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**STAC Quarterly Meeting
March 6 and 7, 2007
Meeting Minutes**

March 6, 2007

Attendance:

Membership: Mary Beth Adams, Joe Bachman, Holly Bamford, Denise Breitburg, Cindy Gilmore, Ted Graham, Dave Hansen, Carl Hershner, Michael Kemp, Ronald Korcak, Douglas Lipton, Gary Matlock, Saied Mostaghimi, Margaret Mulholland, Raymond Najjar, Michael Paolisso, Vikram Pattarkine, James Pease, Scott Phillips, Christopher Pyke, Larry Sanford, Tom Simpson, Kevin Sellner, Mark Walbridge, Donald Weller, Claire Welty

Guests: Rich Batiuk, Sally Bradley, John Bratton, Mark Dubin, Sara Parr, Ward Sanford, Kevin Schabow

Staff: Melissa Fagan, Elizabeth Van Dolah

Carl Hershner, STAC Chair – VIMS, called the meeting to order at 10:00am. After members, guests, and staff were introduced, the December Quarterly meeting minutes were approved.

CRC Subcommittee Staff Presentations:

Melissa Fagan, CRC Fellowship Coordinator, introduced two Chesapeake Bay Program (CBP) fellows--Kevin Schabow, Communication and Education Subcommittee Fellow, and Sally Bradley, Nutrient Subcommittee Fellow. Kevin opened the Subcommittee presentations with an introduction to the Communication and Education Subcommittee (CES) activities. Despite only meeting once since Kevin's initiation, the subcommittee has remained active. They are currently working on strategic planning to assess CBP programs. Gaps are being identified to determine where more programs are needed, where to go in the future, and how to make education outreach a priority as defined in the Chesapeake 2000 Agreement. The CES is also developing indicators, including three as part of their commitment to fostering stewardship.

The CES workgroups remain active as well. The education workgroup is exploring how to bring more technologies and resources into classrooms. Their Meaningful Watershed Education and Experience (MWEE) initiative is undergoing an evaluation in preparation for the 2007 Chesapeake Summit. The Communications Workgroup is releasing the Restoration Assessment Reports in April 2007. Website content has been updated and monthly newsletters are being produced. The workgroup is also reinvigorating the Chesapeake Club ad campaign.

Kevin has two ongoing independent activities. He is developing a communication plan for the Grand EcoTour 2007—a bike trip from Cooperstown, New York to Virginia Beach to highlight people helping the Chesapeake Bay. A brochure has been created and he is currently developing advertisement. Kevin is also a Masters student in the John Hopkins University Environmental Science and Policy Graduate Program, with a focus in

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environmental management. He is currently working on land-use policy issues with particular interest in the economics of conservation easements and landowner initiatives. He would like to pursue environmental communications for an organization focused on living resources.

Sally Bradley, Nutrient Subcommittee Fellow, briefed STAC on the Nutrient Subcommittee's recently revised scope and purpose, which includes five redefined responsibilities. The subcommittee's workgroups remain active, and now include a recently formed Air ad hoc workgroup to target air issues related to nutrients. The Sediment Workgroup hosted the STAC workshop *An Introduction to Sedimentsheds: Sediment and Its Relationship to Chesapeake Bay Water Clarity* on January 30 and 31, 2007 for which a list of recommendations is being compiled as follow-up. The Agricultural Nutrient and Sediment Reduction Workgroup has refined the revised responsibilities to assist in future workgroup recommendations. The Urban Stormwater Workgroup is developing a set of Baywide standards for stormwater management in response to a request by the Implementation Committee. They will host a meeting on March 30 to discuss preservation and prevention-based development.

Independent of the subcommittee, Sally is working with Vitalia Baranyai on the Litter to Energy Project to explore the feasibility of using poultry manure and litter as an energy source in the Chesapeake Bay Watershed. A report will follow. Sally is also completing her Masters degree in environmental science and policy at John Hopkins University. She is interested in ecology, watershed management, alternative energy, and urban development.

Groundwater:

Claire Welty, UMBC, introduced Scott Phillips, USGS, John Bratton, USGS, and Ward Sanford, USGS, and provided a brief overview in preparation for the groundwater discussions. As the east coast of the United States faces a continuing desalinization problem, concerns have risen over the presence of pollutants in groundwater aquifers from nutrients seepage to septic systems that are not properly maintained. How much of these pollutants are flowing into estuaries? Intensive chemistry studies, seepage studies, tracer studies, and modeling are being actively investigated. Aerial reconnaissance, thermal infrared imaging, is also being used to help demonstrate how groundwater flows into estuaries and to identify hotspots. Current research needs were summarized in preparation for the following presentations.

Scott Phillips discussed on the influences of groundwater in the Chesapeake Bay. Groundwater has proven to play a significant role in the transport of nitrogen through the Watershed. Researchers estimate that about 50% of nitrogen loads in streams moves through groundwater. Agricultural land-use contributes the highest nitrogen load, followed by urban areas and forested areas. Additionally, it takes on average ten years for groundwater to discharge to the Chesapeake Bay. There are a number of environmental factors that also influence discharge rates and how much nitrogen is present in streams. As a result, meeting water quality standards by 2010 will be difficult as rates of source reduction are too slow to see a change in such a short amount of time. Groundwater will also cause some delay in overall water quality improvements due to the lag time associated with discharge rates. STAC's involvement in better targeting and

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increasing the rate of nitrogen source reduction and retention could prove beneficial for overall watershed and estuarine processes.

John Bratton presented on different methodologies and field instruments that are being used to assess groundwater discharge to the Chesapeake Bay. While direct groundwater discharge is an important contributor to the Chesapeake Bay, it remains understudied. USGS has begun to target data gaps at representative locations through some novel field methodologies: Submarine groundwater studies have been conducted with tracer studies using radon and radium that naturally are found in groundwater. Depending on the activity of these two elements, researchers can tell how long groundwater has been present. A Hussain paper published on one of the first studies using radon and radium tracers concluded that groundwater accounts for “as much as 10% of total freshwater input to the Chesapeake Bay.” Electrical resistivity surveying is also used to verify the presence of salt water versus groundwater below the seafloor. USGS has conducted extensive studies using electrical resistivity surveying along the Potomac River. Other methods used include seepage metering, piezometer sampling, heat measurements, and core and drilling with off-shore well installations. Bratton concluded that continuing to improve our basic understanding of direct groundwater discharge is essential if we are to form concrete models and sound resource management practices for the future.

Ward Sanford concluded the groundwater sessions with a presentation on modeling the discharge of groundwater to the Chesapeake Bay. As an example, Ward discussed the SEAWAT Model developed for drawdown and seawater encroachment along the Virginia’s eastern shore. The study will be published in 2007. The model simulates the tendency for groundwater to flow down the long spine that runs the length of Virginia’s eastern shore and discharge into the marshes. Recharge mostly occurs along the spine while discharge mostly occurs along the coastline. Due to the lack of streams, almost all flow on the eastern shore is groundwater. Shallow watertables found along the coastline lend to a high rate of evaporation.

SEAWAT has proven to be a useful model for nitrate transportation. Denitrification appears to be occurring along shallow areas where groundwater is reaching root zones. This, in combination with the evaporation that is occurring along the shallow watertables allows researchers to better understand denitrification occurrence in these areas. SEAWAT indicates that a significant decrease in nutrient loads by 2020 can only be achieved by cutting nutrient loading out all together. A decrease by half would result in a slight decrease while keeping the status quo would contribute to rising trends.

Ward’s team of modelers initially used SEAWAT as a pilot project to test its sufficiency. There is now interest in using the model on larger sections of the watershed, and in particular on coastal discharge where there is sufficient data on nitrates.

After brief discussion, Scott Phillips suggested that a workshop might be appropriate to better target where management actions are coming from. However, due to limited time, he was not able to submit a proposal.

Action: Scott Phillips, USGS, will lead a small workgroup to draft a proposal for a STAC workshop to look at targeting management actions such as monitoring groundwater discharge to the Chesapeake Bay. STAC members interested in working on this proposal should contact Scott (swphilli@usgs.gov).

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Membership:

Carl Hershner announces that STAC will use the executive board as the nominating committee for the upcoming elections. It will be up to the membership to identify candidates over the next month. There is currently only one at-large appointment open; however as a couple of members appear to not have time to participate additional appointments may open for consideration. The membership was asked to identify potential needs for expertise during lunch. As an example, Carl noted that STAC appears weak on expertise in fisheries. Other areas identified were toxicology, epidemiology, and submerged aquatic vegetation.

Action: STAC members who would like to recommend possible candidates for the one at-large appointment should submit names and CVs to Carl Hershner, VIMS, (carl@vims.edu) and/or Liz Van Dolah, CRC (vandolahe@si.edu) by April 11, 2007.

Several announcements were made at this time:

- Mark Dubin is the new Agricultural Technical Coordinator for the Chesapeake Bay Agricultural Programs. Mark previously worked for PADEP for fifteen years and also with Fertilizer Coop.
- Jeff Lape will be the new director for the Chesapeake Bay Program beginning in April. Previously, he was the director of conflict prevention and resolution at EPA. He has a Masters in environmental science and has spent some time with the WSSC.
- Rebecca Hanmer's last day will be March 19th, 2007.

Workgroup Updates:

Indicators Workgroup

Scott Phillips briefed the committee on the workgroup's recent STAC workshop to develop environmental indicators for watershed health. They are developing a report to summarize workshop discussions and indicator development. Additionally, communication between the workgroup and STAC has improved. In a recent phone conference, discussions led to a better understanding of STAC's role and interest in indicator development.

Organic Nitrogen Workgroup

Margie Mulholland, Old Dominion University, noted the recently published STAC report on the "Bioavailability of Organic Nitrogen from Treated Wastewater" that offers recommendations for further research and monitoring. In response to their recommendations, the workgroup has submitted a proposal to the National Science Foundation to develop an appropriate assay to address issues with new caps on affluent nitrogen. The STAC report was distributed at the Water Environment Federation Meeting where Nancy Love, Virginia Tech, was given the floor for ten minutes to respond to comments and questions.

Toxics Workgroup

The workgroup is currently identifying the best approach to indicate which toxics are priorities. There is interested in expanding the workgroup to include experts from outside of STAC.

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Action: Members with suggestions for additional Toxics Workgroup members should forward names and contact information to Cindy Gilmour, SERC (gilmourc@si.edu).

BMP Workgroup

After initial confusion, Jim Pease, Virginia Tech, noted that the workgroup is now beginning to focus on task at hand. They hope to identify their needs by June. Individuals will be selected in the near future to review draft individual Best Management Practices (BMP).

Climate Change

Chris Pyke and Ray Najjar were initially charge to take a more comprehensive look at Bay-related climate change. They have developed an outline for a STAC white paper that focuses on past and present issues, future priorities, and proposed next steps. However, before proceeding, the workgroup would like input from STAC members and other interested parties. They plan to report back to the June meeting with a document.

Action: Ray Najjar, PSU, and Chris Pyke, CTG Energetics, Inc., will report back at the June STAC quarterly meeting with a white paper on the current climate change actions and priorities, and proposed next steps.

Action: Chris Pyke will send a list of guided questions to the STAC membership and interested parties to obtain comments that will be used in drafting the CBP climate change initiative's white paper.

Action: Chris Pyke will contact Rich Batiuk, EPA, and Lewis Linker, EPA, to request a written paragraph detailing their recommendations for the next steps of the CBP climate change initiative and the feasibility of incorporating climate change considerations into Bay Program activities. Their comments will be included in the STAC white paper.

Oyster EIS Update

Doug Lipton, UMD, presented the economics of oyster restoration EIS. Through a recent cost/benefit analysis, Doug explored options in oyster aquaculture alternatives. Specifically, is aquaculture feasible, if so, what species (*C. ariakensis* and/or *C. virginica*) and production method would be most advantageous, and what limitations would the market pose on Chesapeake Bay aquaculture production? Through baselines and developed scenarios, Doug measured general firm performance and production costs. While data revealed that current restoration goals lead to an unsustainable price for oysters, both *C. ariakensis* and *C. virginica* provide possible aquaculture alternatives to meet profit demands. Oysters that reach market size in one year and sustain a high survival rate become profitable in the Chesapeake Bay. *C. ariakensis* meets these criteria within a year, and can therefore be used to meet regional halfshell markets. *C. virginica* is also a possible aquaculture source, but proves far less profitable as it requires eighteen

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months to mature. However, unfavorable market conditions, like taste preference, and higher mortality rates could hinder aquaculture production. In summary, private aquaculture alone cannot be solely used to reach EIS goals.

Michael Paolisso's presented on the cultural and socio-economic analysis for non-native oyster EIS. Two research phases have been completed to better understand how the public values oyster restoration, both as a cultural and social commodity. Phase One (2004-2006) primarily used survey responses to reveal that while the public does not generally know what restoration means, there is an overall consensus that restoration does not work. There is strong agreement to restore for both environmental and industrial reasons. Most agree that native oyster restoration should be continued as we do not know enough about non-native oysters for use in restoration. When pushed to give details, the consensus breaks down due to different cultural backgrounds. Pressure remains on scientists to figure out the restoration process. Phase Two (2006-present) is evaluating findings from the first phase and testing them against existing data and additional data collected. To achieve Phase Two goals, FRED, Framework for Rapid Evaluation of Data, has been developed to help organize data. Cultural models have also been developed to measure how the different stakeholder groups value the cultural, ecological, and economic benefits of oyster restoration. To test the model, a yes/no questionnaire survey has been distributed to stakeholder groups. The Draft Report is due April 15, 2007.

Ethanol:

Tom Simpson, UMD, gave a presentation on ethanol and its effects on water quality. Renewable energy has recently moved to the forefront of environmental focus due to rising fuel costs, decreasing energy security, and the threat of global warming. Ethanol has gained growing interest from farmers who have discovered the profit to be made as the demand for crops for energy conversion grows. Grain-based ethanol production has additional perks due to its existing infrastructure, relative accessibility, and direct decrease in the need for government subsidies. Over the last three years alone, ethanol production has drastically increased and is expected to continue to grow. Growing demand has increased the price for corn--an added benefit to farmers. However, as growth encroaches on land availability, the United States, one of the largest corn exports in the world, will have to begin importing corn. Cropland will be predominantly corn as soybean and wheat crops, pastures and hay land, and idle land and land easements are converted for ethanol production. These corn monopolies will result in drastic nitrogen losses across the Chesapeake Bay Watershed and local nutrient imbalances. In addition, important crop rotation and land retirement will be eliminated. Growing interest to house dairy cattle at ethanol production plants to decrease costs of transporting dried distiller's grains and costs of feed is also leading to increased levels of soluble phosphorus in water sources.

The grain-based ethanol production alternative, cellulosic ethanol production has been slower to become established. While more environmentally sound, cellulosic-based crops like switchgrass and other perennial grasses do not have an existing infrastructure and require substantially more land to grow than corn. However, switchgrass can provide a 20+ year crop, has a greater net energy production, and has added environmental benefits. While cellulosic ethanol is a better long-term solution, politicians are focused

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on the readily available grain-based ethanol. Effort must be made education decision-makers on cellulosic ethanol's potential before we become too invested in corn.

CBP Update:

Rich Batiuk, CBP, briefed STAC on Chesapeake Bay Program activities. The CBP is currently refining five keystone agreements to assist in strategic planning development. There is also an attempt to place federal partners in the charge of strategic implementation planning to ensure that science is being used towards implementation. The CBP would like future pillars champions to present their findings to STAC. Rich asked STAC to draw this issue forward to bring its focus into the forefront.

While there have been three successful workshops to date, the CBP has requested STAC's long term commitment on these and future workshops to ensure progress and continued public communication. CBP is encouraged by several additional efforts being pursued by STAC. STAC's BMP efficiency review and rankings will help the CBP to become more confident in future implementation. STAC's continued focus on climate change will benefit the CBP's expanding climate change initiative. STAC's indicator development remains a key piece to reaching future goals and the CBP encourages the committee to stay focused on their development. Finally, Rich encouraged STAC to continue to update the website as it has gained interest from other watershed programs across the country that are encouraged by its progress and interested in developing similar programs.

March 7, 2007

Attendance:

Members: Mary Beth Adams, Joe Bachman, Denise Breitburg, Cindy Gilmour, Ted Graham, Tom Grizzard, Dave Hansen, Carl Hershner, Michael Kemp, Doug Lipton, Saied Mostaghimi, Margaret Mulholland, Raymond Najjar, Jim Pease, Larry Sanford, Dave Secor, Tom Simpson, Kevin Sellner, Don Weller
Guests: Rich Batiuk, Brian Kittler, Mark Dubin, Jackie Johnson, Lewis Linker, Steve Giordano
Staff: Liz Van Dolah, Melissa Fagan

National Fish and Wildlife Foundation Monitoring Proposal

Amanda Bassow and Brian Kittler, both of the National Fish and Wildlife Foundation (NFWF), charge a Chesapeake Bay Stewardship Fund to assist local implementation in developing best suited strategies for water quality and habitat protection within the Chesapeake Bay watershed. Two grant programs, the Small Watershed Grants and the Targeted Watershed Grants, have been established that have since protected thousands of acres of critical wildlife and have notably reduced nitrogen and phosphorous loads in the watershed. To better assess the overall contributions of these grant programs, evaluators have recommended developing pre- and post-monitoring programs. In doing so, NFWF will have more accurate measurements of pre- and post-conditions, as well as a more comprehensive understanding of the science behind the projects and how to reach the desired outcome. NFWF requested STAC's assistance in developing appropriate monitoring programs. Specifically, STAC has been asked to develop a set of decision

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rules to determine the most cost-effective method to conduct pre- and post-monitoring. Ensuing discussion brought out the following recommendations and comments:

- There should be minimum, yet flexible project intervention that requires data collection and feedback.
- Data collection needs to be made publicly available to enable evaluations of projects' effectiveness.
- The allotted one to three year monitoring timeframe may not allow grantees to monitor beyond the implementation of a project. An alternative would be to hire someone to assess projects' progress five to ten years after completion.
- Combining implementation and monitoring assessments will provide a stronger baseline for monitoring these projects.

It was noted that developing such monitoring programs could prove beneficial to the Bay Program by providing consistent guidelines for other programs to follow.

Action: Saied Mostaghimi, VA Tech, Mary Beth Adams, USDA – FS, Carl Hershner, VIMS, Tom Simpson, UMD, Kevin Sellner, CRC, and Don Weller, SERC, will form an ad-hoc workgroup to address NFWF's monitoring proposal. The workgroup will assess initial thoughts and the next steps to develop funding decision rules and cost effective funding methods for NFWF pre and post-monitoring projects.

STAC Workshop Publications Update:

Kevin Sellner briefed the committee on the status of the STAC workshop publications. To bring a wider audience to key issues that STAC is actively pursuing, the Chesapeake Research Consortium has hired Nina Fisher, a consultant and technical writer, to produce lay-oriented publications for each workshop. Most workshops will have a press release that serves to disseminate the proactive issues to the community. These are generated within a week of the workshop and STAC would like to begin to produce these routinely. Following the press release are brochures/factsheets that provide a simplified, broad overview of the meeting and its outcomes. STAC is actively producing both documents for this year's workshops. A press release was sent to environmental reporters around the Chesapeake Bay on the Sedimentsheds workshop in January. One reporter responded with interest. The upcoming workshop report complete with recommendations will be summarized in a brochure. The workshop on Developing Environmental Indicators for the Health of the Chesapeake Bay Watershed may result with both documents. Nina was unable to attend the workshop due to a family emergency. Notes are being sent to her. STAC will wait to produce a press release or brochure for the Tipping Points workshop until Maryland SeaGrant releases the workshop report. Kevin Sellner and Carl Hershner wrote a press release for the review on Organic Nitrogen from Wastewater. Also a press release will be completed for the SAV workshop. The committee was asked for their input.

It was recommended that workshop steering committees be included in providing feedback. However, due to limited timing for the press release, the steering committee chair and STAC representative should be the only two people required to review it. The brochure may be an unnecessary added expense when the executive report and press release will be available. On the contrary, a high quality brochure could prove useful for getting STAC's work publicly recognized through a wider audience. Dave Secor,

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UMCES, suggested that a brochure be created for the Cumulative Frequency Distribution (CFD) review. Due to Nina's time limitations, Kevin suggested that Dave draft a document. In summary, the membership agreed that STAC should continue these efforts. While final workshop reports are useful, the workshop activities, results, and follow-up must be made available as soon as possible.

Action: Dave Secor, UMCES, will explore the idea of creating a brochure similar to Nina Fisher's STAC workshop factsheets to synthesize the Cumulative Frequency Distributions Review.

2007-2008 STAC Workshop Proposals

The STAC June meeting has been opened for additional proposal submissions due to the limited numbers received to date. Currently there are two known submissions for June: Greg Allen, Toxics Subcommittee, will be submitting a proposal on Endocrine Disruptors and Scott Phillips will submit a proposal on geographic targeting from groundwater.

Action: Liz Van Dolah will circulate the Toxics Subcommittee's workshop proposal on Endocrine Disruptors and Scott Phillips' workshop proposal on targeting management activities to STAC as they become available. STAC will review both proposals at the June STAC Quarterly meeting.

*Proposal: Tidal Monitoring Integration Workshop
Living Resources Subcommittee and Monitoring and Assessment Subcommittee
Jackie Johnson, ICPRB, and Steve Giordano, NOAA*

Chesapeake Bay Program monitoring programs have historically undercut data for ecosystem level management by focusing solely on lower trophic-level species. Recent changes to the Chesapeake Bay Program's monitoring methods and the development of ecosystem-based management plans has created more integrated fisheries monitoring. However gaps and deficiencies still remain that must be addressed. The proposed STAC workshop will gather fisheries managers, water quality managers, and managers of the lower trophic regions to identify potential improvements to monitoring that will enable the Chesapeake Bay Program to make sounder ecosystem-based resource management decisions. They plan to adjust all monitoring programs across the Chesapeake Bay to make as uniform as possible. A guidance document or outline of an implementation plan will be produced based on workshop discussion and recommendations.

While STAC supported these efforts, members raised concerns over the framework development. The workshop must be geared to educating managers on how new changes will be implemented. Otherwise many will defend their programs rather than work towards the goals. Also, there seems to be stronger linkage to habitat than to living resources in this workshop. Suggestions were made to include habitat suitability and a wider variety of experts. STAC has agreed to fund the proposed workshop, but has

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asked the steering committee to clarify the goals of the framework before STAC provides funding.

Action: Dave Secor and Denise Breitburg, SERC, will work with Jackie Johnson, ICPRB, and Steve Giordano, NOAA, to clarify the objectives of the Tidal Monitoring Integration Workshop proposal before STAC commits to funding the workshop.

*Proposal: Economics and Ecosystem Based Fisheries Management Planning
Doug Lipton and Dave Secor, STAC, and Matt Flemming, Living Resources
Subcommittee*

As part of the Chesapeake Bay Program efforts to develop Ecosystem Based Fisheries Management Plans (EBFMP), scientists across fields will be asked to serve on designated teams to develop management plans for key Chesapeake Bay species. Key players will include in-region economists that will develop management plans based on the socioeconomics of ecosystem based fisheries. To assist in their efforts, the proposed workshop asks for a group of experts, supported through honorarium, to develop a workshop for guidance on modeling approaches and economic analysis. Resulting discussions will be used to develop a product to provide recommendations to managers. While the understanding of current tools and models is strong, the workshop will provide additional information on what is working elsewhere, what is being applied, and what would help to move the EBFMP forward. Invited participants will include fisheries scientists, ecologists, and local, national, and international economists. Dave Secor will serve as the STAC representative.

STAC fully supported this workshop. Possible opportunity exists to have the NOAA Fisheries Service (NFS) co-fund the workshop where STAC coordinates local arrangements and logistics and NFS funds international attendance.

STAC Workshop Updates:

An Introduction to Sedimentsheds: Sediment and Its Relationship to Chesapeake Bay Water Clarity, January 30-31 (Larry Sanford, UMCES)

Twenty-six experts met in Annapolis to discuss the idea of “sedimentsheds,” its feasibility, and how best to implement it. The workshop concluded that, along with reduced sediment in the water column, submerged aquatic vegetation (SAV) recovery and restoration can also singly remove a Bay segment from listed impaired waters. Management techniques must consider types of sediment on the bottom and the location of sediment as both correspond to “good” and “bad” sediments. Relationships between background loads and turbidity and between reduced nutrient loads and corresponding sediment load reductions needs to be further explored. Consensus gathered was that “Sedimentsheds” are a good idea, but further research is needed to delineate where a sedimentshed begins and ends. Focus towards this should remain on sediments along the shoreline rather than in deep channels. Additionally, the water quality model needs to be calibrated and understood before further work can be done. A workshop report will be available to summarize these findings.

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Thresholds in the Recovery of Eutrophic Coastal Ecosystems, February 14-15 (Mike Kemp, UMCES)

STAC and SeaGrant co-sponsored this workshop at the Belmont Conference Center in Baltimore. Thirty-eight experts, including two from Europe, convened to advance abilities to forecast and interpret response-trajectories of long-term coastal ecosystem restoration. SeaGrant will summarize workshop findings in a final report. In addition, many participants discussed a synthesis document to possibly submit to the Science Journal. Other workshop products will include a SeaGrant brochure, web content, and an article in the SeaGrant Newsletter. Mike was encouraged to bring a more mature picture back to STAC and the management community of the next steps for long-term restoration efforts.

Developing Environmental Indicators for Assessing the Health of the Chesapeake Bay Watershed, February 20-21 (Scott Phillips, USGS)

This was a one-day workshop hosted to inform indicator development in the Chesapeake Bay Program. Some impact has been made to move to a larger framework with the existing indicators. The steering committee is currently developing a report to summarize workshop recommendations.

Chesapeake Watershed Fish Health Workshop (Kevin Sellner, CRC)

On January 23-25, experts from diverse fields across the watershed convened to discuss fish health and diseases in the Chesapeake Bay watershed, compare states' data, and form recommendations. It was hoped that the workshop would reveal commonalities among states' practices; however it did not. Resulting recommendations are being put forward to improve management practices, focus research more on the watershed's upper-basin, and expand funding opportunities for monitoring other fish and benthic organisms. There is also a need to better understand and distinguish natural fish kills from human-caused fish kills. Particularly, when would we expect natural fish kills to occur versus kills caused by environmental degradation?

STAC/MAWP/COG Forum on Endocrine Disruptors Compounds (EDC), November 2006 (Kevin Sellner)

A group of national scientists presented examples of EDC, including their location and effects. The steering committee is currently identifying next steps. A second workshop will take place Tuesday, March 13, 2007 at Hood College. More stakeholders will be in attendance and will provide an opportunity to repeat and expand on previous work. A proposal from the toxics subcommittee for an additional STAC workshop on endocrine disruptors may not be necessary.

CRC/VIMS Living Shorelines Summit (Kevin Sellner)

The workshop's focus was to present the science behind living shorelines to implementers. Presenters and participants illustrated how to use science in sight selections and plant-type selections. By informing consulting firms, engineers, and citizen groups the science community is able to see if groups are more willing to

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incorporate living shorelines in their planning processes. A summary will be available in four to five months. The ultimate goal is to produce a factsheet and brochure to be distributed to implementers on how best to apply management practices along living shorelines.

EPA SAB Gulf/MRB Hypoxia Advisory Panel Update (Tom Simpson, UMD)

EPA and SAB convened the Gulf/MRB Hypoxia Panel in August/September, 2006. The March 7, 2007 meeting focused on the anthropocentric effects growing in the area. Recommendations for adaptive management practices were formulated. Workshop results will be available in the near future. The draft report will undergo a panel review. A panel meeting has been scheduled for June 13-15 to reach a consensus on the final revisions and agreement. The final report will be submitted to the EPA in August and released in September 2007.

Additional information is available at:

- The Hypoxia Advisory Panel Page
http://www.epa.gov/sab/panels/hypoxia_adv_panel.htm
- Hypoxia Advisory Panel reference document and draft page
<http://yosemite.epa.gov/sab/sabhap.nsf/Background?OpenView>

Chesapeake Bay Program Model Update

Lewis Linker, CBP/Modeling Subcommittee, updated STAC on the Chesapeake Bay Watershed Model, highlighting on how Best Management Practices (BMP) will be used in the Phase Five model. The Watershed Model's overall goal has been to answer the question of do we have what we need to achieve water quality standards in the Chesapeake Bay? While modelers were not able to identify these needs in the last assessment, Phase Five is aiming to make the necessary adjustments to move towards 2030 goals. Currently, the modeling subcommittee is in the process of calibrating all elements through twenty-year simulations (1985-2005). Hourly, daily, monthly, and annual calibrations are being measured and compared to data collected at monitoring stations. Major focuses are on agricultural practices, point sources, and atmospheric deposition. All calibrations will be completed in July, from which point the application phase will begin to develop ten-year-long scenarios and work on BMPs. The watershed model simulates management options through conservation practices like nutrient management, land-use change, and structural BMPs. BMPs will help determine what adjustments need to be made for inputs and conservation measures. The application phase will be complete by the end of 2007.

Phase Five's improvements will help to advance the Model towards its goals. Higher segmentation will allow the model to calibrate 1,000-mile segments whereas previous calibrations could only be done at 100-mile segments. Inserted software will make the model more flexible. Finer scale data sets will yield higher resolution input data. Automated calibrations will ensure even treatment across jurisdiction, allow for the calibration strategy to be fully documented, enable calibrations to be repeated if necessary, and enable uncertainty analysis. Model will also transfer across the watershed more easily as the entire model will be available on the web. The website will provide a user-friendly, on-line tool to help develop local and bay-wide Total Maximum

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Daily Loads (TMDL). A draft version of the website is currently available. The final product will be available in 2008.

Nutrient Trading Update

Tom Simpson, UMD, and Mark Dubin, CBP-MAWP, updated STAC on Nutrient Trading efforts. Tom Simpson noted that STAC and MAWP will co-sponsor a workshop on March 22 focused on how to make nutrient trading work in the Chesapeake Bay watershed region. Follow-up will be available at the June meeting. Due to inclement weather Pat Gleason, EPA Region III, was not able to attend the meeting to give an update on Region III activities. Tom noted that they are in the processes of writing a draft report on point sources in the Potomac River Basin. Mark Dubin, a former PADEP employee, relayed that Pennsylvania has been holding a series of public meetings to develop stakeholder relationships throughout the year-long process to develop their nutrient trading program. Stakeholder groups were developed for agriculture, point sources, and urban, from which significant input was received. A program report was released at the beginning of the year that summarized their program's progress.

Action: Tom Simpson, Mark Dubin, MAWP, and Pat Gleason, EPA, will provide an in-depth update on Nutrient Trading at the June STAC Quarterly Meeting.