebay.net/pubs/calendar/TSWG_04-03-06_Presentation_2_6769.ppt

- The Water Quality Steering Committee of the Bay Program agreed to extend the forecast for land cover and nutrient source inputs to 2030. The first kick-off meeting was held February 7th.
- Alternative scenarios will provide a plausible guess in land use trends. These parameters can be modeled by using parameters such as employment, mortgage rates, and population.
- Modeling land use will be done using the GAME and SLEUTH models. GAME predicts where growth will be and SLEUTH takes impervious surface in 1990 and 2000 and predicts impervious surface in the future. You can constrain or accelerate impervious surface growth using areas that GAME predicts. The computing will be done using super computers at the USGS office in Reston, VA. The watershed model will be used to show sewer outflow, septic loads, impervious urban and pervious urban, farmland, and animal populations.
- This is necessary to re-evaluate tributary strategies. Tributary strategies may need to change its BMP focus. For example, if agricultural land is decreasing the tributary strategy for that area, may need to change its focus on agricultural BMP's. The Bay Program needs the ability to evaluate the long-term effectiveness of tributary strategies to reduce nutrients and sediment and also quantify and credit the nutrient load reduction benefits from land use planning and land preservation.
- A multivariate regression equation was developed to predict animal populations.

- Regional stratification borders will be based on state, commuter, and density boundaries. Each state will have its own calibration.
- The Bay Program has two years to develop version one of the three scenarios (trend and two boundaries). The Bay Program has until January 2008 to finalize the loading decks for each scenario. Preliminary estimates for animal units, forestland, and farmland will be complete by June 30, 2006. At the next work session meeting on July 17th, workgroups will comment on preliminary estimates.

Lewis Linker (EPA CBPO) proposed a new approach for looking at legacy sediment for use in the Phase V water shed model. The Bay Program modeling team's definition for legacy sediment is sediment that is eroded from land and that is mobilized from land.

There are two key points of sediment calibration:

1. One point of calibration is at the edge-of-field to erosion targets based on USDA's Natural Resource Inventory estimates for land uses like cropland and pasture and literature values for land uses like forest.
2. The other point of calibration is to the monitoring stations providing estimates of total suspended sediment concentrations.

These two points of calibration can be used to separate out an estimate of sediment loads eroded from the land within the simulation period with an estimate of legacy sediment loads. The modeling team conceptualizes the legacy sediment loads as being stored somewhere in the watershed and mobilized during the period of simulation of a decade or more.

Other key points to sediment and phosphorus transport factors:

- In 4.3 the sediment and phosphorus transport factors were a single factor for an entire basin.
- It is known that sediment and phosphorus move discontinuously in these river systems, transported by high flows, but often trapped in reservoirs.
- Can use the improved Phase 5 reservoir information on storage, spill, release, and withdraw to generate unique transport factors for sediment and phosphorus above each major reservoir.

It was suggested that by reducing erosion should proportionally reduce scour and if the reservoir of legacy sediment is known then you can address lag time. It was also suggested to use reservoirs to set-up distinguished reservoir wide transport factors.

In PA, Franklin & Marshall University is conducting research on legacy sediments and the post-settlement effects associated with it.

Jeff Sweeney (UMD CBPO) presented an overview of the EPA Strategic Plan for FY 2006-2011. The Government Performance and Results Act of 1993 requires EPA to submit a five-year strategic plan to Congress and the Office of Management and Budget (OMB). Given the recent Government Accountability Office (investigative arm of Congress charged with examining matters relating to the receipt and payment of public funds) report which calls for a more realistic water quality implementation plan, the Bay Program was encouraged to remain ambitious about setting targets while considering what is realistic.

The schedule is as follows:

- February 2006 – EPA releases draft architecture which details performance measures and strategic targets for public review (45 day comment period)
- April 2006 – EPA releases full-text draft for public review and comment

- August 2006 – Beginning of the OMB formal review period
- September 2006 – Delivery of strategic plan to the Congress

Jeff Sweeney (UMD CBPO) provided an update on the Bay Health report:

Restoration efforts are measured against tributary strategies (reducing pollution, managing fisheries, and fostering stewardship) and are measured by commitment (restoring habitats and protecting watersheds as examples).

The numbers in the report are the same numbers with the same analysis in the strategic plan.

Please review the draft at: <http://www.chesapeakebay.net/assess/methods/index.htm> for content and format. Comments will be accepted until May 31, 2006.

Plans for future reporting include: urban/suburban lands and air pollution indicators.

Indicator and data survey:

- Link to diagnostic level indicator data:
 1. Point source effluent flows, concentrations, and discharges
 2. Historic BMP implementation levels with tributary strategy goals
 3. Phase 4.3 watershed model loads and land uses
- Data quality:
 1. Were the data collected according to an EPA approved quality assurance plan?
 2. Were the sampling and analysis methods performed consistently throughout the data record?
 3. If data sets from two or more agencies are merged, are their sampling designs and methods comparable?
 4. Do the uncertainty and variability impact the conclusions that can be inferred from the data and the utility of the indicator?

Jeff Sweeney (UMD CBPO) discussed the 2005 annual model assessment. Data are due July 15th for point source flows and nutrient concentrations. For watershed 2005 conditions, have been using projections in land uses and animals developed by states several years ago. The plan is to continue with interpolation of Phase 4.3 2000 and 2010 conditions for the tributary strategy baseline or incorporate 2002 agricultural census data as was done in the past.

Proposed solutions include: only crediting last year's worth of work for annual load reductions but report full implementation levels. This assumes historic implementation is already in the model calibrations and would need historic change in BMP implementation levels.

The long-term fix is to rely more on monitoring data by filling in the gaps with model information but still have issue of progress when compared to goals when assessing loads or pollutant concentrations. Water quality standard progress is most important.

Rob Burgholzer (UMD CBPO) provided an update on the calibration of Phase 5 watershed model for agricultural lands and practices. Presently they are evaluating the ability of the model to realistically represent agricultural land uses and practices. Overall the model over predicts somewhat. For example, plague and pestilence (non-climate factors) are not captured in the model. Crop uptake summaries by region do not show a lot of variation on average from year to year. They are applying new application rules to assist with the sensitivity of nutrient timing and source type.

Conclusions:

- Agricultural model shows great potential to represent realistic yield trends.

- Some minor tweaks remain to increase robustness of simulation.
- Management practices such as nutrient management are thus far realistically represented.
- Next step is to analyze phosphorus.

Helen Stewart (MD DNR) announced that MD is organizing a meeting for all of its technical groups and tributary strategy teams. The one-day meeting will have an introduction to modeling focus. After this meeting, participants will be invited to attend these workgroup meetings in the future when issues arise. Helen will serve as the point person for this MD technical group and is the newly appointed chair for the Tributary Strategy Workgroup at the Bay Program.

Non-Tidal Water Quality Workgroup Meeting (April 12, 2006)

Troy Keller (UMD CBPO) presented an overview of the content of the 2005 water quality sampling report.

- Purpose of report is to summarize water quality sampling efforts and analyses for 2005.
- Also serve to document any changes to stations and funding, recommend solutions to challenges, and facilitate interagency coordination.
- Background information contained will include the evolution of the network, criteria used for prioritizing sites, history of funding, primary versus secondary sites, and any synopsis of reports generated and reviews of the network including STAC reports and annual trend reports.
- The future of the network will expand from 82 to 88 water quality stations.
- Additional funding is needed to fully achieve the goals of the network.

Steve Preston (USGS CBPO) discussed what data analysis products needs to be generated, what the schedule will be, who will do the work, and what resources are available to support the work being done.

1. USGS annual load/trend report – Susquehanna River Basin Commission (SRBC) and USGS are both calculating loads and trends using a similar approach. The report is generated by June and will have to be done on a water year for a consistent period of record.
2. Non-tidal network yearly update report – the Bay Program will continue to produce this report each year.
3. Development of watershed health indicators – the existing indicators will continue to be updated by the Bay Program and the watershed health indicators will be developed with STAC workshop guidance.
4. Factors affecting trends report – needs to decide on how often this report would occur.

Jeff Raffensperger and Mike Langland (USGS) provided an update on changes in stream flow and water quality in select non-tidal sites of the Bay basin during 1285-2004.

- TN, TP, NO₂, NO₃, PO₄ and sediment were studied at 23 non-tidal sites and 9 river input monitoring sites.
- The 2004 trend update will introduce bias corrected tools for water quality data analysis including descriptive statistics for observed concentration, estimation of flow-adjusted trend, and non-flow adjusted trend in concentration and load.

- There are significant downward flow-adjusted trends in TN through much of the watershed.
- The majority of these trends show concave upward patterns.
- There are no significant trends in stream flow from 1985-2004 for the 32 non-tidal stations tested, and also few significant non-flow adjusted trends in load.

Jeff Raffensperger and **John Brakebill (USGS)** reviewed the factors that will be used to help explain the trends in water chemistry, which include: sources/changes, land use/land cover and changes, BMP's, and hydro-geomorphology. The land use data are from the CBP Phase 5 HSPF watershed model. There was concern about the quality of the urban land use.

Agricultural Nutrient Reduction Workgroup Meeting (April 13, 2006)

Tom Juengst (PA DEP) discussed its likely role in implementing the Manure Strategy, focusing on the 20% procurement and use goal. Members identified stat lands that would fulfill part of the obligation and ranked them according to their level of importance.

Potential land uses:

- Universities
- Highways
- Golf courses
- Correctional farms
- State field offices
- Labs/research plots
- Forests/nurseries
- Reclamation of mines and landfills
- Education program – for public and government agencies
- State lands leased to farmers
- Incentives or cost share plans
- Federal lands
- Parks or open space programs

(Note: MD DNR land leases prohibit the use of poultry manure as a result of the *Pfiesteria* outbreaks)

Issues:

- PA has an abundance of mushroom farm substrate that may be suitable for parks and sports fields.
- MD is meeting soon to discuss opportunities for the 20% procurement goal.
- One possible explanation for the continued use of fertilizers is their ease of use and organic alternatives are more complicated. Likely will need incentives or requirements to promote the use of alternatives.
- NRCS has a Conservation Securities Program that might be able to provide incentives to farmers to use organic fertilizers. Furthermore, their use would require a comprehensive nutrient management plan, which would include cost sharing.
- Difficulty of transport programs with timing the availability and delivery with the needs for application.

- Identifying forms of manure for specific uses and usability would be helpful and perhaps necessary in prioritizing towards a 20% goal. Manure available in three forms: palletized, composted, and raw.

Rob Burgholzer (UMD CBPO) reviewed the Bay Program's current proposed approach to handling the dairy nutrition BMP.

- There are currently four Conservation Innovation Grant (CIG) projects underway researching the BMP (MD, NY, PA, and VA). The USDA NRCS CIG is a voluntary program intended to stimulate the development and adoption of innovative approaches and technologies while leveraging federal investment in environmental enhancement and protection in conjunction with agriculture production.
- The Bay Program's Nutrient is working with PI's and others to develop a tracking system that will dovetail with the BMP tracking system being developed through a challenge grant (led by Nancie Imler and Brian Burch).
- It was suggested to use a performance standard that requires the reduction to be within a certain percent of the NRCS recommendations.
- Identifying the precondition of manure nutrient content is necessary to establish an efficiency, but the task can be simplified if pre- and post monitoring data is supplied.
- There was a suggestion to communicate with the developers of animal nutrition software in order to link the software to reporting and data collection.

Handling precision feeding in model inputs:

- Similar to phytase in approach for sources, can vary by region
- Reporting can be down to county level
- Excretion characteristics should reflect spatial trends
- Temporal trends are also possible
- It is not a permanent, industry-wide shift like phytase
- Economic returns on precision feeding are in question
- VT study is using payments to make-up difference in feed formulation cost
- Use of distiller grains and other low cost ethanol by-product grains have increased

Pete Tarby (PA DEP) followed-up on an earlier discussion of a precision feeding BMP proposal. This BMP is identified as being different than others since it can rely on farm specific efficiencies rather than an average.

The Bay Program Nutrient team does not support assigning a efficiency to precision feeding due to the variability of farm to farm practices and conditions. However, Milk Urea Nitrogen (MUN) analysis and/or feed analysis done farm by farm would circumvent the uncertainties of the precondition and end point. It was suggested that by decreasing phosphorus and increasing nitrogen content of manure, the N to P ratio could approach levels appropriate for farm application, which would reduce phosphorus build-up in soils.

VA has a manure database, which could provide some insight into a precondition. Data might also be available from nutrient management plans, since they require manure analysis. PSU and UMD have been testing manure for several years, would be a good source of data.

It was announced that **Bill Rohrer (DE Nutrient Management Commission)** is the newly appointed chair for this workgroup starting with the June meeting.

Monitoring and Analysis Subcommittee Conference Call (April 19, 2006)

Bill Dennison (UMCES) and **Mike Williams (UMCES CBPO)** reviewed the status of the Bay Health Index that the Tidal Monitoring and Analysis Workgroup has been working on for the Bay health report card which integrates six Bay-wide indicators. The purpose of the index is to provide a spatially explicit summary of the Bay's condition in 2005. Many members were concerned the way the index was generated and that its results may conflict with other reports, such as the bay Health report.

Comments included the following:

- Need to be clear about how the data were synthesized in the supporting documentation.
- Make goals consistent for every factor. Do the goals match with the health and restoration reports?
- Include a link to the supporting documentation/methodology.
- A compliance index was suggested indicating that zero and 100 equal non-compliance and compliance, respectively.

Forecast update – There will be a single release at the end of May including DO, Chl-a, SAV, and menhaden.