

Final Meeting Summary
***Sixth Meeting of the Mississippi River/Gulf of Mexico
Watershed Nutrient Task Force***

June 15-16, 2000
Marriott Pavilion Hotel Downtown
St. Louis, Missouri

The Mississippi River/Gulf of Mexico Watershed Nutrient Task Force (Task Force) held its sixth meeting on June 15–16, 2000, in St. Louis, Missouri. The meeting was chaired by Charles (Chuck) Fox, Assistant Administrator for Water, U.S. Environmental Protection Agency (EPA).

The primary objective of the meeting was to discuss and agree on the Draft Action Plan content, especially the goals that would be incorporated into the Action Plan made available for public review and comment. Another objective was to review the status of the final science Integrated Assessment (IA) and response to comments on the science reports and IA.

Thursday, June 15

MORNING

The Task Force and Coordination Committee met separately to discuss the Draft Action Plan.

AFTERNOON

Opening Remarks

Chuck Fox opened the meeting and Stephen Mahfood, Missouri Department of Natural Resources, welcomed everyone to St. Louis on behalf of Governor Carnahan.

Mr. Fox stressed the importance of the meeting and the process of moving from the scientific assessment to implementation. He then briefly reviewed the agenda for the meeting and introduced Don Scavia, National Oceanic and Atmospheric Administration (NOAA), for an overview of the findings of the Final Integrated Assessment (IA), as well as the comments received on it and the six science reports.

Integrated Assessment

Don Scavia, National Oceanic and Atmospheric Administration (NOAA)

Dr. Scavia provided an overview of how the IA was developed, the six reports and comments that were incorporated into the IA, and the comments received from the public on the draft IA ([Attachment 1](#)). He explained that comments were received in the following eight categories:

- IA and Action Plan development process
- Adaptive management, monitoring, research
- Modeling of management options and impacts
- International and national hypoxia comparisons
- Factors contributing to hypoxia

- Trends and sources of nitrogen
- History of Gulf hypoxia
- Nutrient control practices

Dr. Scavia discussed the findings of the IA report which concluded that hypoxia has increased since the 1950s and that nitrogen loading from the Mississippi River to the Gulf of Mexico is the dominant reason. He stated that the river's nitrogen load has more than tripled since the 1950s and that hypoxia in the Gulf and basin water quality in general should respond positively to reduce nitrogen loads.

Dr. Scavia identified two categories of action that are necessary to reduce hypoxia in the Gulf: (1) increase the rate of denitrification and (2) decrease nitrogen loads to surface waters in the basin. The report compared the potential nitrogen reduction capabilities of creating and restoring wetlands, creating and restoring riparian buffers, and diverting rivers in coastal Louisiana. It also evaluated the potential nitrogen reduction capabilities to surface waters by changing farm practices or reducing point source inputs.

One of the most important aspects of the IA is a summary of the economic costs of reducing nitrogen losses to the aquatic environment. This summary compares the costs of implementing various approaches. Although it costs less on a per unit nitrogen reduction basis to achieve edge-of-field reductions than to create or restore wetlands, wetland creation and restoration provide significant additional benefits (habitat, stormwater retention, groundwater recharge, etc).

Dr. Scavia concluded by stating that the IA was based on wide participation and underwent a comprehensive peer review process that focused attention on resolving key controversies before it reached its final form. The IA makes only one recommendation for addressing hypoxia in the Gulf: Whatever approach is chosen, it needs to be based on an adaptive management approach that includes adequate environmental monitoring and research. This approach would allow for changes in the course of action based on any new information or research findings as the plan is implemented.

Mr. Mahfood asked if the contribution of urban runoff was studied during the assessment. Dr. Scavia responded that urban runoff accounted for such a small fraction of the nitrogen reaching the Gulf that its reduction was not evaluated as a potential solution. That point was further clarified by Herb Buxton, USGS, indicating that those sources were included in the overall nutrient budget analysis.

Chesapeake Bay Program: A Watershed Partnership

Bill Matuszeski, Chesapeake Bay Program Director

Thomas Simpson, Nutrient Committee Chair for the CBP, Maryland Department of Agriculture

Mr. Matuszeski and Mr. Simpson then provided an explanation of the lessons the Chesapeake Bay Program (CBP) learned while working to achieve consensus among the states on goals and measures to address hypoxia and anoxia in the Chesapeake Bay.

Mr. Matuszeski began by discussing how the CBP was able to win public endorsement of the goals it set forth. (His overheads are included as [Attachment 2](#).) The CBP's initial goal in 1987 to reduce nutrient discharge to the Bay by 40 percent by the year 2000 spawned several subsequent goals. He stressed that the key to gaining the public's endorsement of program goals is to have accurate data and models at the outset. The CBP stressed the upstream local benefits of nutrient reduction in the Chesapeake to the public, including water quality improvements, fish passage and recreational fishing improvements, habitat restoration, and the creation of water trails. As the citizens began to recognize the potential upstream benefits of the CBP's goal, their perception of it became more favorable.

Mr. Matuszeski then described the detailed numeric goals that have been set under the Chesapeake 2000 initiative, including goals to improve living resources and vital habitat, water quality restoration and protection, sound land use, and stewardship and community involvement. These stringent, yet voluntary, goals have been important in leveraging funds for programs and private initiatives from partners and stakeholders.

Although goals are important, Mr. Matuszeski pointed out that you should not be discouraged if a particular goal is not met. There will be time to meet and even surpass it later. It is more important to show the public that you are working toward a goal and are making great strides while trying to meet it even if you don't quite make it there the first year. He then provided several examples of how some of the CBP's goals have been achieved and explained that they are still working to achieve others.

Mr. Matuszeski also provided the following advice on building consensus among various watershed stakeholders:

- Seek simple, measurable goals.
- Regulation is only one tool among many; focus on results, not control.
- Don't argue over whether current conditions are good enough.
- Focus on what you can contribute to solutions, not on the original cause of the problem.
- Don't worry about relative power; focus on combined power.
- Give the partnership process a chance to work; don't expect success overnight.

Finally, Mr. Matuszeski mentioned several rules for getting around roadblocks and some lessons the CBP learned while trying to achieve consensus and reach goals. He suggested reaching agreement on a baseline before a goal is adopted. He believes state legislatures should be heavily involved in the process, as well as federal agencies. Mr. Matuszeski also suggested making a concerted effort to keep the public informed and involved in setting and achieving the goals.

Mr. Simpson then gave a brief presentation on how goals and strategies were used as tools in nutrient reduction programs set forth under Maryland's Agricultural Tributary Strategies. (His overheads are included as [Attachment 3](#).) He explained that the tributary-specific strategies were born out of the Chesapeake Bay Act's 1993 goal to reduce nutrients by 40 percent. He then listed several ideas on which those strategies were based:

- Provide essential dates for goal achievement.
- Link the goals to water quality improvements.
- Make goals challenging but not impossible.
- Set goals now; there isn't, and never will be, as much data as you would like.
- Establish state and subwatershed goals.
- Get commitments from the highest levels.

Maryland's agricultural Tributary Strategies involve two teams—a data team and a technical options team—led by a coordinating committee. The teams included representatives from USDA's NRCS Soil Conservation Districts and Farm Services Agency, local governments, environmentalists and others. The Tributary Strategies reflect the diversity in the types of agriculture present across the state—from grain farming operations to sewage sludge applicators.

In 9 of the 10 Tributary Strategies implemented, target goals were met with only “reasonable” increases in BMP use. Mr. Simpson stressed that this success was the result of allowing the teams to exclude a practice if necessary or mix and match practices as they wished. A positive public perception was created by pointing out to farmers which practices they could use that would also provide a downstream benefit. Finally, local ownership of the solutions to both upstream and downstream water quality problems was the key to successfully meeting the goals of each Tributary Strategy.

Discussion

Task Force

Mr. Fox opened the discussion with a question about how the CBP was able to gain buy-in from states such as Pennsylvania, which are fairly far removed from the Chesapeake Bay. Mr. Simpson stated that Pennsylvania has been a very active participant in the process even though they don't own an acre on the Bay. They developed Tributary Strategies and are now working to form Tributary Teams. They also attend the group meeting in Annapolis, Maryland every year.

A Task Force member then asked Mr. Simpson where the CBP would be today without the goals he had described. He responded that the CBP would not be anywhere near the great progress they've made. In fact, CBP staff asked the stakeholders in each tributary if they believed that the specific goals set for their tributary were achievable, and all the stakeholders agreed that they were.

Other questions raised by the Task Force regarding the CBP example included the following:

- Is the CBP conducting ongoing monitoring and assessment? Have you changed how you look at monitoring and assessment as you've gone along?

Answer: Yes, the CBP began a baseline in 1983 and as a result of continual reassessment it shifted from looking at both nitrogen and phosphorus to focusing primarily on nitrogen.

- How was the CBP able to get all the partners involved to agree to the goals?

Answer: The CBP educated the stakeholders on the issues and emphasized that something must be done. At first, the scientists said that the CBP needed to work toward only a 37 percent reduction in nutrient loading, but the stakeholders themselves asked for a 40 percent reduction target. One state, however, did not agree with the 40 percent goal at all, so the CBP developed three alternative goals to help get that state on board. In the end, that state ended up developing an even more aggressive goal, as well as an entirely new goal that wasn't even mentioned in the CBP's mission.

Draft Action Plan

Bob Wayland, USEPA Office of Wetlands, Oceans, and Watersheds

Bruce Baker, Wisconsin Department of Natural Resources

Mr. Wayland and Mr. Baker presented information on the Draft Action Plan (AP) prepared by the Coordination Committee based on guidance from the Task Force at the Chicago meeting in November 1999. Drafts and comments had been circulated electronically and several conference calls were held to aid in the development of the AP.

Mr. Baker first provided the history of the AP to date and briefly summarized the recommendations made by the Task Force at the November meeting. He noted that the draft AP now contains information received after public comments were incorporated into the final IA report, including an emphasis on nitrogen loading to the Gulf, a recognition of the need for specific actions, inclusion of an adaptive management approach, and more information on specific funding initiatives.

The draft AP includes three goals:

- A coastal goal of restoring and protecting the waters of the Gulf of Mexico on the Texas-Louisiana inner continental shelf and reduce the area, volume, frequency, duration, and extent of oxygen depletion of the seasonal zone of hypoxia to levels estimated for the 1950's.
- A within-basin goal of restoring and protecting the waters of the 31 States within the Mississippi/Atchafalaya River Basin and their aquatic ecosystems in order to protect public health and aquatic life, as well as reduce negative impacts on downstream waters.
- An overall nitrogen reduction goal of reducing, by 2010, annual discharges of nitrogen to the Gulf from the Mississippi/Atchafalaya Rivers of 350,000 to 650,000 metric tons—equivalent to a 20 to 40 percent reduction in the annual average loading during the period 1985-1995.

These goals might be revised as the process goes along, depending on the economic and scientific issues that arise along the way.

Mr. Wayland then discussed nine near-term actions spelled out in the draft AP to address nitrogen loading to the Gulf and associated implementation schedules. He also provided descriptions of the various funding initiatives recommended in the draft AP. Details on the AP and its tasks and schedules are available on EPA's Mississippi River Basin web site at <http://www.epa.gov/msbasin/draftap2001.htm>.

Several issues remain to be addressed in the final AP, including the establishment of quantitative goals for nitrogen reductions, how to implement the suggested actions (state or subbasin frameworks), a refined funding initiative that will facilitate the appropriation of necessary funds, and the incorporation of success stories and challenges. Mr. Wayland also noted that States and Tribes not represented on the Task Force have been contacted to seek their recommendations on the AP.

Mr. Wayland suggested that to complete work this year, the following schedule would need to be met: the draft AP would be revised based on comments received at the Task Force meeting and then submitted to the Federal Register for public comment by July 1, 2000. Following a 60-day public comment period, a revised draft will be submitted to the Task Force. Following the incorporation of any comments received during the final Task Force meeting in September, the final AP will be submitted to the President.

Discussion

Task Force

Mr. Fox prompted a discussion among the Task Force members on how to refine the budget in the AP to spell out specific dollar values. He pointed out that the nation is seeing more and more large-scale federal projects across the country that are similar to what the AP is proposing—Chesapeake Bay, Florida Everglades, California Bay Delta, wetland restoration in coastal Louisiana, and the Great Lakes—which the Task Force could use as models.

Randy Young, Arkansas Soil and Water Conservation Commission

Mr. Young emphasized that states still lack the necessary funding to provide sufficient technical assistance to landowners for development of nutrient management plans (NMPs) and other projects. The AP should spell out exactly how the states will receive more money to provide technical assistance. Arkansas would like to have a NMP for each producer in the state, but with its current budget such an endeavor would take 15 years.

Don Richardson, USDA-NRCS

Mr. Richardson supported Mr. Young's remarks by saying that according to an NRCS workload analysis, the AP will mean an increase in the NRCS workload when they are already stretched thin when it comes to providing landowner assistance.

Patty Judge, Iowa Department of Land Stewardship

Ms. Judge explained how a new water quality improvement program in Iowa has significantly improved water quality. She stressed that to get the states to commit to this AP, the Task Force needs to show them it will improve water quality not just in the Gulf but in their state as well.

Other Task Force comments included arguments for and against setting quantitative goals, how to allocate those goals to each state in the basin, and the need for heightened monitoring and modeling efforts at the subbasin level.

Task Force members, Sally Yozell and Gordon Wegwart, emphasized the need to develop shared goals based on voluntary approaches. The AP should provide incentives great enough to get the states really interested in solving this problem.

Public

Terry Francl, American Farm Bureau Federation (AFBF)

Mr. Francl said he agrees with most of the IA report, but he finds the quantitative issues most troubling. He cited several problems in using the CBP for comparisons, including how many farmers felt they have been regulated despite the fact that the CBP's approach was labeled voluntary. He believes that most scientists admit there is not a good understanding of what would work. He stated that it would be difficult, if not impossible, for the AFBF to accept a quantitative approach.

David Mulla, University of Minnesota

Mr. Mulla discussed the issue of uncertainty regarding the data currently available. He suggested using indicators such as fertilizer sales, number of acres of tile installed, and adoption of conservation tillage as better measures of success than quantitative goals.

Robert Moore, Prairie Rivers Network

Mr. Moore agreed with Ms. Judge's suggestion of focusing on local water quality. Referring to a letter sent to Mr. Fox by the State of Illinois, he believes that his state (Illinois) needs to recognize that since they have their own water quality impairments due to nitrogen, it only makes sense that the Gulf has problems as well (NOTE - The letter Mr. Moore referred to included the comments submitted by Illinois Governor Ryan to the Hypoxia Working Group on the Integrated Assessment. Copies of all comments were sent to the Task Force members, prior to completing the Integrated Assessment).

Albert Attinger, Sierra Club and Environmental Law and Policy Center

Mr. Attinger commented that many of the action items set forth in the plan need to be spelled out in more detail. He mentioned that there needs to be more clarity in the report on nitrogen loading from sewage treatment plants. He felt that if the Task Force doesn't set numeric goals, progress toward finding solutions will be difficult.

Doug Daigle, Mississippi River Basin Alliance

Mr. Daigle reminded the Task Force that Congress called for the Task Force to develop solutions, not to evade the problem with vague goals. He stressed that if numeric goals are not set, progress cannot be measured. Numeric goals will allow the Task Force to see what things are working and what needs to change. He added that, “This may be the last opportunity we have to set our own goals before Congress sets them for us.”

Cynthia Sarthou, Gulf Restoration Network

Ms. Sarthou stated that numeric goals can be achieved voluntarily if the federal government provides funding support for voluntary programs. She stated that many farmers believe that their BMPs are working and that they are sufficient because the states don’t give them any indication to the contrary. If you show them that what they can do on their farms voluntarily can help solve the problem, they will be willing to try.

Jim Cox, National Association of State Conservation Agencies

Mr. Cox, referring to the CBP presentation, pointed out that not one state on the Task Force represents the demographics and issues that Maryland faced. Using Maryland as an example is difficult because most of Maryland drains to the Bay and most people are directly affected economically by issues surrounding the Bay. In Virginia, only 56 percent of the state drains into the Bay; in Pennsylvania approximately 50 percent drains to the Bay. He suggested making citizens in each state in the basin personally concerned with water quality in their state, and in turn with hypoxia.

Mr. Cox also explained how raising dissolved oxygen from 0 to 1 in the Bay made a significant economic difference in the Bay’s fisheries. This kind of connection is not made clear to the public in the draft AP. The hypoxic conditions in the Gulf need to be related back to how they affect local economies, thereby helping to gain public buy-in. He also suggested making the targets achievable and trying to incorporate the treatment potential of retention structures owned by the Army Corps of Engineers. These structures could be used to hold back sediment and therefore nitrogen.

Rodney Hendrick, Louisiana Agricultural Center/Louisiana Cooperative Service

Mr. Hendrick added that more attention needs to be paid to urban sources of nitrogen. He believes that much of the nitrogen input to the Gulf is from sewer plants and urban stormwater runoff.

Jeff Stein, American Rivers

Mr. Stein believes that if the Midwestern states are not interested in setting and achieving goals for the Gulf, they should at least be interested in setting and achieving goals for their own waters, which will in turn improve water quality in the Gulf. He also suggested that the AP integrate and supplement existing efforts in the basin to improve water quality.

Task Force member Sally Yozell compared the hypoxia issue to the clean air debate of years past. Then, air pollution from the West was killing trees in the East. Congress finally stepped in and provided a regulatory hand because there were no voluntary programs in place. She emphasized that the AP is the chance to set and achieve water quality goals without interference from Congress. Numeric targets are necessary to get the funding needed to implement these preemptive voluntary programs.

Friday, June 17

MORNING

Bob Wayland began the second day of the meeting by recapping the discussion on the near-term goals of the draft AP and picked up the previous day's discussion of those goals.

Discussion

Task Force

Chuck Fox asked the state representatives on the Task Force to describe what their states are doing currently to increase technical assistance to landowners.

Karen Studders, Minnesota Pollution Control Agency

Ms. Studders explained that in Minnesota the problem is not a lack of technical experts, but the lack of funding that comes with the timing of other political issues.

Bruce Baker, Wisconsin Department of Natural Resources

Mr. Baker stated that implementing more technical assistance programs would definitely result in added costs for Wisconsin. The Task Force really needs to look at what is most cost-effective. Wisconsin is concerned about nutrient over enrichment, but not on a daily basis.

Dale Givens, Louisiana Department of Environmental Quality

Mr. Givens stated that there is currently not enough funding in Louisiana to implement more monitoring, modeling, or technical assistance efforts. Money for those programs is always allocated after program dollars have already been allocated elsewhere.

Chuck Fox then asked the Task Force members if they could cite successful models for monitoring programs that highlight innovative ways to secure funding.

Gordon Wegwart, Minnesota Pollution Control Agency

Mr. Wegwart responded by saying that his state has had problems securing funding for monitoring, but when they decided that it was crucial to step up their monitoring efforts, they put their heads together and came up with a successful federal-state joint effort.

Charles Groat, U.S. Geological Survey

Mr. Groat agreed that coordination of federal and state programs is needed to implement an initiative of this magnitude. Don Scavia suggested allocating a percentage of the money each state gets for implementation of its water programs.

Mark Anderson, White House Office of Science and Technology Policy

Mr. Anderson stated that the programs that show that \$1 of federal funding is amounting to benefits of more than \$1 later are the programs that get the money. The AP needs to show that the investment now will be beneficial to the economy later.

Bob Wayland, USEPA Office of Wetlands, Oceans, and Watersheds

Mr. Wayland reminded the group that the draft Action Plan provides for re-evaluation of goals every five years in light of progress in implementation and new scientific information. This adaptive management approach is critical to the success of the plan for the future.

Chuck Fox then asked Task Force members for their thoughts on how to structure the subbasin committees suggested in the AP and the strategies for reducing nitrogen in priority subbasins. He suggested tapping into existing watershed partnerships in the basins.

Several Task Force members agreed with this approach and suggested using the Mississippi River Basin Alliance, Ohio River Valley Sanitation Commission (ORSANCO), and other large watershed partnerships. Peter Tennant, ORSANCO, volunteered ORSANCO's help in developing the subbasin strategies. Currently, ORSANCO is developing a nutrient management strategy for its member states, as well as nutrient criteria. Doug Daigle, Mississippi River Basin Alliance, and Jim Giattina, EPA's Gulf of Mexico Program Office, also volunteered their Programs' help in this matter. Stephen Mahfood suggested using an existing watershed partnership in the Missouri River Basin.

Gordon Wegwart, Minnesota Pollution Control Agency

Mr. Wegwart suggested that the suite of goals should include one goal which would indicate that improvement to water quality in the Basin and the Gulf should not result in widespread disruption to the agricultural economy of the Midwest or to economic hardship—quality of life in the Basin should be a consideration. The Task Force generally supported this proposal.

Dale Givens, Louisiana Department of Environmental Quality

Mr. Givens stated that the Task Force should take a closer look at the inputs from all sources, not just agricultural sources. He also believes that existing programs have not done a good job of getting people involved and interested at the grassroots level. He emphasized that public education is the key to public buy-in.

Chuck Fox asked the Task Force whether involvement of watershed organizations would be successful in the absence of a unifying, quantitative goal. Mr. Givens responded saying that a 30 percent reduction is an achievable goal through voluntary BMP programs given the participation of all sectors of the economy ([Attachment 4](#) - June 13 Letter to Mr. Charles Fox from the State of Louisiana). Another Task Force member suggested planning for ways to extrapolate the reduction goal down to the local level, i.e., help localities figure out what they can do in their own backyards to improve water quality in their areas and, in turn, the Gulf. Mr. Fruge added that the AP needs to allow flexibility on how each subbasin gets to the goals.

Other suggestions from the Task Force included the need to set a good baseline for use in measuring progress, setting exact goals to prevent misinterpretation by states, developing time frames for the goals, and providing goals in the AP that are geared toward local benefits at the subbasin level.

Don Scavia, National Oceanic and Atmospheric Administration (NOAA)

Mr. Scavia then suggested an alternative expression of a quantitative goal for the Gulf. He suggested working toward increasing oxygen levels in the Gulf to above 2 mg/L (the level under which hypoxic conditions occur). The best research states that to meet this goal a 30 percent reduction in nitrogen would be required. Oxygen levels don't need to improve dramatically; they only need to get higher than 2 mg/L.

Several of the Task Force members felt that Mr. Scavia's suggestion was worthy of further consideration and research.

State Caucus

Patty Judge then requested a ½-hour break, during which state and agriculture representatives caucused to discuss the goal issue.

After the caucus, Ms. Judge said that the meeting did indeed head the states in the direction of consensus on several issues. Dale Givens expressed the states' desire to look further at the environmental target goal of 2 mg/L. He asked that Don Scavia be given more time to flesh out his ideas on this approach and submit them to the Task Force.

Drafting the Action Plan for Public Comment

Mr. Fox then asked the Task Force to support directing the Coordination Committee to prepare a draft AP that would include a number of different options for how to approach the overall goals for the Gulf. The public would be asked specifically to comment on which goal or goals they prefer and whether they should be modified. He suggested an interim meeting or conference call of all the Task Force members to further discuss several options.

Ms. Judge asked that time frames for each option be developed at the interim meeting or conference call.

Public

Victor Bierman, Limno-Tech, Inc.

Mr Bierman commented that the modeling capability developed to date is not precise enough to predict a specific change in hypoxia from a specific change in nitrogen or nitrate discharge to the Gulf. However, the IA proves that nitrogen loading is linked to human impacts. It is reasonable to assume that if nitrogen loading is decreased, hypoxia will decrease. Obviously, since there has not been a collapse in the Gulf's fisheries yet, a threshold has not yet been crossed. Mr. Bierman also noted that an adaptive management approach would be critical, and that an outcome-based endpoint is important because it emphasizes what the public will get out of this effort.

Clifford Snyder, Potash and Phosphate Institute

Mr. Snyder agreed that the AP should not take a qualitative approach. He suggested looking back at the available data once more to focus on problem areas. He also believes that setting long-term goals along with both interim and short-term goals may be the key to an adaptive management approach.

Doug Daigle, Mississippi River Basin Alliance

Mr. Daigle expressed concern that the decision process will be conducted outside of the public's view. He stated that it is important that the public, especially the states, be kept involved throughout the entire process. Mr. Fox assured him that the public will be involved and that the Task Force intends to encourage public participation and support at every step.

A representative from the American Farm Bureau Federation stated that the AP does not place enough attention on restoring Louisiana's coastal wetlands. He felt that wetland restoration could play a much greater role in improving hypoxia in the Gulf.

Thomas Simpson, Nutrient Committee Chair for the CBP, Maryland Department of Agriculture

Mr. Simpson reiterated that all the states in the Chesapeake Bay watershed agreed to the 40 percent goal. By 2010 the program is supposed to have corrected all the nutrient problems in the Bay and its tributaries. After that, the CBP will develop even more stringent goals.

Cynthia Sarthou, Gulf Restoration Network

Ms. Sarthou added that although Louisiana is spending more money than any other state on wetland restoration, even if they were to restore all their wetlands, hypoxia would still be a problem. She added that more funds need to be available for monitoring and data collection and evaluation.

Action Items for Coordination Committee:

- Mr. Fox asked David Fruge, U.S. Fish and Wildlife Service, to provide the Task Force with additional cost information on using wetland creation and restoration as part of the solution.
- The Committee was charged with developing a budget for implementing each of the options listed in the Draft Action Plan.
- The public was asked to submit comments on the Draft Action Plan promptly so that the Task Force could meet the October 2, 2000, target date for the Final Action Plan.
- Mr. Fox committed to providing the Task Force with copies of the letter referred to by Robert Moore of the Prairie River Network.
- Mr. Fox asked the Coordination Committee to include an urban component in the Action Plan and to ensure the accuracy of the data on urban nitrogen inputs.
- Mr. Fox asked the Task Force to share ideas with one another on ways to obtain increased funding for monitoring.
- The Task Force was also asked to consider existing program structures to see if they could support the overall goals of the Action Plan.
- The Task Force will consider holding an interim meeting or conference call before the next meeting to select the goals for the final Action Plan.

Attachment 1

Review of the Integrated Assessment; Don Scavia, National Oceanic and Atmospheric Administration.

Attachment 2

Chesapeake Bay Program: A Watershed Partnership; Bill Matuszeski, Chesapeake Bay Program.

Attachment 3

Goals and Strategies as Tools in Nutrient Reduction Programs; Tom Simpson, Maryland Department of Agriculture

Attachment 4

June 13 Letter to Mr. Charles Fox from the State of Louisiana

Today's Presentation

- Summary of responses to public comment.
- Brief overview of findings from the final Integrated Assessment.
- Wrap up this phase and move on to development of the Action Plan.

Overview of IA Development

- Reports written by 6 teams of experts were peer-reviewed.
 - posted on web and made available for public comment
 - received comments from 34 organizations and individuals
- Six reports and comments were used to draft the IA.
 - posted on web and made available for public comment
 - received comments from 16 organizations and individuals
- Those comments were also considered in completing the IA.
 - responses to both sets of comments posted on web
- Gulf Hypoxia web page: <http://WWW.NOS.NOAA.GOV>

8 Categories of Comments

- IA and Action Plan development process.
- Adaptive management, monitoring, research.
- Modeling of management options and impacts.
- International and national hypoxia comparisons.
- Factors contributing to hypoxia.
- Trends and sources of nitrogen.
- History of Gulf hypoxia.
- Nutrient control practices.

Contributing Factors (comments)

- Importance of agricultural nutrients overstated.
- Other factors dismissed or minimized.
 - terrestrial organic carbon
 - atmospheric deposition
 - modifications of the Mississippi River channel
 - coastal wetland loss
 - intrusions of deeper offshore waters
 - short- or long-term climate changes

Contributing Factors (response)

- Ensured that all relevant sources were addressed and quantified in the IA.
- Held science meeting to reexamine relative importance of factors contributing to hypoxia.

Reviews supported the conclusion that the primary cause of hypoxia in the Gulf of Mexico is **excess nitrogen delivered from the MS-Atchafalaya River drainage basin**, in combination with the stratification of Gulf waters.

Gulf Hypoxia web page: <http://WWW.NOS.NOAA.GOV>

Trends and Sources of Nitrogen (comments)

- Total N flux has decreased, rather than increased.
- Lack of 1999 flux data.
- Lack of emphasis on N removed via crops.
- Contributions of non-agricultural sources skewed.

Trends and Sources of Nitrogen (responses)

- Significant new data analyzed and incorporated into the IA:
 - new information on historic and recent river N concentrations.
 - 1999 N concentration and flux relative to large 1999 hypoxic zone.
 - statistical relationships among nitrate flux, fertilizer use, stream flow, and residual nitrogen.
- This new analysis:
 - confirmed the increasing nitrate trend.
 - supported connection between fertilizer use and nitrate flux.
- Recognized significance of N removed in harvested crops.

History of Gulf Hypoxia (comments)

- Hypoxia is a naturally occurring phenomenon.
- Primary productivity has decreased, not increased.
- Additional historical data needed to analyze extent and location of the hypoxic zone.

History of Gulf Hypoxia (responses)

- Recognized that hypoxia can occur naturally.
- Dec. 3 science meeting concluded no natural phenomena can explain the increase in size and persistence of hypoxic zone.
- Re-examined primary productivity data and found it correct.

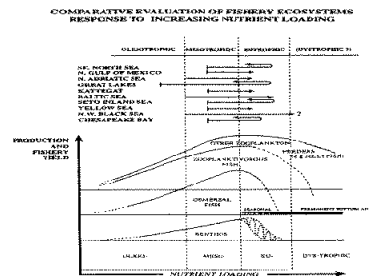
Nutrient Control Practices (comments)

- Importance of overland flow, groundwater discharge, and tile drains are under-represented.
- Contributions from Confined Animal Feeding Operations (CAFOs) were incompletely examined.
- The potential for improved nitrogen management in agriculture was not fully evaluated; farm-to-basin scale issues.
- Altering flows to the Gulf through the MS and Atchafalaya River outlets should be considered.

Nutrient Control Practices (responses)

- Acknowledged the importance of overland flow, groundwater discharge, and tile drains in N dynamics.
- Clarified differences between feedlot runoff and manure management and sent management suggestions to TF.
- Emphasized importance of local conditions in developing a program to reduce nitrogen losses to the Gulf.
- Included discussion of altering flows to the Gulf through the MS and Atchafalaya River outlets.

IA Findings



IA Findings

- Hypoxia has increased since the 1950's.
- River N load is dominant driver of hypoxia.
 - N, P, Si interactions are important.
- N load has more than tripled since 1950's
 - over 90% of N inputs to basin are from non-point sources.
 - about 56% of nitrate enters system north of Ohio River.
 - 34% enters from the Ohio River.

IA Findings

- Gulf hypoxia and basin water quality should respond positively to reduced loads.
- Two categories of action are key:
 - increase rates of denitrification
 - decrease N loads to surface waters

Potential Approaches to Increasing Denitrification

Approach	Potential Nitrogen Reduction (Thousand of metric tons/yr)
Creating and Restoring Wetlands 5-15 million acres	300 – 800
Creating and Restoring Riparian Buffers 19-48 million acres	300 – 800
Diverting Rivers in Coastal Louisiana 13-26% over 1.2 million acres	50 – 100

Potential Approaches to Reducing Nitrogen Inputs

Approach	Potential Nitrogen Reduction (Thousand of metric tons/yr)
Changing Farm Practices	
Nitrogen management	900 – 1,400
Alternative cropping systems	500
Reduction in Point Sources	
Tertiary treatment of domestic wastewater	20

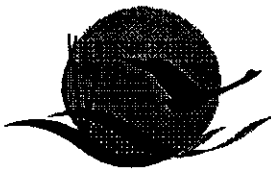
Summary of Economic Costs of N-loss Reduction

Scenario	N-Loss Reduction (Thousand metric tons/yr)	Unit Cost (\$/kg N-Loss)	Net Cost (\$/kg N-Loss)
<i>Edge-of-field N-loss reductions</i>			
20%	941	0.88	0.80
30%	1,412	1.90	1.80
40%	1,882	3.37	3.25
<i>Fertilizer reductions:</i>			
20%	503	0.69	0.67
45%	1,027	2.85	2.81
<i>Wetlands: 1M acres</i>			
5M acres	67	6.06	-2.19
10M acres	350	8.90	1.00
10M acres	713	10.57	2.81
Riparian buffers (19M acres)	692	26.03	
River diversion to coastal wetlands	75	~6	
Tertiary treatment/waste water	20	~40	

In Summary

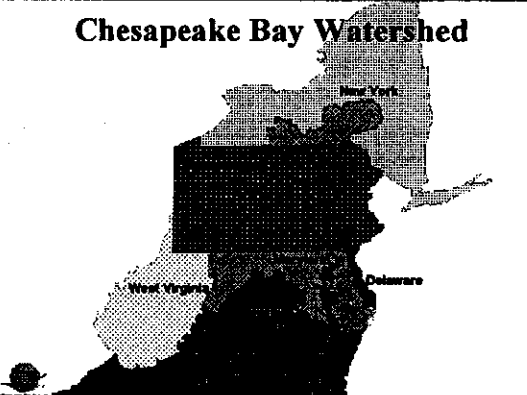
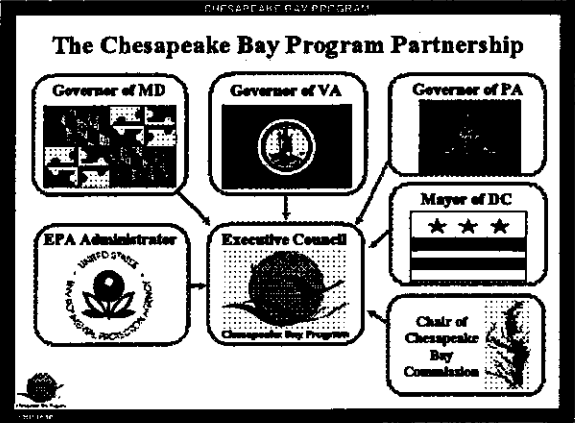
- Based on wide participation, peer-review, and focused attention to resolve key controversies.
- Describes effectiveness and approaches of a wide range of possible actions.
- Strong science base for action.
- Only ONE recommendation.
 - Adaptive management approach that includes adequate environmental monitoring and research.

The Chesapeake Bay Program: A Watershed Partnership



Chesapeake Bay Program

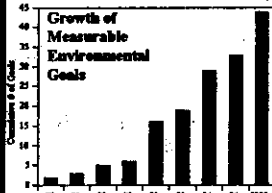
Chesapeake Bay Watershed

Winning Public Endorsement for Goals

- A single LANDMARK goal in 1987 served as a catalyst for subsequent goals:
 - 40% NUTRIENT REDUCTION BY THE YEAR 2000
- Investments in data gathering and models paid off in winning public endorsement:
 - Where you don't have good data you don't have good goals.

Winning Public Endorsement for Goals



Year	Number of Goals
87	1
88	2
89	3
90	4
91	6
92	10
93	15
94	20
95	25
96	30
97	35
98	40
99	45
00	50

- The landmark 40% nutrient reduction goal contained in the 1987 Agreement was a highly successful prototype for many subsequent goals.
- It was the origin for an outcome-based management ethic which has grown stronger over the years.

Upstream Local Benefits of Nutrient Reduction for the Chesapeake

- Water quality improvements
- Fish passage and recreational fishing
- Habitat restoration
- Water trails

**Chesapeake 2000 Goals:
Living Resources and Vital Habitat**

- By 2010, a tenfold increase in native oysters.
- By 2010, locally supported watershed management plans in 66% of the Bay watershed.
- Achieve a no-net loss of existing wetlands.
- Restore 25,000 acres of tidal and non-tidal wetlands by 2010.
- Implement wetlands preservation plans in 25% of the watershed by 2010.



**Chesapeake 2000 Goals:
Water Quality Restoration and Protection**

- By 2010, correct all nutrient and sediment-related problems in the Chesapeake Bay and its tidal tributaries.
- Through voluntary means, strive for zero release of chemical contaminants from point sources (including air sources).
- By 2003, establish appropriate areas within the Chesapeake Bay and its tributaries as "no discharge zones" for human waste from boats.



Chesapeake 2000 Goals: Sound Land Use

- Permanently preserve from development 20 percent of the land area in the watershed by 2010.
- By 2012, reduce the rate of harmful sprawl development of forest and agricultural land in the watershed by 30 percent.
- By 2010, rehabilitate and restore 1,050 brownfields sites to productive use.
- By 2010, expand by 30 percent the system of public access points to the Bay.
- By 2005, increase the number of designated water trails in the Chesapeake Bay region by 500 miles.



**Chesapeake 2000 Goals:
Stewardship and Community Engagement**

- Beginning with the class of 2005, provide a meaningful Bay or stream outdoor experience for every school student in the watershed before graduation from high school.



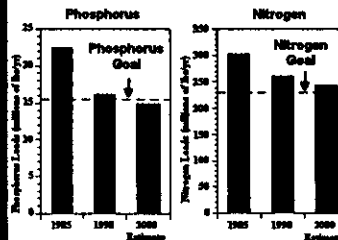
**Value of Goal-Setting, Partnerships
and Voluntary, Consensus-Based Efforts**

- Goals adopted through voluntary agreements made by the chief executives of the Program have succeeded in leveraging several hundreds of million dollars in programs and private initiatives from partners and stakeholders.
- The annual investment is estimated be over \$16 million from other federal agency partners and over \$100 million from state agency partners, in addition to the \$20 million base EPA budget.



**Nutrient Pollution Declining,
but We Still Need to Do More**

Total Nutrient Loads Delivered to the Bay from All Bay Tributaries (MD, PA, VA, DC).



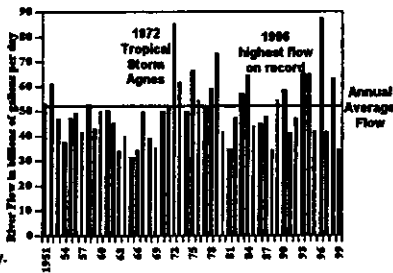
Maintaining reduced nutrient loads after 2000 will be a challenge due to expected population growth in the region.

Source: Chesapeake Bay Program Phase IV Watershed Model. Data include total nutrient loads delivered to the Bay. Base year and comparison years. Base Chesapeake Bay Agreement jurisdictions: MD, PA, VA, and DC.

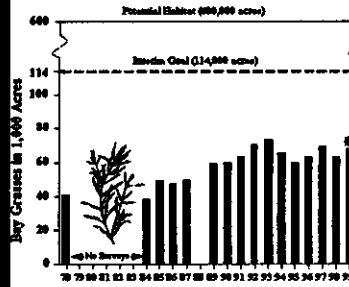
River Flow into Chesapeake Bay

Since 1972, there have been many years with higher than average freshwater flow to the Bay.

Higher flows, depending on the time of year that they occur, can deliver increased amounts of sediment and nutrients to the Bay.



Bay Grasses Have Increased Since 1984

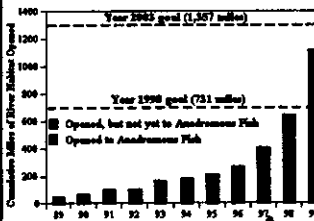


Bay grass beds are vital habitat for fish and crabs.

Improved water quality will promote Bay grass growth.



Progress Made Getting Migratory Fish Past Dams and Other Blockages



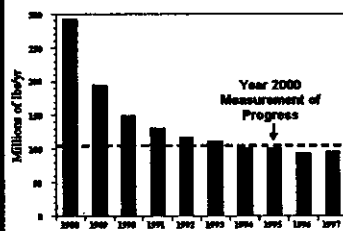
Fish, like shad, that live in the Bay and ocean as adults and migrate to spawn in freshwater are called anadromous fish.

Fish passages help anadromous fish swim upstream, past dams and other blockages, to reach freshwater spawning habitat.

The removal of stream blockages and construction of fish passages, between 1988 and 1999, reopened 1,032 miles of historic spawning habitat to migratory fish and an additional 81 miles to resident fish. A total of 1,113 miles have been reopened.



Industry Reduces Chemical Releases



Bay basin industries have achieved their voluntary goal of reducing chemical releases and transfers of chemical contaminants 65% between 1988 and 2000.

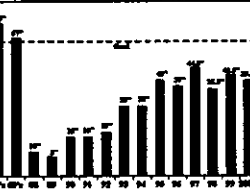
Since the year 2000 goal has been achieved, the Chesapeake Bay Program will consult with industry to set new targets.



Citizens Are Interested in Tracking Progress in Bay Clean-up



Bernie Fowler's Sneaker Index



Wading into the Patuxent River at Broome's Island, MD, Bernie Fowler has seen improvements in water clarity since 1988. He says, "although this is not a scientific measure, it puts restoring the river on a human scale."



Groundrules for Consensus-Building

- Seek simple measurable goals – how much, by when, based on what baseline?
- Regulation is only one tool among many – focus on results, not control.
- Don't argue over whether current conditions are good enough – let one person's "restoration" be another person's "preservation".
- Focus on what you can contribute to solutions, not on what you think others did to cause the problem.
- Don't worry about someone else's relative power; focus on your **combined** power.
- Give the Partnership process a chance to work – avoid statements critical of others.



Getting Around the "Roadblocks"

- Fear of not attaining goals: any progress is good, and most likely will not occur unless you set challenging goals – if you "come up short", celebrate the progress and admit that more work needs to be done.
- The "science isn't there yet": the "science" will never be "there". Voluntary agreements don't need to be based on perfect science, just an honest interpretation of the best science available at the time.
- Inequity: decide on what your share of the solution will be, not on what you think others' shares should be.
- Won't be able to reach consensus with so many "players": initially focus on the "players" with the greatest impact.



Additional "Lessons Learned"

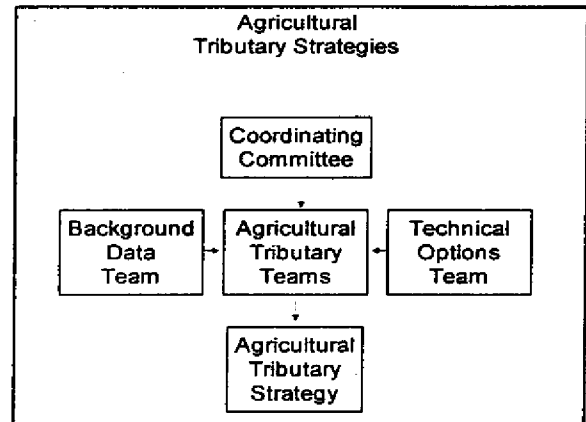
- Agree on a baseline before the goal is adopted.
- Involve state legislatures in the partnership (Chesapeake Bay Commission)
- Involve many federal agencies in the partnership, but keep the "balance of power" with the states.
- Keep the public engaged – inform and involve citizens in setting and achieving the goals.



Goals and Strategies as Tools in Nutrient Reduction Programs

- Dated Goals are essential
- Link to water quality improvement
- Goals must be challenging but not impossible
- “Do It Now”; never enough data
- Establish state and subwatershed goals
- Commitment must be at highest level

Maryland’s Approach to Agricultural Tributary Strategies



Ag Trib Teams

Extension NRCS SCD FSA Farmers
Animal Contractors/Processors
Fertilizer Companies
Biosolids Companies
Consultants
Foresters
Local Government
Environmentalists

Estimate Implementation by 2000 with

- Existing resources
- “Reasonable” increase
- Dominantly voluntary program with unlimited resources

Tributary Strategy (all nutrient sources)

- Assume existing resource implementation levels
- Based on cost efficiency include "reasonable increase" estimate until goal achieved
- If goal not achieved with all of "reasonable increase," include "maximum feasible" based on cost efficiency

Agreements with Teams

- Modify background info with justification
- Add practices if efficiencies could be developed
- Did not have to use all practices
- Mix of practices and implementation levels had to be reasonable and defensible
- If strategy met or exceeded their part of goal, we would support it

Results

- All but one met or exceeded target with "reasonable" increases
- Local ag community became proactive leader in tributary strategy process
- Local ownership of strategy
- Strategies were tailored to local ag conditions

Needs Improvement

- Methods for documenting and tracking implementation
- Less optimistic reduction efficiencies
- Overcoming local bias against certain practices
- Created expectation of no change before 2000
- Must deliver on resources
- More emphasis on local as well as downstream practice benefits

State Must

- Accept the strategies
- Not impose practices
- Provide resources
- Leave responsibility (and control) to team
- Review coordinate and implement strategies

Conclusions

- Commitment at highest level
- Dated goals are essential
- Local goals drive strategy development
- Let locals develop strategies
- Develop consistent definitions, reductions and tracking for practices/systems
- Develop local ownership of strategy
- Oversight without control



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(504) 342-7015

June 13, 2000

Mr. Chuck Fox, Assistant Administrator
Office of Water
U.S. Environmental Protection Agency
401 M Street SW (4101)
Washington, DC 20460

Dear Mr. Fox:

The expanding seasonal zone of hypoxic water in the Gulf Mexico off the coast of Louisiana is of great concern to the citizens of our state. We are convinced that these conditions have grown to such an extent as to pose a threat to our heritage, culture and economy. We also believe that this is the time to take up the stewardship challenge of alleviating those risks.

We appreciate that much of the nitrate loading causing the problem comes from upstream but also accept that we have a significant role to play. We recognize that the hypoxia issue cannot be solved without the cooperation of all states within the Mississippi River drainage basin. We intend to do our part.

Louisiana is presently undertaking aggressive measures to reduce hypoxia in the Northern Gulf -- measures that are fundamentally consistent with conserving and restoring our entire coastal ecosystem. First, we will continue to reduce point-source and non-point source nutrient loading into the Mississippi River system from industrial, municipal and agricultural sources. We are accomplishing this in various ways, e.g., via the Section 319 program, by implementing best management practices in farming and silviculture and by expanding municipal rainfall runoff treatment. Second, we have embarked on an ambitious, \$14 billion coastal restoration program that includes constructing and cost sharing a variety of projects, especially river diversion projects, that should significantly reduce nitrate levels in the water that ultimately flows into the Gulf of Mexico.

We support a comprehensive Action Plan that at a minimum:


- provides for a 30% reduction from current levels of annual nitrate loading into the Northern Gulf of Mexico,
- identifies tools available throughout the Mississippi River drainage basin to help achieve this goal, including best management practices and programs such as the Conservation and Wetlands Reserve Programs;
- incorporates flexible management capability with respect to existing and new Mississippi River outlets, as anticipated by the Coast 2050 plan and such efforts as the Corps of Engineers' Challenge 21 program; and

Mr. Chuck Fox
June 13, 2000
Page two

- establishes comprehensive river and Gulf monitoring programs to assess the effectiveness of each element of the Action Plan.

We believe that these measures can be implemented on a voluntary, non-regulatory basis and, further, that they would provide benefits throughout the Mississippi River drainage basin beyond the primary goal of reducing hypoxia.

Sincerely,



J. Dale Givens, Secretary
Department of Environmental Quality



John E. Roussel, Assistant Secretary
Department of Wildlife and Fisheries



Len Bahr, Executive assistant for Coastal Activities
Office of the Governor