Scientific and Technical Advisory Committee
Quarterly Meeting
September 11-12, 2007

September 11
Attendees

Members:	Holly Bamford, Denise Breitburg, Cindy Gilmour, Ted Graham, Tom Grizzard, Dave Hansen, Carl Hershner, Gerrit Knaap, Doug Lipton, Gary Matlock, Saied Mostaghimi, Margaret Mulholland, Raymond Najjar, Michael Paolisso, James Pease, Christopher Pyke, Larry Sanford, David Secor, Tom Simpson, Kevin Sellner, Lisa Wainger, Denice Wardrop, Donald Weller, Claire Welty
Alternates:	Catherine O'Riordan, Weixing Zhu, Charles Bott
Guests:	Emma Andrews, Rich Batiuk, Jessica Blackburn, Steve Carr, Jonathan Doherty, Beth Ebersole, Sandra Erdle, Krystal Freeman, Todd Gineski, Steve Giordano, Scott Goodwin, Penny Gross, Jeni Keisman, Stella Koch, Jonathan Kramer, Lewis Linker, Cynthia Suchman, Ali Sadeghi, Liana Vitali, Ning Zhou
Staff:	Melissa Fagan, Elizabeth Van Dolah

Doug Lipton, STAC Chair, called the meeting to order at 10:00 am and announced the Scientific and Technical Advisory Committee's (STAC) newest members: Lisa Wainger, Chesapeake Biological Laboratory, Paul Bukavekas, Virginia Commonwealth University, and John Randolph, Virginia Tech. Additionally, Mark Walbridge, the STAC USDA appointee, will not be able to continue on STAC and has requested to appoint Ali Sadeghi, USDA, in his place. The STAC Executive Board will submit this request to the Federal Advisory Committee upon approval from the committee's membership. After the rest of the members, guests, and staff were introduced, the June meeting minutes were approved.

> Liz Van Dolah, CRC, will circulate a list of potential 2008 meeting dates to STAC members for approval.

Local Government Technical Assistance and Education
As the Chesapeake Bay Program (CBP) turns its focus towards implementation, local governments are being increasingly recognized as an essential player in the CBP efforts to restore the Chesapeake Bay Watershed. Better preparing local governments and their constituents to successfully target restoration and conservation within their local watersheds will be key to reaching the Chesapeake 2000 goals. With this said, STAC must be prepared to deliver appropriate technical assistance and sound science to help guide successful implementation.

Many efforts are already underway to help inform and educate local managers and officials of ways to invoke sound natural resource management practices and target successful implementation. The NOAA Chesapeake Bay Office's Nonpoint Education of Municipal Officials Program (NEMO), the Coastal Training Programs of Virginia and Maryland, and the CBP Local Government Advisory Committee's proposed Circuit Rider Program are just four examples that were shared with the STAC membership.

Chesapeake Bay NEMO Program, Jonathan Doherty and Todd Gineski:
The Non-Point Education of Municipal Officials Program (NEMO) was first established in Connecticut in the early 1990s in an effort to deliver education and technical assistance on land-use issues, natural resource management, and sustainable growth patterns to local municipal officials. Over the years, NEMO has expanded nationally, now existing in over thirty states. NEMO programs generally share a relative extent of continuity, but have also developed individually to adapt to their regional needs. For example, Chesapeake Bay region has, for years, had a host of organizations and agencies already providing an array of technical assistance on growth and development issues. As a result, the Chesapeake Bay NEMO Program was developed as a networking tool to help coordinate regional expertise and technical assistance programs with local communities in need of guidance. This model somewhat differs from traditional NEMO programs where NEMO serves as the single institution for providing these services.

The Chesapeake Bay NEMO Program's approach has been to develop and expanse of educational programs through a series of presentations and workshops to help link land, water, growth, and development. The intent is to help communities look at how to grow in ways that maintain the natural resources, and to build a local capacity for using natural resource-based planning as a foundation for local land-use decision making. In addition, the program has made efforts to partner their education programs with technical assistance (through the NEMO network members) and financial assistance programs to ensure that the community's goals remain obtainable.

Coastal Training Program:
The Coastal Training Program, a national program funded by NOAA, is designed to equip decision makers with the best available science, tools, and techniques for effectively managing and protecting coastal and estuarine systems. The program is coordinated by the nation's twenty-seven research reserves and specifically targets local issues through facilitated technical assistance and education that is provided to local governments.

Maryland Coastal Training Program, Beth Ebersole:
The Maryland Coastal Training Program (MDCTP) is managed by the Chesapeake Bay National Estuarine Research Reserve and operates in Baltimore City and sixteen counties around Maryland. The Reserve has identified three regional priority management issues: 1) land use, population growth and habitat alterations; 2) climate change, subsidence, erosion, and water level changes; and 3) healthy habitats, and healthy and productive plant and animal communities. All three priorities are being directed to target audiences through a variety of training programs, including technical assistance outreach, science

training, and policy implementation training. These efforts have helped to link useful information, tools, and products created within the Maryland Department of Natural Resources to the likes of county and municipal elected officials, appointed boards and staff in planning and zoning, parks and recreation, health, and public works. These individuals have in turn provided needed feedback on the effectiveness of these efforts. Additionally, MDCTP has helped link other training providers within Maryland to their intended audiences. MDCTP is currently partnered with the Coastal Program, tributary strategy teams, and Maryland Sea Grant on several program efforts. Future partnership projects are also underway in conjunction with the Critical Area Commission and NEMO.

Sandra Erdle, Virginia Coastal Training Program:
The primary focus of the Virginia Coastal Training Program, operated by the Chesapeake Bay Natural Estuarine Research Reserve in Virginia (CBNERRVA), is on non-tidal shoreline management, tidal shoreline management, water quality, and water management. Of their recent training programs and projects, highlights include the Living Shorelines Summit, held in Williamsburg, Virginia in December 2006. The two-day meeting convened 175 experts and decision makers to address shoreline protection alternatives. The CBNERRVA has also hosted a perennial streams identification workshop for the Reserve's partners and a technical field trip of systems observations for the national association of state flood plain managers on board the R/V Pelican.   Several additional training workshops and fieldtrips are planned for the upcoming year. CBNERRVA will also begin the implementation of their new "three-pronged approached," which includes one short 1-2 hour presentation to boards and elected officials, followed by technical training for local staff and coastal zone decision-makers; the last step consists of the distribution of information to the public through seminars, exhibits, and handouts.

Local Government Advisory Committee, Penny Gross and Steve Carr:
Local governments around the Chesapeake Bay Watershed are an essential component of effective implementation. With over 3,000 local entities in the watershed, these are the decision makers who are most directly connected to the people and who, therefore, have the largest impacts on the health of the Chesapeake Bay. It will be the on-the-ground decisions made by local governments that will drive CBP goals forward. However, in spite of their importance, their role in Chesapeake Bay Program restoration efforts has remained relatively small.

On a related front, the CBP needs to also turn its focus towards small scale, local watersheds needs, rather than continuing to promote a "save the Bay" message to those who have no direct ties to the Chesapeake Bay. By focusing on local scale motivations, local communities will want to become involved in watershed restoration efforts and will, in turn, encourage their local governments to do the same.

The Local Government Advisory Committee (LGAC) has proposed a circuit rider program to the CBP that will operate in conjunction with an LGAC Peer Match Program to tackle some of these local scale needs. As experts trained in CBP issues, "circuit

riders" will be able to guide local government officials and managers to effectively target CBP goals at the local watershed scale. A multitude of circuit rider programs will be developed to tailor specific jurisdictional needs.   A summary of the outlined program was provided.

Following the four presentations, Doug Lipton led a discussion between the LGAC, the Virginia and Maryland Coastal Training Programs, NEMO, and STAC to determine how best to coordinate these local government technical assistance and education outreach efforts. A suggestion was made to conduct surveys to identify local government needs. With this information, the science community will be better prepared to conduct direct research and provide useful recommendations to successfully guide implementation for bay and watershed restoration. Coastal Training Programs and NEMO can contribute by translating the science for local communities and officials into terms that will enable them to understand and act appropriately. Other suggestions made were to organize a Bay-wide symposium for local government training, and to coordinate the advisory committee's presentations to the Executive Committee to emphasize the need for local level focuses. Several concerns were raised by members of STAC regarding LGAC's push to "stop studying and start doing." All participants agreed that continuing scientific research and monitoring efforts is essential for effective implementation.

To assist LGAC in indentifying the appropriate science to push their efforts forward, Denice Wardrop, PSU, and other members of the indicators workgroup offered to look through watershed indicators reports to identify any existing scientific gaps.

The STAC Executive Board will determine how best to coordinate STAC's recommendations for local government technical assistance with those from the LGAC and the Citizens Advisory Committee (CAC) at the upcoming Chesapeake Bay Program Executive Committee meeting.

STAC will establish a workgroup to address needs for future local government technical assistance as they arise.

Workshop and Review Updates:
Thresholds and Non-Linear Trajectories in Recovery of Eutrophic Coastal Ecosystems (Jonathan Kramer, MD Sea Grant):
Maryland Sea Grant is working with the workshop steering committee is completed the report from the Thresholds Workshop, held in March 2007, and is providing the funds for the report's publication. A draft of the report should be available soon.

Development of an Ecotrace Module for Mercury in the Chesapeake Bay Fisheries Ecosystem Model (Cindy Gilmour, SERC):
Workshop planning is currently underway. The workshop, scheduled to take place October 2-4th at the Maritime Institute Conference Center, has two identified goals: to evaluate existing monitoring programs and their abilities to address temporal changes in mercury overtime; and to develop recommendations for improving ineffective programs. Experts from within and outside the watershed are invited. The first day will focus on

monitoring; the second day will focus on developing an Ecotrace model; the third day will be used to gather consensus. The steering committee plans to develop a four-page glossy factsheet to summarize the workshop.

The Economics of Ecosystem-Based Fisheries Management Plans (Doug Lipton, UMD):
The workshop will be held October 16-17 at the Hall of States in Washington DC and will focus on developing models and approaches for ecosystem based fisheries management. Presentations will consist of a series of studies that go beyond single species closed fisheries standard models to observe the interactions between fisheries, and apply economic approaches to those interactions.

Establishing a Research Agenda for Assessing the Bioavailability of Recalcitrant Effluent Organic Nitrogen (Margie Mulholland, ODU):
The workshop is scheduled to take place September 27-28 in Baltimore, MD and is being cosponsored by the Water Environment Research Foundation (WERF). Forty-two people with an array of expertise have been invited to participate. The first day will set the stage for regulators to identify what happens to organic nitrogen as it goes from the wastewater treatment systems to the environment. The second day will consist of group discussions. A workshop report and media brief will be developed to summarize workshop findings and recommendations.

Second Phase Five Watershed Model Review (Saied Mostaghimi, Virginia Tech):
In June 2005, a group of five outside experts conducted a STAC review of the CBP Phase Five Watershed Model. The reviewers convened in Annapolis over the course of two days and presented recommendations in a report. Since then, STAC has been asked to reassemble the review team to look at the Model's development to-date. The target date for the review is January 2008. The CBP has requested that the review follow the same format and that reviewers address a list of questions posed by the CBP modelers. Four questions for the second review have been developed to date, but are at the movement too broad. Additionally, Saied would like to reincorporate STAC's initial request for regular updates from the CBP regarding how they use the recommendations developed from the review. The CBP will also be asked to update STAC on how comments from the initial Phase 5 review were used, as adequate feedback was not provided.

STAC will submit a formal request to Rich Batiuk and Lewis Linker, EPA Chesapeake Bay Program, to identify terms for the second Phase Five Model review. Specifically, the Modeling and Analysis Subcommittee (MASC) will be asked to provide an update on how MASC addressed the comments from the initial Phase Five Model Review and to provide updates and maintain future interaction with STAC and the reviewers once the second Phase Five Model review is complete.

Towards Developing a 4D Bay Interpolator Review (Jeni Keisman, UMCES-CBPO)
The initial workshop proposal to develop a 4D Chesapeake Bay Interpolator has since been changed into an expert review panel. Review coordinators plan to host a one day workshop this fall, during which six experts will gather with a small group of key stakeholders to participated in facilitated discussions and identify the feasibility of

developing a 4D Bay Interpolator from current available data. The reviewers will meet separately after the workshop to summarize their recommendations and suggestions for next steps. Currently, three reviewers have been identified; coordinators are still waiting for three other potential reviewers to respond.

STAC Publications Update
Kevin Sellner, Chesapeake Research Consortium, updated the committee on the status of STAC workshop products. Hardcopies and electronic copies of the following workshop and review reports are now available: Sedimentsheds workshop (January 2007), Shoreline Modification Workshop (February 2006), and the CFD Review (November 2005).   Reports for the Fertilizer Sales Workshop (May 2007) the Atmospheric Nitrogen Workshop (May 2007), the Indicators Workshop (February 2007), and Wetlands Workshop (April 2007) are still in progress. Sea Grant is also still developing the workshop report from the Sea Grant/STAC sponsored Thresholds Workshop.

With regards to the additional workshop products, STAC will be releasing media briefs in place of press releases, which will allow for the distribution of information that may not necessarily be newsworthy.   Nina Fisher, the technical writer hired by STAC to produce these media briefs, has since written a media brief on the Atmospheric Nitrogen Workshop, which resulted in several published news stories. She is also converting the previously written Wetlands Workshop press release into a media brief, which will be distributed to reporters once completed. Nina has also been developing a factsheet on the Sedimentshed Workshop. A possible factsheet will be developed from the Indicators Workshop once the workshop report becomes available.

Chesapeake Bay Program Update
Rich Batiuk, EPA-CBPO, provided an update from the CBP. Current CBP focuses are on developing a Strategic Implementation Plan (SIP) to meet Senator Mikulski's challenge to deliver the 2010 goals mandated by the Government Accountability Office. The new SIP will include an inventory of watershed-wide activities and will help to address gaps to enable the CBP to conduct effective implementation. To help drive the new SIP forward, the CBP is undergoing a massive reorganization effort. The push will be to move away from assessment science and towards implementation science, and to develop a more concrete direction for the partnership. The CBP is also reviewing the current $21 million budget to determine how to redirect funds to allow for the most effective on-the-ground implementation.

Rich noted that input from STAC on the CBP reorganization structure, particularly on the need for continued science research and monitoring, is critical.   Other areas of importance that the CBP will need continued STAC feedback on are the Ecosystem Based Fisheries Management Plans and on the development of Total Maximum Daily Loads (TMDL) for the watershed.

Workgroup Update
Indicators Workgroup (Denice Wardrop, PSU): The workgroup is finalizing the proceedings report from the February 2007 workshop on "Developing Environmental

Indicators for the Health of the Chesapeake Bay Watershed" and plans to have this completed in time for the December STAC quarterly meeting. The executive summary has already been shared with the Modeling and Analysis Subcommittee, which is using the recommendations to develop watershed indicators that will be available in some form by January 2008.

Nutrient Trading (Doug Lipton, UMD): Upon Gary Matlock's, NOAA, recommendation at the June STAC meeting, the nutrient trading workgroup has contacted Stephanie Showalter, director of the National Sea Grant Law Center, to identify the legalities of nutrient trading within the Chesapeake Bay watershed states. She and her students are currently preparing a white paper to present to STAC at the December meeting.

BMP Workgroup (Jim Pease, Virginia Tech): In June 2007, the University of Maryland's Mid Atlantic Water Quality Program (MAWQP) submitted a request to STAC for a second review of the Mid-Atlantic Water Quality Program Best Management Practice (BMP) Project. The BMP Project is an effort aimed to improve the CBP Watershed Model and to ultimately improve TMDLs and nutrient trading programs. The request specifically asked for STAC to coordinate a second review team to assess the BMP Project expert review panels' logic, findings, and to identify potential needs.   With a limited timeframe, Jim Pease, Virginia Tech, Saied Mostaghimi, Virginia Tech, Mary Beth Adams, USDA, Tom Grizzard, Virginia Tech, Carl Hershner, VIMS, and Don Weller, SERC, convened in one conference call and developed a report to summarize their recommendations over the course of eight days. While the STAC reviewers provided input on the BMP review panel's logic, they did not review the numbers or BMPs across sectors due to the inappropriateness of this request. The Water Quality Steering Committee has since directed the MAWQP to consider STAC's recommendations. 13 of the 14 proposed BMPs have been approved.

Rich Batiuk noted that the MAWQP will be requesting an additional STAC review in the coming months as the second year BMP efficiencies are developed.

Liz Van Dolah, CRC, will circulate the list of second year BMP efficiencies from Rich Batiuk, EPA Chesapeake Bay Program.

Climate Change
Chris Pyke, CTG-Energetics, and Ray Najjar, PSU, provided an update on the STAC Climate Change white paper, which they are coordinating in response to the Chesapeake Bay Program charge to identify Chesapeake Bay climate change knowledge gaps, research priorities, and next steps.   Several other STAC members have actively been involved in developing sections for the white paper as well.

Understanding climate change impacts on the Chesapeake Bay and elsewhere is critical. Land and water resources are vulnerable to the physical, biological, and socioeconomic impacts that will be brought about by climate change. However, many federal agencies have yet to make climate change a priority, and resource managers continue to have limited guidance about whether and how to address climate change. The white paper will

attempt to provide this necessary guidance by exploring four key climate change issues that will be followed by a list of recommended next steps for the Bay Program partners. Each section, listed in priority order, will consist of one key question per theme, followed by 3-5 examples of additional questions and ten recommendations embedded in research review.

While the white paper is mostly complete, there are several gaps that still need to be addressed. Members of STAC were asked to provide comments. Suggestions were made to:

- Identify reports, websites, etc., to include in the white paper for additional information.
- Include stormwater infrastructure.
- Include extreme local events.
- Represent correlated changes in BMP targets/restoration and climate change.
- Provide guidance for adapting to uncertainties.
- Incorporate a larger review of the social science implications.
- Develop a means for making the final report widely available to the public.

Chris announced that he has been asked to give a testimony on climate change before the Senate's Environmental Public Works Commission on September 25th. He plans to reference the STAC climate change white paper.

Members who would like to provide input on the draft STAC Climate Change White Paper in preparation for the US Senate Environment and Public Works Committee hearing should send their comments to Chris Pyke (cpyke@ctg-net.com) or Ray Najjar, (najjar@meteo.psu.edu) by September 21.

Members should send comments to contribute to the final STAC Climate Change White Paper to Chris Pyke (cpyke@ctg-net.com) or Ray Najjar (najjar@meteo.psu.edu) by September 26.

September 12

Attendees

Members/

Alternates: Holly Bamford, Denise Breitburg, Cindy Gilmour, Tom Grizzard, Dave Hansen, Kirk Havens, Gerrit Knaap, Douglas Lipton, Gary Matlock, Saied Mostighimi, Raymond Najjar, Michael Paolisso, Jim Pease, Scott Phillips, Christopher Pyke, Tom Simpson, Kevin Sellner, Lisa Wainger, Denice Wardrop, Don Weller, Claire Welty

Alternates: Catherine O'Riordan, Weixing Zhu, Charles Bott

Guests: Emma Andrews, Rich Batiuk, Peter Claggett, Jonathan Doherty, Mark Dubin, Krystal Freeman, Steve Giordano, Scott Goodwin, Jonathan Kramer, Derek Orner, Doug Parker, Ali Sadeghi, Liana Vitali, Ning Zhou,

Staff: Melissa Fagan, Elizabeth Van Dolah

Development of the CBP Strategic Implementation Plan

Scott Phillips, USGS, provided an overview of the CBP Strategic Implementation Plan (SIP) and geographic targeting and assessment approach. Upon the GAO's mandate, the CBP has developed the SIP to drive management actions forward in order to achieve the goals of the Chesapeake 2000 agreement. On aspect of the plan will include the identification of geographic areas where these actions might be better targeted to improve ecosystems.

The SIP will use an adaptive management approach to targeting geographic management and assessment. This will include identifying priority areas for restoration and protection actions, monitoring for change and progress, and based on the collected information, develop recommendations on how to adapt and improve monitoring strategies. Within each of the CBP's five pillars, groups are currently identifying the major priorities and actions that need to be implemented to meet their pillars' goals, as well as priorities and actions for individual strategies within those pillars. One key challenge, however, that the SIP faces is determining how to integrate actions and priorities across pillars to allow the CBP to continue building towards its priority goal of protecting living resources. Other challenges include developing approaches that address the differing priorities of the CBP partners, developing information at the spatial scales to meet the needs of local, state, and federal decision makers, and adapting to shifting programs and funds from some geographic areas to others that may be identified as higher priority.

The CBP will be developing a report that supplements the SIP and provides recommendations for initial geographic areas. STAC has agreed to conduct a review of the report. STAC interaction will be critical in: 1) reviewing whether the CBP's approach for geographic targeting is scientifically sound, 2) providing recommendations for improving monitoring gaps, 3) continuing efforts to improve indicators reporting, and 4) in conducting evaluation of ecosystem responses. The ad-hoc review committee convened at the June Quarterly meeting currently includes Gerrit Knaap, UMD, Mike Kemp, UMCES, and Don Weller, SERC. Other interested parties are invited to participate.

The following recommendations were made in the discussion that followed:
- Evaluate the flexibility of funding programs for targeting. The report to be developed should identify opportunities for funding that everyone is eligible for, but also give more information on funding opportunities to those whose projects for geographic targeting are bigger priorities.
- Develop a suite of indicators to identify ecosystem response to enable us to observe trends and identify efforts that are making a difference.
- Address how to change local government actions to be able to use geographic targeting and assessment tools correctly.
- Identify mechanisms for implementation schemes for local governments, in addition to the federal government and state governments.
- The CBP should conduct surveys of local, state, and regional environmental managers and decision makers to determine what scientific tools should be built.

Members who would like to participate in the upcoming Geographic Targeting and Management Action Assessment Review should contact Scott Phillips, USGS (swphilli@usgs.gov).

Land-Use Modeling Update
Peter Claggett, USGS, updated the committee on the 2030 Land-Use Model. Population growth and urbanization, as well as agricultural intensification and regionalization are major contributors to land-use changes around the Chesapeake Bay and have in turn had a significant effect on the Bay's water quality health. The Chesapeake Bay Watershed is extremely prone to land change impacts do to the fact that it has the fastest growth population of all coastal estuaries in the United States and has the highest land to water body ratio.

The Water Quality Model is used to three dimensionally model the Chesapeake Bay Watershed water quality criteria. It uses date outputs from the Airshed model and 2030 Land-Change Model to feed inputs into the Watershed Model, which then provides feedback on loads of nitrogen, phosphorus, and sediment into the Bay. With this set of models, the CBP can determine how best to manage certain activities on the land. However, not much progress has been made to improve non-point urban sources due to the inability of management actions in urban and urbanizing areas to keep pace with the amount of growth occurring in this region. The policy question that is driving this analysis of land change is: How can we maintain progress in restoring the CB in the face of continued pop and urban growth?

The scale of the 2030 Land-Change Model is based on the input depth of the Watershed Model scale, which looks at land from a county basis. However, to obtain the level of information needed, modelers have combined land segments with river segments to form over 2000 modeling segments. For the land-use decision scale, modelers are uniformly divide the watershed into minor civil divisions, a unit used by the Census Bureau that is similar in scale to municipalities and townships, and to the land-river segments developed

from the Watershed Model. For state review, modelers have aggregating data at county scales.

The 2030 Land-Change Model has two major components: 1) demographic and plenary projections; and 2) translating this into an urban footprint at the minor civil division scale through a model called GAMe. This model will help allocate future populations on sewer and septic. Currently, modelers have been able to determined county population forecasts using GAMe and are now forecasting housing demands and industrial footprints on a civil division scale. The SLEUTH Model is being used to determine the proportions of farmland and forest land being lost to urban development. Modelers have divided and calibrated the watershed into 50 regions and are modeling based on changes in impervious surface between 1990 and 2000. The LUAU Model is being used to forecasts animal populations at the county scale. A multi-linear regression equation has been developed to show the relationship between land cover and the number of animals. While modelers have noticed a regression, the relationship varies. However, due to the lack of input from the agricultural sector, modelers have turned their focus more towards urban land-use trends.

In addition to these developments, the modeling team is currently building the Alternative Futures Model to assess different scenarios. The Model divides segments of population density into five different categories: concentrated growth around metropolitan areas, clustered growth around satellite cities, sprawl, continuation of current trends (or "business as usual"), and ethanol development. Projections show that current trends will continue into 2030 within and around Washington DC, Baltimore, Annapolis, and on the Eastern Shore.

Peter and the Modeling and Analysis Subcommittee asked for STAC to conduct a review of the 2030 Land-Change Model final trend forecast once it becomes available in January. A request was made to have the original outside reviewers lead the review and to have additional STAC members participate in the agricultural section, which was previously not developed.

Chris Pyke, CTG Energetics, will coordinate a second review of 2030 Trend Forecast. The review will take place between February and March 2008.

Ecosystem Fisheries Based Management Plan
Jonathan Kramer, Maryland Sea Grant, updated STAC on the Ecosystem Based Fisheries Management Plan development. In 2006, the Living Resource Subcommittee requested the Maryland Sea Grant (MDSG) to use the Fisheries Ecosystem Plan to develop five implementation plans for key Chesapeake Bay species (crabs, oysters, striped bass, Menhaden, and American Shad). MDSG developed the implementation plans using the By-State Blue Crab Advisory Committee Model (BBCAC). Each implementation plan was designed to be inclusive, bottom-up, and interdependent, yet free-standing. Additionally, they were designed to be integrative with science, management, and policy.

Some challenges that MDSG has faced in the development of the EBFMP include developing integrative plans that go beyond being a product; the EBFMP must rather become a process for adaptive management. Additionally, the EBFMP must reach out beyond fisheries stakeholders to become a regional watershed effort. Though difficult, multiple jurisdictions should also be involved to ensure that there is regional representation. Lastly, the CBP still needs to determine how and where the EBFMP will fit into the reorganization, which could create some additional obstacles.

The proposed structure will consist of two groups of teams, the Biological Background Teams and the Quantitative Ecosystem Teams, which will serve as the foundation of the EBFMP. The Biological Background Teams will represent each of the key species through strong scientific expertise. The Quantitative Ecosystem Teams will measure key factors affecting the five EBFMP species, and will include expertise in habitat suitability, stock assessment, socioeconomics, and foodweb relationships. Chairs of each team will communicate with one another and with the Fisheries Ecosystem Workgoup, which will refine recommendations to give to the Chesapeake Fisheries Ecosystem Advisory Committee, the policy implementation advisors; their recommendations will ultimately feed into the CBP's Executive Committee. MDSG plans to facilitate and synthesize information throughout the entire process. A draft of the EBFMP is now available.

Steve Giordano, NOAA CBO, provided a brief update on the Ecosystem Based Fisheries Management Pillar, which is using the EBFMP structure outlined above to drive Bay-wide living resource restoration efforts. Having the EBFMP will enable the CBP to provide fisheries managers with sound science from which to develop stock assessments and habitat requirements for managed resources, and will provide watershed resource managers (air, water, land) with quantifiable habitat requirements with which to make sound resource management decisions. Along with the five ecosystem based fisheries management plans currently in development, the CBP will use the program format to devise EBFMPs for 20 additional bay species.

An Evaluation of Native Oyster Restoration in the Chesapeake Bay:
Jonathan Kramer also updated STAC on the status of the Chesapeake Bay Native Oyster Restoration Evaluation. The evaluation was initiated by a diverse group of stakeholders within and outside of the scientific community to provide a consensus on the need to more fully understand native oyster restoration. Significant federal and state funding has been allocated towards this effort with the hopes that the evaluation will continue to drive forward the Non-Native Oyster Environmental Impact Statement, and as well as those efforts by the Virginia Blue Ribbon Panel and the Maryland Oyster Task Force.

The evaluation is being conducted by leading scientists of multi-disciplinary expertise from Maryland and Virginia. It will specifically identify what oysters should be restored, where to apply restoration efforts, and for how long. It will also assess how efforts to date have addressed the oyster restoration goals set for each restoration site and Baywide, and will identify lessons to be learned from the results of these efforts. The evaluation will be concluded with a list of recommendations for short-term and long-term restoration.

Current data needs include a Baywide restoration inventory, data on data availability, monitoring data, and data on ecosystem factors. A list of critical questions and an overview of current Baywide restoration efforts were provided to the membership. The final evaluation is scheduled for completion by the end of 2007.

Workshop Proposals
Chesapeake Bay Tidal Monitoring Integration Program (Steve Giordano, NOAA CBO/ Rich Batiuk, EPA-CBPO):
In March 2007, the Tidal Monitoring Integration Program requestors asked for STAC funding to support an effort to develop a series of workshops over the course of several years in order to integrate tidal water quality monitoring programs, lower tropic monitoring programs, and fisheries monitoring programs for improved management opportunities. At the time, STAC asked the workshop requestors to further develop the framework and clarify the workshop objectives. With a revised proposal in hand, Steve Giordano presented an overview of the multi-step workshop series.

Though many were still supportive of the concept behind the proposed program, concerns were raised regarding the amount of time, money, and commitment that would be needed to conduct such a large-scale effort. Additionally, suggestions were made that this program could be far more effective if it operated in conjunction with the Maryland Sea Grant's Ecosystem Based Fisheries Management Plans, once this is completed.

Water Quality Credit Trading: Issues in Uncertainty, Evaluation, and Verification (Doug Parker, UMD):
The workshop proposal stemmed from the Water Quality Credit Trading discussion at the June quarterly meeting from which the suggestion was made to develop a nutrient trading evaluation framework on water quality credit trading. The workshop will convene a workgroup of 8-10 trading professionals for a two-day workshop during the spring of 2008 to develop the suggested evaluation framework. Prior to meeting, each participant will be asked to draft a short synopsis for how to approach the task. The final evaluation framework will be developed after the workshop and summarized in a white paper and will provide a starting point for incorporating similar frameworks into existing proposed trading programs within the Chesapeake Bay. The Mid Atlantic Water Quality Program has offered up to $6,000 to co-sponsor the workshop; the workshop requestors requested $8,000 from STAC.

Currently STAC has allocated almost all of its available workshop funding; roughly $3,000 remains unspent. However, several workshops from this fall may have additional unspent money that can be allocated to fund one of the proposed workshops. Due to the uncertainty of current funding limitations, the membership decided to leave the final decision with the STAC Executive Board, who will be able further discuss the two proposals in more detail and confirm available funding after the meeting.

Liz Van Dolah, CRC, will collect any comments or concerns from the membership with regards to two pending workshops on Tidal Monitoring Integration and Water Quality Credit Trading. The STAC Executive Board will make a final decision to approve or reject the proposals by the end of October 2007.

Social Science Caucus
After the meeting was adjourned, interested members and guests were invited to participate in a social science caucus during lunch. Previous meeting discussions have raised concern over the amount of involvement that the social sciences play within STAC, which remains relatively minute in comparison to the natural sciences. However, as the CBP moves towards implementation science, socioeconomic input will be essential. The caucus was convened to begin brainstorming ways to enhance the role of social sciences within STAC. Suggestions for the following were made:

- Convene an annual social science conference similar to the 1980s- 1990s conferences series on the Economics of Chesapeake Bay Management.
- STAC should make a concerted effort to increase the number of social scientists within the membership. The suggestion was made to increase the number of overall members to allow for this.
- Create a means for incorporating outside social science expertise into STAC activities.
- Identify CBP social science needs through a white paper similar to the current STAC Climate Change white paper.
- Due to the broad applicability of social sciences, STAC needs to increase the awareness of membership expertise to allow for networking. The STAC website can provide an appropriate venue for this.
- In the mid 1980s, STAC compiled a list of regional economists into a handbook. A similar publication for regional social scientists could prove to be a beneficial tool for CBP networking purposes.
- Convene the social science workgroup to regularly provide socioeconomic input on STAC activities.
- Socioeconomic input is needed for the following immediate issues:
  - Why has there been a decrease in the environmental contributions of small farms?
  - What is the impact of biofuels on the Chesapeake Bay and watershed?
  - Farm Bill
  - NEMO projects: why do some work while others do not?