Fourteenth Meeting of the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force

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Task Force Participants

Federal
Mr. Benjamin Grumbles, U.S. Environmental Protection Agency
Ms. Margaret Hopkins (for Mr. Tim Petty), U.S. Department of the Interior
Dr. Robert Magnien (for Vice Admiral Conrad Lautenbacher), National Oceanic and Atmospheric Administration
Mr. Gary Mast, U.S. Department of Agriculture, Natural Resources Conservation Service
Dr. David Vigh (for Mr. George Dunlop), U.S. Army Corps of Engineers

State
Dr. Len Bahr, Louisiana Governor's Office of Coastal Activities
Mr. Ken Brazil (for Mr. J. Randy Young), Arkansas Natural Resources Commission
Mr. Jerry Cain (for Ms. Trudy Fisher), Mississippi Department of Environmental Quality
Mr. David Hanselmann (for Mr. Sean Logan), Ohio Department of Natural Resources
Mr. Charles Hartke, Illinois Department of Agriculture
Mr. Dean Lemke (for Mr. Bill Northey), Iowa Department of Agriculture and Land Stewardship
Mr. Brad Moore, Minnesota Pollution Control Agency
Ms. Susan Sylvester, Wisconsin Department of Natural Resources

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Benjamin Grumbles: I want to welcome you to this 14th meeting of the Task Force. It has been three years since the meeting in St. Paul, Minnesota, where we agreed to conduct this reassessment, and we've made a great deal of progress. This has truly been a cooperative process and a coordinated effort by all states and agency partners. I am confident that through the actions of this Task Force, which are based on sound science and an enhanced dialogue, the efforts of this Task Force will be successful in meeting the goals of the hypoxia *Action Plan*. Before we begin, I want to review the objectives of this meeting:

1. We want to review the first draft of the Science Advisory Board (SAB) report, which was recently released, and agree on an appropriate response from the Task Force.
2. We are going to discuss whether the Task Force should develop resolutions on specific topics.
3. Most important, we want to receive your comments as members of the public on the reassessment progress and schedule.

I also want to note that we've got a couple of public comment periods for this meeting. One will just address the SAB draft report, and the other will be a more general comment period on the

reassessment. I ask that if you are interested in making public comments, you sign your name on the sheet on the registration table.

I will now turn things over to Dr. Len Bahr, who is with the Louisiana Governor's Office of Coastal Activities. He will give us his welcome on behalf of the state of Louisiana.

Len Bahr: Thanks, Ben. My name is Len Bahr, and I want to welcome you to Louisiana. Louisiana has been represented on the Task Force for 11 or 12 of the past 14 meetings, and we have a strong interest in furthering the efforts of the Task Force.

I want to draw your attention to an article I saw today in the *Times-Picayune* that includes a note about hypoxia. The article title is "Children of the Corn," a play on words referring to a post-Katrina advocacy group called Children of the Storm. The article emphasized the federal burden, but this issue is not totally a federal responsibility. It's a state responsibility as well. I think Louisiana, having the most at stake in this issue, bears responsibility for taking strong action to the extent that we can. We don't have funding to do much, but to the extent that we can act, we should do so more aggressively.

The field trip yesterday was organized by Dugan Sabins of our Department of Environmental Quality. I think it was an important thing for people to see on the ground. It was a brutal field trip in some ways, but I think it was a valuable thing for people to see the structure itself—which costs about $126 million. Much of that cost is driven by the infrastructure that lies between the river and the target zone. The project has been a compromise from the very beginning. It was authorized in 1965 but not completed until 2000. It has been problematic ever since. It has not worked successfully and is being retrofitted.

In my opinion, the structure was justified on the wrong basis. It was designed by engineers who don't know a lot about ecology and, for example, want to control salinity. Estuaries are so productive partly because salinities vary; they aren't static systems. Some of the problems with the project were based on trying to make it a very static, stable kind of project.

It was also designed for salinity management rather than ecosystem enhancement. It was justified on the basis of oyster productivity increases, which is a very narrow way to justify a major public works project. Right now we are imploring Congress to change the authorization of that project and the other diversion project, the Caernarvon Project, to bring them more in line with our restoration goals. Dugan just gave me a copy of the recently approved and completed *State Master Plan: Restoration and Flood Risk Reduction Plan*, which is available. It does, thankfully, call attention to the hypoxia question and relates it to the amazing deterioration of the whole coastal ecosystem.

I'm glad that the plan points out that these are related issues, and the state will try to address them in concert, in an integrated fashion.

I do want to thank you for being here, and I'm hoping we have a productive meeting. I'm very anxious to hear more about the Science Board that will be meeting here for the rest of the week.

They recently finished a draft report looking over the original CENR reports that were done in 2000, and they pretty much agree.

Benjamin Grumbles: Thanks Len. I'm just going to ask the Task Force members to introduce themselves by stating their names and organizations. If any of you have extremely brief opening remarks, this would be a good time to do those. We are going to try to get to the public comment session as soon as possible.

Susan Sylvester: I'm Susan Sylvester from the Department of Natural Resources in the state of Wisconsin. In the past the nitrogen issue has not really affected our state. Now that phosphorus has finally been brought into the picture, we are very interested in the requirements that will be placed on our facilities and agricultural aspects in the state of Wisconsin. We are very interested in the issue of biofuels and how increased corn production will affect loadings from our state. Many of our farmers are switching from dairy farms to corn farming. This increase is at odds with our concern about our impact on the Mississippi River loadings. We are very interested from that perspective.

Brad Moore: I'm Brad Moore, the Commissioner of the Minnesota Pollution Control Agency. There are a few things of which people should be made aware. Our biofuels industry in Minnesota is growing quite rapidly as well. In fact, the legislature gave our agency a large appropriation specifically to hire more staff related to the environmental review and permitting. At the same time, the interest in impaired waters in Minnesota has greatly increased as well. We receive major funding related to impaired waters, TMDL work, and monitoring. We are seeing not only the interest in the energy sector but also [an interest] in working on the waters. In terms of the Mississippi River issue—specifically with the Lake Pepin area—I think we are going to see a lot of progress in Minnesota in terms of water work that relates directly to the hypoxia issue. As the Commissioner, I have a personal interest in making sure Minnesota does its part to resolve the hypoxia issue.

Charles Hartke: Chuck Hartke, Director of Agriculture in Illinois. We are the number two corn state in the nation. Of course, we are heavily involved in energy production, renewable energy—whether it be soy, diesel, or ethanol. We are also concerned about the area here in Louisiana and the rest of the nation. But, we must grow cautious in this event because the corn and soybeans produced in the upper Midwest also must be balanced with our national trade and our other activities. Both economy and ecology must be considered together to solve this problem.

Robert Magnien: Robert Magnien, with the National Oceanic and Atmospheric Administration. I'm standing in for Admiral Lautenbacher, who is our Task Force member. As many of you know, NOAA has invested heavily in the science of this issue, so we are very anxious to see what the Science Advisory Board has to say. We like to have our science used in management applications, so we are seeing it happen in real time now over the coming months. Now that the Science Advisory Board report is out (not completely finalized, but many of the findings are already pretty clear), the attention turns to the Task Force and the Coordinating Committee to craft the policy recommendations in the updated *Action Plan*.

The Task Force adopted themes—it was also called a *Visioning Document* back in January—that set the course and identified some of the major features we'd like to see in the updated *Action Plan*. I look forward to working very diligently with my colleagues here on the Task Force and the Coordinating Committee to build a strengthened *Action Plan* that actually produces some results and hopefully addresses this problem more aggressively.

Jerry Cain: I'm Jerry Cain, representing the Mississippi Department of Environmental Quality for Trudy Fisher. Both Trudy and I are new to this issue; however, I think Mississippi, for obvious reasons, has had a lot of interest in support of this effort. We, too, are seeing a growth in our biofuels industry, and obviously that is having effects on how our agricultural land will be used in the future. So we're watching all this closely.

David Vigh: I'm David Vigh with the U.S. Army Corps of Engineers. I'm representing Mr. Dunlop, the Assistant Secretary of the Army's office. We're very pleased to be here and be part of the hypoxia Task Force. As we continue to work through this year of reassessment of the 2001 *Action Plan*, I'm reminded about our three major goals: to reduce the 5-year running average down to 5,000 square kilometers, to restore and protect waters within the basin, and to improve communication and economic conditions. What's been fantastic from the Corps's point of view is that the efforts to date by the Task Force and now this draft SAB report that's come out continue to support and reinforce these goals. I believe we are on the right track for positive effects.

Dean Lemke: I'm Dean Lemke with the Iowa Department of Agriculture and Land Stewardship. I'm substituting for Iowa Secretary of Agriculture Bill Northey, who is not able to be with us today because of another commitment but sends his regards and regrets that he can't attend. Being from the Upper Basin, I'm excited to be here and to better understand the issues in the Gulf, and to see yesterday some of the work down here with the diversion structures and the coastal restoration issues.

Margaret Hopkins: Margaret Hopkins. I'm here representing Tim Petty of the U.S. Department of the Interior. I'm pleased to be here, and I agree that the tour yesterday was very beneficial in helping sort of understand overall what's going on, what we are trying to do, and some of the immediate benefits.

David Hanselmann: Good morning, I'm David Hanselmann with the Ohio Department of Natural Resources, representing our new director, Sean Logan. Certainly, we're anxious to fully understand the science behind the causes and effects of the issues in the Gulf and of hypoxia. We have our nutrient issues in Ohio between nitrates and nitrogen and phosphorus, and were anxious to deal with those and study what works in Ohio. We are hoping that knowledge can have a positive impact down in the Gulf region as well. We will work to be in the best position possible to articulate the situation in the Gulf to stakeholders that may be far away from the Gulf. We wish to help them understand what's going on and what our responsibilities are, as well as what our opportunities are to help our waters—not just in Ohio but down in the Gulf as well.

Ken Brazil: I'm Ken Brazil, and I'm representing our Executive Director at the Arkansas Natural Resources Commission, Randy Young. We have nutrient issues in the state of Arkansas,

and we're very interested in how our situation relates to the problem down in the Gulf and the hypoxia issue. We anticipate hearing some more of the Science Advisory Board findings today. I appreciate being here.

Benjamin Grumbles: I think we're recently joined by someone who just came from Farm Bill negotiations. Gary?

Gary Mast: I'm Gary Mast, Deputy Undersecretary for Natural Resources and the Environment. We are in the middle of the Farm Bill. Let's hope we make the right decisions. We've got some tremendous challenges right now. I see the push for corn for ethanol, beans for biodiesel—and these are good things. It's interesting to watch the press. The pendulum swings both ways. In the beginning, corn-based ethanol was hailed as the great solution, but now it's starting to wear a little bit of a black hat. How do we deal with ethanol production in the Farm Bill so that it comes out in a positive light and so that we do make the right decisions for the environment? I really think that's one of the biggest things that we have to grapple with at present.

I'm really a farmer at heart and I grow some corn. I think about the high price of diesel fuel, this high price of nitrogen, and wonder what I can do? Previously I was getting $1.30 for a bushel of corn. The high fossil fuel prices ended up bringing corn into the energy picture, and now I'm getting $4.00 for my corn. It's amazing how the cause and effect tumbles on down. We can be aware of what's going on and look to the future and make the right decisions. That's the direction we need to go. I look forward to listening to the Science Advisory Board about how to make good decisions here on the path forward. Thank you, Ben. Good to see you here in New Orleans.

Benjamin Grumbles: Thank you. Good to see you. I just want to say a few words and then we'll proceed. It's a real honor not only to be here in New Orleans, but also to think back on one of the previous Task Force meetings—the 11th meeting, which was in St. Paul, Minnesota, at the other end of this magnificent ecosystem. At that meeting the Task Force members agreed to conduct the called-for reassessment of the *Action Plan* and directed the Coordinating Committee to develop a process and a timeline for the reassessment. This was a multi-step process, and we have been proceeding faithfully. We also agreed to carry out a series of science symposia and an independent peer review of the science by EPA's Science Advisory Board.

As you know, our goal (stretch goal, probably) was to complete the reassessment by the end of the calendar year. We are reaching the culmination of this effort. This means that over the next six months, the Task Force and the Coordinating Committee will work to prepare the revised *Action Plan*, incorporating information and recommendations from the SAB, public comments, and other inputs to this important process. At the 13th meeting in January of this year, in the Washington, DC, area, a number of us voiced concerns about the timing of the revised *Action Plan*. Very soon, we are going to hear a presentation on the preliminary finding of the Science Advisory Board report. It includes some significant information. It's an important report, but it will undergo revisions. The draft is scheduled to be updated, taking into consideration public input and Board considerations, in August. The SAB will say more about this, I'm sure, but we're looking at a final report available toward the end of the year, in late October or early November. The August SAB report will be largely complete, but we need to make sure that we

have sufficient time to evaluate the findings, develop appropriate policy responses, and solicit input and comments.

I recall our discussion in St. Paul and the subsequent agreements. It is important for us to push forward. Every single one of us wants to accelerate progress and be consistent with the overall goals of the action plan, the quality of life, and the within-the-Basin goal and the Gulf of Mexico goal. We also want to make sure that we're doing it right and proceeding with the best available scientific information. Rather than completing our work in November or December, I would be interested in comments from other Task Force members about extending the schedule through the spring of 2008, or sometime early in 2008. This may become clear to us as we hear more about and continue to digest and review the significant work of the SAB in its draft report.

I want to mention that one of the very important purposes of this meeting is to assess where we are on the schedule. Given the breadth and scope and significance of the SAB report, Task Force members throughout the day will want to have a conversation about whether we should modestly extend the date that we are holding ourselves to in order to afford more time to get the final product from the SAB and assess it.

I'd like to turn to the other portion about the public comments. I want to say a few words about the public comment process. We very much appreciate your views, both oral ones we will hear while we are in New Orleans and also written comments and remarks—materials for us to consider in more detail as we head back or leave the hotel. We are going to have two comment periods today. The first will occur in just a few moments, and that will be to get specific comments, if there are any, on the draft SAB report, and what the response of the Task Force should be to the draft report. So I'm asking members of the public who want to provide comments to us to, for now, narrow your comments to this question: What should be the response of this Task Force to the draft report? Around noon there will be a second comment period, and that is the comment period where we would like to hear your thoughts on broader issues affecting hypoxia in the Gulf, including the reassessment process, as we move toward the revised *Action Plan*. There is a sign-up sheet out at the registration table for those of you would like to provide comments. Those of you who are interested in providing comments during the general public comment period later this morning, please take a moment to sign the sheet at some point this morning.

Darrell Brown: Next we were going to have a presentation on the SPARROW model.

Benjamin Grumbles: First we'll have the SPARROW model presentation. Then after the SAB findings, we'll transition into the public comment period. At this point, then, I'd like to turn to Bill Franz to give us a presentation on the SPARROW model and the targeted watershed effort.

Attachment A: Presentation on the SPARROW Model, Mr. Bill Franz, U.S. Environmental Protection Agency

Benjamin Grumbles: Thanks, Bill. I think all of us can appreciate the significance and importance of efforts like this. The targeting of priority watersheds contributing the most to the problem is key. I know, from an EPA perspective, that the Deputy Administrator is extremely

focused on working with all the different agencies, using the best we can to target our efforts with respect to Gulf hypoxia. There are a lot of expectations for the SPARROW model and the targeted watershed report. We think it can be very helpful. Are there are any Task Force members who want to make any comments? Gary, I'd be particularly interested in, as a USDA senior official, what your thoughts are on the use of this type of a modeling effort to target resources toward those watersheds that seem to be contributing the most in excess nutrients.

Gary Mast: We have a recommendation by the Secretary for the Farm Bill. It's called the Regional Water Program, where, as part of the Environmental Quality Incentives Program, we're suggesting putting about $50 million into regional areas. The Gulf would certainly be one of those and the Chesapeake Bay and other key areas around the country. I can make no commitments, but this does look very intriguing. The areas that you fix are the worst, and the results at the other end are of good quality.

Bill Franz: The other thing that we will be trying to work with is to bring it down to smaller watersheds, down to the 12-digit HUC (which is more manageable at about 30,000 acres) and being able to target those. If you're looking at and working in a 12-digit HUC, meaning the smaller scale, you probably will see water quality results faster than you would in a very large, 8-digit HUC.

Benjamin Grumbles: Is it safe to assume, from the numbers that the Chicago HUC area is showing, that it is not just an agricultural issue but also concerns municipal nutrients from sewage treatment plants?

Bill Franz: Mostly that's what it is— the large point sources of the cities of Chicago. Indianapolis, Cincinnati, and to a lesser extent St. Louis and the Twin Cities are also included. Thank you.

Benjamin Grumbles: Thank you. Go ahead, Dave.

David Hanselmann: It will be interesting to see how these numbers change, should the 40–45 percent in the SAB draft stand up. I was looking at this particular graph that's up, and you have a 30 percent reduction and the number of HUCs that need to be affected. What kind of peer review (or even independent review) have the formula, the assumptions behind that conversion, and that generalization been through?

Bill Franz: The work that both Alexander and Robertson do is all peer reviewed. Before we even put the Webcast on, they had to have it all peer reviewed within USGS, so they have already done a review, worked on it, and used the SPARROW model. The tests of the SPARROW model were done on a national scale. My understanding is that when the model was first developed, about 800 data points were used. To bring it to the scale of the Mississippi River Basin, about 1,600–1,800 data points were used. So, more data points were used and then the same thing as they brought it down for each one of those watersheds. They used the Sparrow model on each one of the sub-watersheds as well.

David Hanselmann: Great. Well, to borrow the words of another panel member, this is "very intriguing" and looks really good.

Bill Franz: All right. Thank you.

SAB Findings and Task Force Discussion

Benjamin Grumbles: Thank you. So now we move into the briefing on the SAB draft report findings. I'm pleased to welcome Dr. Rick Greene of EPA's Office of Research and Development, Gulf Ecology Division, to summarize the draft SAB report and findings that were recently released for public comment on May 24. As Task Force members listen to Dr. Greene, please keep in mind the original charge to the SAB. That document is provided to you for reference in your packet. After Dr. Greene is finished, we'll move into the public comment session, take a short break, and then discuss the report among members of the Task Force. Dr. Greene.

Attachment B: Presentation on SAB Findings and Task Force Discussion, Dr. Rick Greene, U.S. Environmental Protection Agency, Office of Research and Development, Gulf Ecology Division

Robert Magnien: Thank you, Rick. You took us through a very large document and summarized the salient points. This question might have to be more for the previous speaker than you. You highlighted at the end of your presentation a series of the most effective nutrient reduction measures for agricultural lands, nonpoint sources, and municipals. Will those be able to be modeled in the SPARROW framework—or anything else available to us—so we can look at the implications of those practices being implemented?

Bill Franz: Yes, Rob, I think we can do that. Some of the work that Dale has put together, along with Rich Alexander, looks at changes in cropping that could occur, point sources, and also at how you can split those up as well. I think we can do that. If you had specific suggestions and we could get those, I could work with Dale to put that into the model.

Robert Magnien: All right. I think that's going to be a critical part of the information that we'll have to go through with the Coordinating Committee and Task Force as we get a little more specific in this update of the *Action Plan*.

Benjamin Grumbles: Any other clarifying questions or comments? Rick, thank you. Very helpful and thorough.

Public Comments on the SAB Report

Benjamin Grumbles: At this point, what I think we'd like to do is turn to the public comments session. A few people have signed up. One is Matt Rota, Gulf Restoration Network. Good morning, Matt.

Matt Rota: Good morning. Again, my name is Matt Rota and I'm with the Gulf Restoration Network. Thank you for this opportunity to have this time for public comments. Specifically, I have a couple issues I'd like to talk about with the SAB report.

One, I was really pleased to see the recommendations for point source reductions. Because, as we saw in the presentation, voluntary actions without any monetary incentives apparently don't seem to be working. It is feasible, both technology-wise and monetarily, to retrofit most sewage treatment plans to meet the 3 milligrams per liter nitrogen and 0.3 milligrams per liter phosphorus. It is feasible. The reduction of the dead zone is a very long-term process. This retrofitting is something that could be done in the very short term.

I also appreciate the fact that they have started looking into the biofuels issues. Pretty much everybody on the panel up there mentioned that in their opening. I think the SAB report states well that there will be water quality effects from this. If we don't start doing things now, not only will the Hypoxic Zone stay out there, but it has a very good chance of getting even bigger.

Finally, I would like to highlight the mention of the drainage control. Tile drainage and other sorts of drainage are a very significant feature that contributes to the dead zone. I feel that management and targeted management with good incentives to control this drainage would be very effective. Again, being able to use the models that we have up here to identify those areas that have major drainage issues would allow us to then get incentives and get the money—either through the Farm Bill or other programs—to start targeting both on the point sources that we can target right away and some of the other areas that the SAB talks about. Targeting these drainage areas and these agricultural areas would allow us to take action on the dead zone right away. Thank you.

Benjamin Grumbles: Thank you. Next we have Gene Turner, LSU.

Gene Turner: Thank you. We've sent a letter and I've signed off on it in support of the general recommendations and documents. I'll skip that as it's in the text. I have some specific comments on the SAB report, which I'll do by page. Not all of the ones I have are the major ones. Some comments, and I'll go through them quickly:

A point was made in Rick Greene's talk (on the third slide) about the inadequacy of the data, and the fact that it may not represent enough samples to indicate if there's a spread of hypoxia across the shelf. I would disagree with that. They are coherent among pigments, diatom remains, harmful algae blooms, silica in the sediments, specific diatoms, carbon—all have shown expansion in recent times. Some of the cores have bounded where they did not expand. So I think, as a black-and-white statement, that's incorrect. The discussion about the water flow down the Atchafalaya River needs to be expanded. It's discussing the flow as if it contains everything

from the delta to the west, but half the water goes down the Mississippi River and to the east, which already has some problems with hypoxia. You must consider the expansion of hypoxia to the east if you don't send it down the Atchafalaya River. The great question is: should you send more down the Atchafalaya River? It's not a net sum game. You have to consider what's going down the Mississippi River.

There is a line on page 36 that says, "The influence of organic matter losses from wetlands remains unresolved." Later on, the text says that it's unlikely that the wetland loss would have been the prime source of the organic matter fueling hypoxia. These are in contradiction. The simple math of it is, though, that the wetland loss of carbon is insignificant. It doesn't match the gains in hypoxia and the land loss rates in time.

A regime shift was brought up in Rick Greene's presentation and also on page 46 and in several other places. It's a little equivocal about whether there's been a regime shift or not. I'd say that organic loading's gone up. You've had hypoxia that hasn't been here before. You have fishermen going further. And this is the 14th meeting of the Task Force! That's a regime shift.

The models. There is some talk on some of the models, and I'll just say that the accuracy of models is said to be 45 to 55. Actually, it's much higher than that. For one of the models that was given a little criticism, last year it was 100 percent on the mark. I'm the author of it, and I'll say that this year the size of the hypoxia is going to be larger. The nitrate in the river is above the average for that of Baton Rouge over the past 13 years of weekly monitoring. The discharge is a little higher. Last year it should have been lower— from the mountains, it should have been diluted—but it was actually higher. The discharge is slightly below the long-term average. Until I get the USGS's better estimate rough approximation of the size of the zone would be between 20,000 and 21,000 square kilometers, which makes it much larger than the average. The model itself gets about 80 percent prediction. We'll see what happens this year.

Regarding line 76, which is concerned with the critical need for more USGS monitoring stations, I believe that they are needed, but it doesn't say exactly why they are critically needed. If you take the effect of Franz's model and all those nice things they are doing with it, you might conclude additional monitoring stations are not needed.

On page 86 and elsewhere there are graphs in which the inputs for nitrogen and phosphorus are discussed. I'll just point out that there's a contradiction in this point. With the inputs for nitrogen and phosphorus being what they were on land you should have the TN-to-TP ratio go up, including the attenuation of the river. Actually, the TN-to-TP ratios in the river have gone down. In terms of the document, and also maybe a science question, this is a teachable moment, and I think we can learn something about how the system works. They are going at opposite phases right now if you left it alone in the document that way.

Line 126 was briefly mentioned here. I'm glad it was brought up. It had to do with social benefits. It's a very short section—an embarrassingly short section. And it seems to equivocate whether the social benefits are a net gain or not by reducing eutrophication. Community health and safety, food security, social welfare—all those things are values that make or break environmental policies. I think we should strengthen that section. It's crucial to have these

policies implemented and that those things be understood. This is not done in isolation; it's done within context.

A small thing about the numbers, too. It was written that the number is 12.7 thousand kilometers squared, but it's actually 15.9.

Page 193 is about wetland uptake of nutrients on coastal wetlands. There seems to be some push to do something to find more numbers. I'd like to point out that the denitrification of wetlands requires carbon as an electron acceptor. That means carbon is going to be lost from the wetlands. These wetlands are building up from organic matter, not from mineral matter. You may lose wetlands. If you endorse nutrients being added to coastal wetlands, you have to look at the whole system and not just the nitrogen removal rate. That cannot be done out of context.

Line 27 seems to contain a miscommunication. The terms "inshore" and "offshore" are used. The word "inshore" generally refers to an area behind the barrier islands. It could be confusing if you're talking about something from the estuary going out as some estuarine-offshore interaction when the dominant force seems to be the rest of the portion the problem really the flow from the river going offshore and helping to cause hypoxia. There are plenty of places where that can be construed as talking about the estuaries.

My last point is about perennial systems. It's mentioned occasionally in the report, and a nice list summarizes the optimal possible strategic places to reduce nitrogen loading. Perennial systems were described and reported as having a dramatic effect on reducing nitrogen or phosphorus. Other benefits of these systems were discussed, as well. This topic is too little discussed in the report and I think it deserves a separate piece of attention. The effects of the systems would have to be in the models and that would require work, but it's the only way to illustrate the dramatic impact. These are national policies that affect why we don't have perennial systems there. It's relevant to a lot of issues, on hypoxia as well as other things. The regional efforts can't supersede the national policies that keep perennial systems from being installed. Thank you.

Benjamin Grumbles: Gene, before you sit down, just a clarifying question because I'm not sure I got it all. When you were talking about wetlands, there were a couple points. One, I'm not sure I personally got the full message on the carbon loss issue that you brought up in the second point you were talking about.

Gene Turner: The coastal wetlands, the ones with the highest mineral matter, are salt marshes. If you look at the volume of material in a salt marsh, which has to build up to balance sea-level rise and a little bit of compaction, it's organic material and water—it's not inorganic. That content hasn't changed in the past 100 years, really. There's a paper in *Limnology and Oceanography* that I can show you about that.

If you add nutrients (and because you are adding nitrogen they are going to denitrify), it needs nitrogen. Denitrification absorbs carbon. It gets respired. It's been documented by Morris and others that you get more carbon loss when you have more denitrification. You're chewing up the very foundation of the wetland that is required to balance against sea-level rise. The net effect

may be that you get more aboveground, temporarily, and so it's an additional stressor on the marsh.

The second thing (which I didn't mention, but you gave me the opening) is that when you do add nutrients to salt marshes, in these systems, as well as others, there's less belowground material produced because the roots aren't foraging as hard, so they don't produce many roots. This is a well-known factor in grassland systems. So they're not producing as much, and you're also chewing up more of the organics. You may have a short-term benefit aboveground, which is being compromised by the lost material accumulated belowground. I'm not asking to change a policy about diversions or anything. I'm just saying that you have to be aware of the total context of a recommendation. The whole sustainability of a wetlands system may be temporarily driven by one policy. In fact, in the long-term policy, we want not only to sustain but to restore. This may get in the way of that. Did you have a second question?

Benjamin Grumbles: It was getting at the Atchafalaya River and your comments at the beginning of your remarks about that. One of the questions that I'm going to want to discuss is this: Will additional diversions aimed at wetlands restorations increase hypoxia or decrease hypoxia?

Gene Turner: What about the Atchafalaya River? How's that? I missed the connection about the Atchafalaya River.

Benjamin Grumbles: That was a different one. Just focus on this: Will additional diversions aimed at wetlands restoration increase hypoxia or decrease hypoxia?

Gene Turner: Well, if the diversions worked at the scale they have and all of them were written in the draft document—if you get every project implemented and they all work exactly as you wanted and you have the whole coast engineered successfully—it would be 3 to 8 percent. And that's assuming it didn't have a negative impact in the long term. I personally (not speaking for anybody else) think this is being a little overstated and that we ought to get back to the main focus, which is reducing what's in the river—which is driven by what's coming down the river.

If there's a place to use wetlands through nitrogen removal and so forth, it would be where the concentrations are highest, not where they're lowest. They are lowest at the bottom of the river and highest at the top of the river. The place to capture them is at the source. If you're not going to stop them from coming off the land, at least get it where the concentrations are highest and where it's easiest to get it. It's easier to get a reduction at that point. That's what sewage treatment managers have shown us time and time again. There's a paper by Crumpton, for example, that references this point.

Benjamin Grumbles: Okay. Thank you. Do any Task Force members have any comments or questions before we take a break?

Doug Daigle: Some of us didn't see the sheets, so we didn't sign up, but I had a question, and there might be some other folks, too.

Benjamin Grumbles: That's fine. Please continue.

Doug Daigle: Hi. Doug Daigle, Coordinator for the Lower Mississippi River Subbasin Committee. I just wanted to clarify the numbers for nutrient load reduction targets in the SAB draft, the 45 percent for nitrogen and the 40 percent for phosphorus. Those, as in the current *Action Plan*, are referring to what comes out of the mouth of the river, the loading to the Gulf. That's been a continual source of confusion over the past six years of the 30 percent figure that's in the current *Action Plan*. I wanted to make sure that was clarified because we get used to talking about it. I don't think the slide clarified it, but I'm assuming that's what the SAB is talking about—what's coming out of the mouth of the river. There are no extrapolations for states' watersheds specific to that. Nobody's done that. I'm assuming that's still the case. So I wanted to clarify that point.

Then just the general comment that the size and complexity of this report could—but should not—be utilized as a reason for further delay. Whatever it says, we can't escape the underlying issue about the need for resources and directing resources to deal with this. We've passed the point where the failure to do so has become a refusal to do so. Nothing in the SAB report is going to let us escape from that issue that has to be addressed. Thank you.

Benjamin Grumbles: Thanks, Doug. I saw two or three different hands, so why don't you go forward and try to get a couple comments in and then take a break.

Greg Youngstrom: Thank you. Greg Youngstrom with the Ohio River Valley Water Sanitation Commission. I have a couple of comments on the reduction targets. The 45 percent nitrogen reduction target is based on modeling and science and all of these good things, and the 40 percent phosphorus, really when it comes down to it, seems to be because we can. I think that the Task Force should say to the Science Advisory Board that one of your recommendations is that we do the same science on the phosphorus section that we've done on the nitrogen so that we get this same good number.

I would also say that there seem to be a couple of disconnects on the phosphorus point source loading. It says 34 percent at one point. We heard from Bill Franz that it was 10–16 percent. At another point in the report it says that the nonpoint source is 84 percent. This seems incorrect.

Benjamin Grumbles: Thank you. Next?

Steve Harper: Thank you. My name is Steve Harper, and I'm with O'Brien & Gere engineers. We're heavily involved in nutrient reduction on the east coast. I also want to speak to goals, specifically the percentages of goals. It's just a matter of education, but on what benchmark—on what year or what pounds—are we reducing against? I think the whole notion of using a percentage as a goal is not necessarily the best approach for a variety of reasons. First of all, what we have is a combination of flows and concentrations that are interdependent, or sometimes independent, and we'd be much better off working on a mass basis than a percentage basis. Maybe there's a reason why we're still stuck on percentages.

Second, we've all mentioned the corn and biofuels—that the nutrient application rates are going to go up. Again, what benchmark are we measuring against? As the application goes up, are we going to have to increase our percentages higher? Are these going to be dynamic?

And the third reason that I think that a mass base works better is that it fits directly into a trading program. That brings me to section 4 of the report, where there are conflicting comments regarding trading programs. In the early section of the report, where I think it's referring to the earlier studies of 2003 or 2000, the report states that nutrient reduction— I don't want to put words in its mouth but basically it says—won't work. Two pages later (on page 120 in the last paragraph), it says nutrient trading might be the best approach. I'd just like to see a little bit of clarification around those issues. Thanks very much.

Benjamin Grumbles: Thank you. Did anyone else want to get in comments before we take a break, in the public? Okay. Let's take a 15-minute break, and when we get back we'll turn to Task Force members for their thoughts and comments on the draft SAB report. Thanks.

Task Force Discussion on the SAB Report

Benjamin Grumbles: Now is as good a time as any to reengage in the discussion. For the next hour or so, what I'd like to do is to turn to the members of the Task Force for comments that you would like to make on the draft Science Advisory Board report.

As you're aware, the Hypoxia Advisory Panel of the Science Advisory Board is meeting tomorrow through Friday here in New Orleans to discuss and develop the preliminary draft *EPA SAB Hypoxia Advisory Panel Draft Report Summary*. A representative of our Task Force has been invited to make a presentation to the panel and our response to the draft *Report*. I for one am planning to appear before the Science Advisory Board Panel tomorrow to provide thoughts and observations on behalf of the Task Force. One very specific goal for me of this conversation and of the rest of the day is to be able to form some collective thoughts that could be delivered to the SAB meeting tomorrow.

As we open up our discussion on the SAB report, I would particularly like to ask you to keep in mind whether or not the SAB panel has answered the charge questions that we asked them to answer. And any comments or questions that you have for all of us for our benefit as Task Force members—whatever comments you might want to make, as well as clarifications and suggestions for our response to the SAB. There is no sign-up chart. I can, rather than going from one end to the other, ask if any member would like to start. Len, as a host for us, why don't you start. Then we'll move through the process.

Len Bahr: I'd like to point out something that I forgot to mention in my welcome remarks. There is available a copy of a concurrent resolution that our legislature passed yesterday to memorialize Congress to support action to reduce the Gulf hypoxia problem. I mentioned in my comments that I am sometimes a little bit concerned that our state doesn't always speak loudly enough—aggressively or forcibly enough. This document is an important step in the right direction.

Next I would like to address the SAB report. In general, I was very impressed. I think the science—first of all, their support of the original CENR studies done in 2000—was good. They did bring in new information. If I have a concern about it, a broad concern, I think the Science Advisory Board Report fails to adequately distinguish between what I call the collecting zone of the watershed (the tributary portion of the watershed) and the distributary portion of the watershed (the delta itself) that we're trying to save. And I mentioned earlier that this state master plan that's floating around talks about massive, massive replumbing of the lower river. I agree that if we can't do that, we will be unsuccessful in restoring (whatever you consider "restoration" to mean) the ecosystem at the lower end of the river. The Science Advisory Board treats very well the tributary portion of that, the areas that are the streams that collect the runoff from municipalities and farmlands and other areas throughout the 41 percent of the country that influences the watershed of the Mississippi system. The narrow zone of the neck of the hourglass of the active delta, which is the part that we have totally screwed up by shutting off most of the distributaries, is the part that I'm most interested in seeing addressed. I think that such an area deserves special attention on the part of the Science Advisory Board.

Gene Turner's comments are right on. We are talking about major changes in this lower system that are going to affect and be affected by the excess nitrates and phosphates in the water that passes New Orleans. We are all shamed if we don't recognize what we are trying to accomplish down here and make sure that it's properly vetted, and that we understand the consequences of diverting not a little part. I'm talking about if you take this plan to its logical conclusion, we want to put almost every drop of the river water into the coastal system before it gets into the Gulf of Mexico. Now if you do that, there are going to be consequences—some good, some perhaps of concern. I think the Science Advisory Board needs to address that more directly and more specifically.

Yesterday on the tour to Davis Pond I had a long conversation with Bill Franz from Region 5, who did not understand (because nobody had explained to him) the difference between a distributary and a tributary. I've always been concerned that we may be creating unnecessary impediments to being able to divert river water if in our TMDLs we set up nutrient criteria that are unnecessarily restrictive of, for example, the concentration of nitrate we can put into a wetlands system. I hate to see that happen, so I think we need to be aware that a one-size-fits-all TMDL is probably not appropriate. The bayous that we saw are in the vicinity of Davis Park, and Davis Park is kind of an artificial distributary of the river.

My last point, which I wanted to mention earlier, is that project (which has never run full bore, but if it ever does and I hope it will) will release about the volume of water that is carried by the Potomac River as it goes past our Capitol in Washington. And that's about 10,000 to 11,000 cubic feet per second. That's trivial. In terms of perspective, that's a small flow compared to the 250,000 to 1 million cubic feet per second that is the total flow of the river system both through Atchafalaya River and the city. So, we're talking about a major upgrade from that scale, and we need to be aware of the implications of that change.

Benjamin Grumbles: Len and I were talking about my summary of that message, which is that "dilution isn't the solution to pollution but diversion and dispersion may offer a version for ecological progress." We're just going to keep that amongst ourselves. But that's an important

point about tributaries and distributaries, and so it is worth keeping in mind. Brad, we're going to go to you and then to Dean.

Brad Moore: Just a couple of comments. One of the talked-about issues is voluntary agreements not necessarily working. I think that my recommendation would be that the SAB learn more why this is being said. I spent a lot of years working with the forest industry in Minnesota, where there are voluntary best management practices on about 16 million acres of land.

The industry went to voluntary BMPs because they wanted to avoid regulation like that seen in California and Oregon. And key in that, of course, is monitoring. Through very extensive monitoring, they find that the voluntary agreements work better than the regulation. I question where that came from, and I think the SAB should probe that a little more.

In addition, because I think there's been a lot of concern over progress in terms of this Task Force, one of the things that happened in Minnesota with the forest industry that I think is relevant here is a move to third-party certification of forestlands in terms of management practices. What drove that were the large markets like *Time* magazine and big paper users like Home Depot for the lumber. Good environmental practices came to the industry as a consequence of competitive pressures, and those who use good practices are more competitive than those who do not. Rather than have the state regulate the industry, the market is driving it through the voluntary guidelines with good monitoring and in third-party, non-governmental certification over very large expanses of land—hundreds of thousands of millions of acres. It might be that, in terms of the agricultural sector, it would be worth taking a look at a different model in terms of using good environmental practices as a competitive basis to compete in the marketplace. This is a little bit different than saying that a lot more regulation is needed. It may be something to look at because it's worked quite well in Minnesota.

The other thing is that in the report they talked about the directional natures being more important than continuing to study. I would agree with that. It's been my experience over 20 years of conservation and environmental management that whenever you add a large number of inputs into a system—whether it's nitrogen, phosphorus, carbon, the criteria pollutants, you name it—sooner or later we find out it does bad things to the system. While it's important to continue to move forward on the science, it's clear there's enough evidence here that we need to be reducing these and we need to be more aggressive than we are at present. I'm very supportive of that particular aspect of the report.

Finally, the last thing I would mention is that there was a comment about the 0.3 [milligrams] per liter phosphorus standards. The question (I think I asked Susan about it) was, is that based on the fact that technology is there? And the question that I have is, what is needed in order to move us toward a goal? Is it 0.3, is it 1.0, is it 0.6? And the same goes for the nitrogen. We're in a big battle in Minnesota with phosphorus. We think we have good science to back up our motivations for going to 1.0. The question on the 0.3 is, is there science for the hypoxia issue backing up why it needs to be a 0.3 to move us toward whatever phosphorus reduction goal? The same thing goes for the nitrogen. I think these need to be explored more as opposed to just a technology-based recommendation.

Benjamin Grumbles: Thanks for those excellent comments. Dean?

Dean Lemke: Thank you, Mr. Chair. Let me comment, at least initially, about the value of this report, and then I'll talk a little bit about the charge question.

I think that the report has great value and that the undertaking of the reassessment of the science is an ambitious and aggressive goal. And it's not easy. There have been some who felt that maybe that goal was not a worthy one. I think that it is. And I think that this report validates that we're learning a lot more about these systems than what we started out knowing, although we made a good start as well. I think that this report demonstrates that there's some additional work that needs to be done with regard to higher nutrient reduction targets and adding phosphorus as well. And certainly the basin science—the effort that we are part of in the Basin Workshop—I think resulted in some new agreement on what kinds of practices can be effective.

I want to speak to potential delays while we've done this science reassessment because I believe the issue is resource-starved and not attitude-starved, at least at the level at which change needs to be made. Perhaps it's attitude-starved at the policy level and not appropriating the resources. But as we speak, the Farm Bill is working and those dollars are highly competed for; in our state we have waiting lists. In my state we have the Iowa Hypoxia Reduction Initiative running. Nothing has been stalled while we've been working on this science reassessment. I view bringing this science assessment forward as bringing ideas and minds to the task and adding to, not subtracting from, the progress. It's a form of adaptive management. We started down this path with the 2000 *Action Plan*, and we're now refining the targets and the goals, which I think is elemental to adaptive management.

Let me offer seven items that we've identified relative to the charge. They vary in scope. The first one: We don't think the report adequately differentiates whether the nitrogen load reduction is in nitrate or total nitrogen. And we don't think it adequately addresses seasonality: Is it the spring load that needs to be critically reduced? Is that more important than the total annual load? That's critically important from an agricultural management practice standpoint because some of our practices may be more effective at annual load reduction than they are at spring load reduction, and some of our practices will exacerbate spring load while they make annual load reductions.

Second, the point that was made by the gentleman in public comment here. The comment here that the baseline on reductions is not clear to us—whether the panel is referring to the 1980–1996 baseline or whether we're using some other baseline. The third point is whether the goal might be more appropriately expressed as volume versus area. It seems to me the report is a bit short on that text, and I'm not quite sure where they ended up, although they did say in one part that they endorsed the 5,000-square-kilometer goal. We've raised the issue before.

It would be helpful if we could get to some kind of a flow-based goal that would separate anthropogenic impact from the uncontrollable weather factors that make this really more difficult. In the past five years, if you look at the data, we've seen somewhere around a 20 to 22 percent reduction. We think that that's significantly weather, although we think there are anthropogenic effects there as well. The anthropogenic reductions are with regard to stable and

level fertilizer applications with increasing yields in what's recognized in the report. We think that's important. We were hoping to see some text on what they think, scientifically, on the 5,000-square-kilometer goal and what size is scientifically defensible.

The other part of the goal is the date, the 2015 date, which is now seven and a half years away. If we are to measure success on a five-year running average, that's only two years away to start that five-year period. It seems to me that the scientists should give us some of their feeling on what kinds of changes, technically, need to occur throughout the basin, and is this feasible in a two- or seven-year period. Is this realistically a 2015 goal? Part of the report talks about how it is likely to take decades of concerted effort, and that's referenced at page 195. So, it seems to us that the charge would be better carried out if they were to help us understand, technically, what they believe the magnitude of change has to be in terms of anthropogenic behavior and the ability to construct and make these changes in what time period (just technically apart from policy dimensions).

The fifth point I want to make is that they'll be working in the months ahead to develop a consensus report, rather a consolidation of 23 authors and 3 work groups. That's what we view the report as today, and that's maybe needful at the first-draft stage. But we think that the charge indicates a need for, as much as possible, developing a consensus report that all of the scientists on the panel reasonably assert and support, rather than individual and disparate pieces.

Number six concerns the agricultural management practices. We think the water quality science of agricultural management practices is not as strong as the first two sections of the report—the Gulf science and the nutrient fate and transport. We think that's still a critical area, and we would encourage strengthening of that to meet the charge questions.

The seventh and last item that I'd offer [is that] the report moves into several areas that we would assert are policy issues. These issues include the effect of voluntary programs and whether price support payments, commodity payments, should be continued. I would assert that for the Task Force the science report will have more credibility if it keeps to the science issues. The best way of dealing with the complicated decisions before us is to let the scientists deal with the science issues and let the policy framework deal with the policy issues. I think where we cross those lines, it becomes more difficult and perhaps we're less effective. The report will have more credibility if it stays to what are truly the science issues, and we think that what we call the policy areas of the report go beyond the charge and go beyond that with which the Task Force was charged and what the science panel was asked to do, notwithstanding all of those specific things that we think strengthened the report. We're very pleased with the effort. It's a massive effort—the engagement of 23 of the nation's very elite scientists toward the task—and we see only very positive outcomes in the process. Thank you.

Benjamin Grumbles: Thanks, Dean. I want to thank you for your very thoughtful and thorough comments on that so far and turn to other members who might have some thoughts or comments that they want to share. Gary?

Gary Mast: Since my particular department is supposedly responsible for an awful lot of the hypoxia issue here, I think I should comment. I would certainly encourage a good, thorough

review of the SAB report. We need to get the science right. NRCS has assembled a team to review that report thoroughly. I'd encourage other federal agencies participating here to do the same. We'd also then like to sit down with you folks and also the folks who prepared that report, whoever would be appropriate, with our team so that we're both on the same page understanding what we're talking about. So, we'll talk about that later.

We've updated conservation practices data. We've provided to the SAB that we've put in 2.3 million acres of buffers and 1.4 million acres of wetlands since the year of 2000 until current, and that probably needs to be incorporated in the report. So, we'll talk about that.
We need to link our practices better with the effects of the conservation practices that we currently have in place. We're working on that with a thing called the Conservation Effects Assessment Program (CEAP), where we use a modeling system so we can make assertions like "with X conservation practice, we can get this result out of it" in reduction of nitrogen or whatever—carbon sequestration and all that.

I would like to see more of an economic analysis. What is the cost? Especially from my standpoint in the agricultural community, what will it cost to put all these practices in and get it right? The locally led and voluntary approach really does work. I don't think we have a large enough police force, as well as the political gusto, to begin to change that scenario. That's political and a reality that we need to work with, so how do we make it better? What kind of actual financial support does it take really to change a farmer to do different practices?

Another thing would be this: We lose millions of acres per year of farmland to the urban setting. A lot of those settings have lots of yards. I'm guilty of it at my home. I put a lot more nitrogen per acre per year on my yard than on my cornfield. It may not be a huge thing, but it's a contributor. I heard different comments about let's get on with it, let's start, let's not worry about it, let's get it done, let's get this *Action Plan* done. I think we're really making some progress. I wonder what those numbers would be if we had not had those conservation practices out there in the Midwest. I think they'd be a lot worse. We are doing quite a bit to help the situation.

There are a lot of things we can do before it happens: correct timing of putting nitrogen in for the crop, split applications—put down a little bit three, four times so the plant can totally utilize it. The type of application matters. You can just throw it out there or you can really be precise. There are applicators out there now that run down the middle of the crop row and maintain contact with the soil right away so nitrogen fertilizer or phosphorus is not lost.

There's a lot of discussion out there on this subject. I had an excellent discussion with the John Deere company as they look ahead to the future: What can they do to help keep the American farmer be productive and also do a good job environmentally? We're not sitting in a vacuum over there at USDA; we're really trying hard to solve these problems as they come up.

The bottom line is: Economics talks when it comes to what the farmer is going to put in his field. And economics also talks when it comes to conservation practices. I guess from a positive standpoint, I think farmers, if they have some money in their pocket, if their equity is better, if their economy is better, are going to implement more conservation practices. In the past, at $1.30 for a bushel of corn, most of those farmers were just getting by. At $4.00 a bushel for corn,

they've got a little extra jingle in their pocket, and they want to do the right thing. I'm very positive about the current trends.

Ben, thank you.

Benjamin Grumbles: Thanks, Gary. And for those of you who are not familiar with CEAP, I just want to publicly state how much we appreciate USDA's leadership on that front. In some sense, it really does boil down to quantify and identify not just costs but benefits as well. And I know the SAB is grappling with that same issue. That's an important effort USDA has that I think also helps benefit our effort on the Task Force. Other Task Force members that would like to make some comments?

David Vigh: I did have one question of clarification. This draft SAB report—has there been a *Federal Register* notice or has an official public comment period been opened? What's the plan for that?

Benjamin Grumbles: Darrell, do you want to take this?

Darrell Brown: That is a good question, David. I think it's one of the things we want to ask for clarification from the SAB on because their comment period seems to be fairly open-ended, and it says the report is still a draft until the Charter Board signs off on it. My advice to folks has been to get your comments in earlier rather than later. But I think that one of the things we want to ask for some clarification on tomorrow is the final date for getting specific comments in.

David Vigh: Good, because this report is available at the Task Force Web site on the EPA Web site. I had a couple other comments.

One is the comment that Dean just brought up about policy versus science and the focus of the SAB. I agree that this needs to try to stay focused on science as much as possible.

Another comment was about the change to 40, 45 percent. We need more specifics on how to get to it.

The Army Corps of Engineers has put together a group to review the report.

We must agree on a target in the future and stay positive to move forward. The 5,000-square-kilometer size and phosphorus aspects commented on by Mr. Youngstrom need to be played up more and referenced more often in the report.

The issues of social welfare and economics must be communicated to users and stakeholders. The basic means and mechanisms of communication can perhaps be better explained in the SAB report.

There is an Army Corps perspective. On pages 192–193, the issue is how to enhance continuity and retention time—to hold water and not let go. It is important to the Corps to reconstruct behavior on the Mississippi River. Is there a leeway in flood-control systems? Something that

was nebulous in the report concerned external models—the 40 to 50 percent uncertainty in the modeling work. What additional models are needed to close the data gap?

On page 191, the subjects are how to develop ways to effectively treat runoff of nitrogen and phosphorus, regional and general permit issues, and success stories.

With Iowa CREP, the state and the Corps and U.S. Fish and Wildlife and EPA were involved with some possible permitting issues on effectively getting these treatment systems for tile drainage systems in place. It was interesting to hear that when you put in one of these collection systems, at the end of a tile drain system before the water pours into a receiving body, it can be effective up to a 60 percent reduction in the nutrients coming out the other end of these treatment sinks, which are typically wetland creation areas. Water flows through, and you can effectively remove up to 60 percent of the nutrients.

We have some permit issues. We actually developed a regional—a general—permit, I believe, for the State of Iowa. It includes a modified permit with the Corps of Engineers, a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service, and an MOU being developed with the State Historic Preservation Office. This is a package that was successfully completed. I believe the CREP system is being well supported now. We're going to be putting up this permitting package for tile drain treatment systems as a product from the Task Force efforts. We will put it on our Web site (or somewhere) so that other states don't have to reinvent this wheel in terms of permitting and treatment. They can take this successful package we've developed with Iowa and apply it in their own state. This was a positive thing I want to bring out that fits right into the recommendations in SAB.

Benjamin Grumbles: Great. Excellent points. I think all of this, particularly at the federal level, as we focus in on this tremendous challenge and the goals and the missions of the Task Force, we also walk away with models and collaboration and cooperative conservation that can be shared in other places in the country. The idea of streamlining for environmental restoration, trying to clarify potential bureaucratic obstacles and get over those to enhance and increase infiltration or to increase buffer strips or the fact that wetlands are Nature's amazing cleaning machines in so many ways, it's really good for not just Iowa, but other states within the Mississippi River Gulf watershed and other parts of the country. So thanks for mentioning that and for your other comments. Other Task Force members who would like to speak at this point?

Charles Hartke: Could I question Dave just a little bit? Dave, can you expand on your experience with the tile drainage system and with what you've done in Iowa—how effective it's been, what percentage that is of the total drainage, and its cost?

David Vigh: I can't expand very much.

Charles Hartke: Maybe Dean could.

David Vigh: Yes, Dean probably knows more about it. This is a report I got from our Assistant Secretary of the Army office, which actually went to the systems and participated in a couple meetings out there to develop this. Dean, do you have something?

Dean Lemke: I'm not sure. What was your question, sir?

Charles Hartke: Is it working and how effective is it? What percentage of the total tile drainage in Iowa is put through this type of system? What do you project the cost would be and the overall effect?

Dean Lemke: It's very effective technology. Wetlands will take 40 to 70 percent of the nitrate out, typically in small drainage areas of 500 to 4,000 acres. The downside is it's pretty costly. It runs about $250 per watershed acre treated. In Iowa we have 9 million acres of drained land, so you can do the math. It's too big a number for me.

It's a lot of money, and the other thing is we've got sites that landowners are looking at today—20 already built, 20 under construction. For us to meet 35 to 45 percent nitrate reduction statewide, we'd need between 10,000 and 20,000 sites. It's a scaling issue. We've spent several years building the first 20, but I think getting the permit issues resolved will help. Did I answer your question?

Charles Hartke: Yes. And did you say getting the permit for the thing was also a problem and that's what Dave's working on to streamline that process?

Dean Lemke: That's correct.

Len Bahr: Clarification to what Dean just said: Is it my error in thinking that the goal was not 45 percent reduction in nitrogen application but rather reduction in loading at the lower end of the river, which isn't exactly the same thing? I think we've got to be really clear about that because I suspect that 45 percent reduction in application would result in a lower loading rate at the Gulf.

Charles Hartke: Not necessarily. The 40 percent reduction would be only that type of runoff or drainage, and there are other areas that add to that so that it would not be a total 40 percent reduction.

Len Bahr: Well, I'm just thinking the burden. I don't think that any of us thought that the burden should be totally on where you can translate direction to the farmer reducing application to 45 percent of the current rates but rather an integrated reduction of flux at the lower river—however that can be achieved. With all kinds of things like riparian buffer strips and all kinds of things.

Benjamin Grumbles: I think that's important. I think you're right. And I think it's the loadings to the Gulf, not in the application rates. Good conversation, good discussion. Who would like to go next?

David Hanselmann: Mr. Grumbles, David Hanselmann from Ohio. I just wanted to, at the risk of belaboring the discussion of setting nutrient limits and phosphorus limits, just highlight that we do need to refine the percentages (as one of the public comments indicated), in addition to the percentages that have pounds or ton reductions, and then perfect the information and science as

to where those reductions can come from between point and nonpoint sources. The point source discharges are certainly easier, as someone indicated, because they're under permit. But we do need to be mindful of the economics and the technology in the Midwest and East and elsewhere in the country. There are very substantial investments being made in upgrades to those facilities, including solving combined sewer overflow issues. In Columbus, Ohio, alone the costs are in excess of $1 billion being spent over a multiyear period for that. I guess I would hope the model project would account for the reductions that some of those improvements that are under construction and are planned will have on discharges to the Ohio River and elsewhere.

The rate payers are facing huge increases in their monthly sewer bills, so if we are asking to benefit the Gulf for further reductions, we need to be really on top of the numbers and the justifications for those reductions. Even for Lake Erie the permit conditions right now, and Lake Erie is clearly phosphorus-limited, or is 1 milligram per liter. To justify going below that in Ohio for issues in the Gulf, those numbers need to have a lot of science behind them.

The other comment I wanted to make is perhaps better in the broader perspective later, but I think it's the same for communities and the operators of wastewater treatment plants and farmers. My experience is that it's twofold—the economics and the costs but also people want to be comfortable that they understand why we are asking for certain conservation practices. If we can really explain the benefit environmentally downstream in a reservoir or stream in Ohio, or in the Gulf, I think we can make a lot of progress, especially if the incentives are there to go along with that.

I want to highlight the public information, and that even boils down to the public comment period issue—that we take the time needed to be sure that we're reaching out to stakeholders in the 41 states at appropriate times. Make sure they understand the SAB report and ultimately any revisions to the *Action Plan*. I think that will have a lot of payoff in the acceptance of the measures that many of us in the agencies will be advocating for and going to our legislators to seek funding for. Building that public understanding level all the way from our farmers up to our legislators is going to be critical.

Benjamin Grumbles: Dave, those are very important observations. I think each of us understands that when you get into targeting and using data to identify watersheds or sources that are contributing the most in excess nutrients, it also can be viewed as (or can become) finger-pointing, and the point sources are the ones that get fingered most easily under the current regulatory or statutory framework.

In the Chesapeake Bay, there is a useful model to keep in mind. States as far from Chesapeake Bay as New York have seen the value and the downstream ecological benefits of agreeing—not through federal command and control dictate, but through an interstate collaboration—to make further steps to include nutrient limits in permits based on sound science. The limits are those which states need to continue to work on and which EPA is putting a priority on. But that that type of agreement can also lead to a market for water quality trading, so that even those that are not regulated or subject to federal or state regulation have not just environmental ethics incentives but economic incentives to take steps in advancing conservation.

But you're comments are very valid, particularly given the SAB report, and the focus on some of the point source loadings in the Ohio River Tennessee Subbasin.

Thanks. Other comments? Yes, Rob.

Robert Magnien: Let me just throw in a reinforcement of the need to do the outreach, whether it's the SAB, through its process, or the Task Force, which I think has some responsibilities in that regard as well. Certainly we have the time to do this right. I know when I joined up with the Task Force and Coordinating Committee a few years ago, there was still a lot of grumbling about the last integrated assessment. It wasn't universal, but there were some concerns about how it was conducted and the fact that perhaps not everybody got their say. I think it's important to make sure that doesn't happen this time. We'll never make everyone happy, but we have the time and we have a process that's very open. I think we just need to work on that even better than before.

I'm not sure everybody who could potentially be affected by this knows that there's an SAB Web site out there and that they check it regularly. There's some work to be done on our behalf to get the word out. It's a big watershed. People need to understand that there's this concept of adaptive management. There will not ever be all the answers that we want. We'll fall way short of having the specifics on everything we need. This concept of acting in the face of uncertainty is a concept that we can help communicate as well, to help ensure that we can take steps without having every bit of information we might desire.

Benjamin Grumbles: Good points and clarifications. Any other Task Force members? Yes, Margaret.

Margaret Hopkins: Just a couple of quick things. The importance that the report recognized that voluntary partnerships may not have direct benefits but didn't necessarily go into an explanation of why that was discussed previously. We would bring up the same issue and concern at this point. Certainly through some of the cooperative conservation initiatives Interior has done, both through the Fish and Wildlife Service and the USGS and other of our member agencies, [we] have had quite a bit of success through a few of these local voluntary partnerships.

I think that we find that by getting involved at this local level through community involvement and through these voluntary partnerships we've seen a lot of benefits. So I, too, would be interested in seeing more of an explanation of why that statement was made. We'd be happy to offer any examples that we have seen that may tie into this as well. Additionally, we'd like to recognize the importance of the monitoring, research, and modeling that the USGS has been doing to understand and manage the water quality changes in the Mississippi Basin. We support this work that USGS and certainly that the rest of the Task Force is doing for this monitoring. Thank you.

Update from the Gulf of Mexico Alliance

Benjamin Grumbles: Thanks, Margaret. And I think Brad was mentioning, based on his experiences, about the success of voluntary efforts to help, not to replace, but to supplement and accelerate environmental progress. So those are good points, good comments. Any other Task Force members have any thoughts or comments they want to make?

Okay then. I think we're ready to move on to the next portion of the meeting. Dr. Bill Walker is the executive director of the Mississippi Department of Natural Resources. It's great to have him here to talk about one extremely important effort, the state-led effort of the governors for the Gulf Alliance.

As a result of the shared vision for a healthy and resilient Gulf of Mexico Coast, the Gulf states of Alabama, Florida, Louisiana, Mississippi, and Texas, supported by 13 federal agencies, formalized the Gulf of Mexico Alliance. The first action was development of the *Governors' Action Plan for Healthy and Resilient Coasts*, which was released at the State of the Gulf of Mexico Summit on March 28, 2006, at Corpus Christi. It's a far-reaching plan, the *Governors' Action Plan*, and Bill is here to update the Task Force on it and to talk about some of the key challenges and opportunities—five priority areas—on which the governors focused. Certainly, the hypoxia Task Force, all of your efforts are referenced and relied upon as a part of the governors' plan.

Bill Walker: Thank you, Ben. I appreciate very much you folks taking time to hear about the Gulf Alliance. This is not going to be a lengthy discourse. I think what we'd like to have here today is a conversation about where we're all trying to get as a group in the Gulf of Mexico region.

As Ben said, and probably the most important thing that I can say about the Gulf of Mexico Governors' Alliance, is that it is a state-led coalition. These things are hard to come by. States don't typically work together well, and we haven't done a very good job of doing that in the Gulf of Mexico region. However, we're well on our way to changing that thanks to the guidance of the governors of the five Gulf states and the assistance of the federal family that is supporting the activities of the Gulf Alliance.

The effort is to unify and align this region. This effort was started several years ago by the then-Governor of Florida, Jeb Bush. We owe Governor Bush a debt of gratitude for pulling the five states together and getting his counterparts at least thinking about the value of such an alliance as this. Key drivers in Governor Bush's actions were reports from the Pew Commission and Oceans Commission, which in a rather blunt, direct fashion stated that the Gulf of Mexico was a hugely important national resource and that the states bordering this body were doing a poor job as a region of protecting this resource and ensuring its future sustainability.

In March of 2006, the governors released this *Governors' Action Plan*. It's before you. On the very back page are all the states and all of the federal agencies that are involved in this alliance. On the first few pages are nice pictures of the governors and a nice letter from the governors saying how happy they were to be associated with this Gulf. The truth of the matter is that they

really meant it. They are excited about being a part of the Alliance, and they're committed at their level to making this go forward.

The *Governors' Action Plan* before you defines a 36-month series of activities focused on five specific areas: water quality, nutrient reduction, environmental education, habitat identification, and wetlands conservation and restoration. Those are pretty broad areas. All of those areas have some interest to this Task Force. There are things that you're trying to get done in this country and in this part of the country—the Mississippi River and the Gulf Region—that are consistent with all of those five focus areas.

I want to say that we don't want to be an isolated group. We want to be inclusive. We want to work with this Task Force. We're working toward getting this group represented at an upcoming meeting of the Alliance in July in St. Petersburg, and we welcome that. We don't want to be out there trying to do things that you are trying to do (the same thing). We need to work together, and I look forward to working together with you.

The *Governors' Action Plan* identifies specific goals and objectives, such as nutrient standards for each state, that the states feel they can achieve in this relatively short 36-month period. The working groups, such as Water Quality and Nutrient Reduction, which focus on things like hypoxia, reducing point and nonpoint source nutrient additions, and the like, have been hard at work, primarily at the states' expense, to move the *Governors' Action Plan* forward. They've been working for some 18 weeks on these five issue areas. We owe these folks a great debt of gratitude. They get nothing but our thanks for doing this work. They've pushed the *Governors' Action Plan* a long way. A lot's been accomplished in the first year and a half of this plan, and I'm comfortable that they will achieve the objectives at the end of the 36-month period.

The Alliance is making progress. The states are actually working together in a somewhat selfless fashion and thinking as a region. That's easy to say, but it's difficult to do. It's just tough. But the states have finally realized that to continue to compete against each other in the region for limited resource support is futile. We will never be able to achieve as individual states what we can achieve as a coalition.

And we are making progress. The Joint Ocean Commission Initiative (JOCI) puts out an annual report card, which is generally a negative statement that says each year that the United States is getting really good at doing a bad job of preserving and protecting its oceans. However, in their most recent report card, the JOCI highlights the Gulf of Mexico Governors' Alliance as a regional alliance that is clearly moving in the right direction.

I've said that the working groups in the five focus areas are currently working hard and meeting all the time to achieve the objectives laid out in the 36-month *Governors' Action Plan*. What the Alliance is faced with while trying to complete the 36-month plan is to determine what about after that. What happens in month 37? Where do we go from there? Our vision is looking at a 25- to 30-year plan in the Gulf region that will continue on long after that, where the region will continue to develop action items and do work that will improve the overall condition of the Gulf of Mexico and the region associated with it.

Let me digress just a little bit at this point and tell you why I'm the one standing here at this podium. I never thought I would be, but I am very happy to be here. When Governor Bush stepped down as Florida Governor because he was time-limited, several of the other states indicated that they would like for Governor Barbour to take the role of the leadership of the Alliance. Those of you who have met Haley Barbour know that he is a very action-oriented person. He's not a huge fan of planning a lot. He likes to move dirt and build things and make decisions today that have an effect on tomorrow. And he doesn't tolerate failure very well. He likes to put together a plan, and he likes to see that plan work and he likes to see that plan succeed.

When the other states said they'd like to see Haley lead the Alliance, the then-director of the Department of Environmental Quality for the State of Mississippi, Charles Chisolm (a very good friend of mine and a wonderful person) and I sat down with Governor Barbour, and we asked him, "Governor, will you consider assuming leadership of this Gulf of Mexico Governors' Alliance?"

He thought about it a little bit and asked a couple questions. He then turned to his aide and said, "Is this something I can do?" The aide looked a little perplexed, and I knew he was thinking, "Hell, you're the Governor. You can do whatever you want!" He handled it well. He said, "Sure, Governor. I think you can do this." And the Governor said, "Okay. I'll do it." He turned to me and Charles and he said, "Okay, boys, you go make it work." And about a week later Charles retired *[laughter]*.

I have to say he'd been thinking about that for a long time. He'd been talking about it and he was right on the edge, and I think this thing might have shoved him just enough to make that decision. But I'm extremely happy to say today that Governor Barbour appointed Trudy Fisher to follow in Charles' footsteps at the Department of Environmental Quality as the Director. Trudy is a wonderful young lady. She's 200 percent committed to this Alliance, and she's working hard to help me get the other folks like us together to help their governors and our governors to move this alliance forward.

So that's what we're doing now, Trudy and I, along with Phil Bass from the Gulf of Mexico Program from EPA. And I need to say that we have a really wonderful federal family supporting the Alliance. They're all listed in the back of the report. The primary ones are EPA and NOAA. They have shouldered the load in helping the states pull together. I believe that I can say—and that other states will agree—that without that leadership by the federal family, we would not be where we are today. They have pushed us to work together. They have chastised us for not working together well. The result of that is that we are working together well now, and we're moving the Alliance forward as a state-driven effort as it has to be. I think all of our federal partners in this Alliance are helping us get to where we are today.

Trudy and I are visiting our counterparts in other states. We're trying to engage the gubernatorial appointees of the agencies that are primarily involved in the Clean Water Act and Coastal Zone Management Act activities and bring them into the fold as members of a relatively small Alliance leadership team. I'm happy to say that all five states are currently on board with that

leadership team and, more important, they're happy to be there. They look forward to the challenges and the opportunities ahead as we try to move the Alliance forward.

Now, where are we going? First and foremost, I have to say that we are an action-oriented group. We want to see dirt moved, things built, and work done. We need to continue planning efforts. We need to continue to pay attention to the academic and state and federal agency research activities that are going on in the Gulf that will tell us how to do a better job protecting and conserving in our region. There is a list of things that we as a region would do and could do tomorrow if we had the money. Without federal help, though, we can't get as far as we'd like.

Part of our job is going to be fundraising. Number one, we have got to engage Congress, and quite honestly Congress will listen to a coalition of states. If a coalition of states—five state governors, five state Congressional delegations—present a plan to the Congress saying that this is what we all agree is important for our region, then Congress will listen. That's our challenge and our opportunity.

I can tell you that the support is there. All of the states are telling me that they are finding out what I am finding out. When I talk to our Congressional delegation in Washington, they say it's about time you states have finally gotten together as a region and are putting together a regional plan that everybody can support, instead of Mississippi fighting with its neighbors to the east and west about funds. It's so much easier for us to support the region, which will do great things for each state in the region, than it is for us to try to support our individual state against our neighbors.

There is no downside to the Alliance. It's all good and positive. It's all going to be good for the Gulf region. Other regions—the Chesapeake Bay, Puget Sound, and the Great Lakes—receive an annual Congressional appropriation to do good things in their region. The Gulf of Mexico region receives quite a bit of money to the individual states, but it receives nothing as a region because we have never acted as a region. But that's changing. We're moving forward.

We have strong leadership throughout the region in the governors' offices. We have strong leadership in the state legislatures, and we have strong leadership in Congress. The Gulf of Mexico region probably has a stronger collective Congressional delegation than any other region in the country. We're committed to making it work.

We are making progress. There's $5 million in the President's 2008 budget to Congress to provide money to NOAA specifically to support to the Gulf Alliance. Vice Admiral Lautenbacher asked me how he could best spend that money to support the Alliance. I spoke to my counterparts in other states, and we came up with a list of things that we all agreed would be good for the region. I presented those to the Admiral, and he agreed. At the same time, he asked me if the region could help in getting that $5 million increased through the Congressional appropriations process. All of the states are talking to their Congressional delegations and trying to get that number doubled to $10 million for the alliance in the 2008 budget.

The most recent supplemental to Iraq included $85 million to come to the Gulf region for restoration efforts after the storms of 2005. The five states (and this is focused primarily on the

fisheries-related restoration efforts) talked about how to distribute those funds and voted, if you will, to provide $5 million off the top of that $85 million because they recognize the Gulf Alliance as a group that is doing important things relative to nutrient reduction and water quality and habitat restoration that are important to the overall area of Gulf fisheries.

So, just the fact that five states got together, talked about it, and voted to support the Alliance, rather than keep that money to themselves, which they could have done, is very encouraging to me that this alliance has a lot of opportunity for success.

We've been a success, and we're going to continue to be a success, thanks to the hard-working people in each state and within our federal family. I hope you can tell I'm optimistic about the future. I'm excited about moving forward with this alliance. We look forward to working with you as we move forward. And with that I'd like to just stop and answer any questions you might have.

I appreciate the opportunity to address you today.

Benjamin Grumbles: Bill, thank you. I don't know if any of the members have any questions. Rob?

Robert Magnien: Thank you very much for your presentation and overview. As you know, I was very supportive of the Gulf of Mexico Alliance. I think your comments about states getting together over funding priorities were also well spoken and relevant to this group as well because of our shared needs for funding and implementation, because this is one of the items you highlighted in your implementation plan. My question was, since you do have this on page 29 of your *Action Plan*, a specific implementation action to a certain Gulf state position on the needs to address Gulf of Mexico hypoxia, there are several specific actions in this third six-month period. Is there anything we need to work on to make that happen? Is there something we should be having further conversation about to make sure that we align well on this shared implementation goal?

Bill Walker: Yes, there is. In July, I think the dates are July 9 through 12, the Alliance is holding an all-hands meeting in St. Petersburg, and we would like for this group to be represented. At that meeting the Alliance, the working groups, will report out the successes. They will bring us all up-to-date on which of those strategies and objectives have been accomplished to date, what there is left to do, and how we will best accomplish those things hopefully by the end of the 36-month period. At that point we want to see how we can interact with other entities such as this Task Force in moving forward together rather than independently. So I'd encourage that perhaps, Rob, you attend or whoever the group would like to send to attend that meeting and join with us to help plan the future. We'll make sure that we are moving forward together in those specific areas, like the ones you pointed out.

Dave Lemke: We're stealing each other's thunder here. That's exactly what I was thinking. It seems to me that we should have an official presence there to make sure we have someone at that meeting to begin and continue the communication between the two groups.

Bill Walker: We'll get an official invitation to you.

Benjamin Grumbles: That's greatly appreciated, and our Gulf of Mexico program office within EPA and the Task Force sound like an excellent opportunity for state-led leadership with federal support. Thank you for your comments.

Bill, we really appreciate Mississippi's leadership and help on this Gulf Alliance and Task Force meetings. Thanks for being here and part of this.

Bill Walker: Thank you for those kind words. And when you're being "encouraged," shall we say, by a fellow by the name of Haley Barbour, it's difficult not to be positive.

Task Force Resolutions to Address Emerging Issues

Benjamin Grumbles: All right. Thank you. For the next 40 minutes, we're going to have a discussion among Task Force members on the resolutions to address emerging issues. I'm going to turn to Craig Hooks. Craig is the director of the Office of Wetlands, Oceans, and Watersheds within EPA, and he's going to talk about his experiences on the use of resolutions or senses of the various task forces, in particular the U.S. Coral Reefs Task Force.

Craig Hooks: Thank you, Mr. Chair. Good morning. Again, I'm Craig Hooks, Director of the Office of Wetlands, Oceans, and Watersheds at EPA. At the February coordinating meeting in Memphis, there was a lot of discussion about the U.S. Farm Bill and how it might be used to support and further the objectives of this task force. There was also discussion on a variety of other high-priority topics as well, again dealing with the very complex issue pertaining to Gulf hypoxia.

We then discussed the best way or a way that the Task Force can address some of these topics we're engaging in—particularly during some of our committee deliberations. One of the other things that I do is serve as the alternate to the U.S. Coral Reefs Task Force. This task force is charged with protecting corals here in the United States and also in U.S. territories. It was established to protect those corals and is composed of representatives from the federal level, the state level, and the U.S. territories. So it's very similar in terms of admission and approach and composition to this task force as well.

Attachment C: Presentation on Task Force Resolutions to Address Emerging Issues, Craig Hooks, U.S. Environmental Protection Agency

David Vigh: Do you have any examples that you could share with us now or later about the process through which we would go and develop and put out a resolution?

Craig Hooks: I do. I could speak from my Coral Reef experience. I think it's public steering, in the context of the Coral Reef Task Force, [that] can propose a potential resolution for consideration. They are usually deliberated on at the steering committee level and then proposed and voted on at the annual Task Force meetings. I suspect we put out anywhere from two to four resolutions per year. I think over the past four or five years we've put out a dozen or so.

Benjamin Grumbles: Do you ever put out resolutions based on telephonic as opposed to in-person scheduled meetings?

Craig Hooks: I don't think we have. Certainly the draft resolutions go out to all the committee members, the Task Force member themselves, in between meetings for their consideration. While I wouldn't say it's a rubber stamp, most of the difficult issues have been worked out.

Benjamin Grumbles: You've highlighted positive benefits/elements of it. What are some of the downsides?

Craig Hooks: I think some of the potential downsides may be time—time by the Coordinating Committee in putting the language on the paper. Just in my recent experience with the Farm Bill, I think it's gotten a little bit more controversial than perhaps I may have envisioned originally. I think if you look at the statement by Congressman Petri endorsing the work of this Task Force, it can be a very simple statement. It can be a simple endorsement of the Farm Bill, for example. The provisions that encourage reduced nitrogen or reduced hypoxia in the Gulf of Mexico can be very much a public statement that provides a vehicle for something to hold up by the individual Task Force members. It can also be helped, stood up, by the public and those also interested in these charges as well.

David Vigh: Would you view our Web site or other means as the way to put them out to the public or have them where people can see them or use them?

Craig Hooks: Absolutely. All of the resolutions would be maintained on the Web site for the public to view at their leisure.

Robert Magnien: If I can just give a little context to this, bringing it back to our last Task Force meeting, I think everybody has in their package the visioning recommendations that we discussed at that point and that the Task Force adopted. And any emerging themes which you already touched on which were the biofuels, the Farm Bill, and the wetlands restoration of the Lower Basin. In each one of those, there was a discussion point for the Task Force that stated the appropriate lines of communication for the Coordinating Committee and the Task Force, as appropriate, to establish with those entities currently responsible for evaluating plans, policies, and scientific considerations for each one of those three issues. So, we recognize that we are not in charge of those issues but they are important to the future of our mission.

We just heard from the Gulf of Mexico Alliance. Our work intersects with the work of a lot of other bodies, and I think it's fair to say that this resolution grew out of that because we struggled as a Task Force to come up with something specific that we would be able to carry to those groups to say, "Here is where the Task Force stands and this is why you, who are dealing with this other issue, should—would you please—take into consideration the issues that we're struggling with here in our Task Force."

That's the context for this—the thought that you put onto the table at our Coordinating Committee meeting that maybe the resolution is somewhat of a neutral statement of the Task

Force mission or intent in this area that any one of the members could take to their deliberations because there are a lot of you who wear multiple hats. There are people here who sit on the Gulf of Mexico Alliance, who sit on various other committees, whether it's with USDA dealing with the Farm Bill or another. I just wanted to fill in that context as to why this issue has been debated or discussed on the Task Force.

Benjamin Grumbles: From my perspective, I see benefits of having some process that's not too heavy on process and formality, that includes proper caveats as all of us report to various agencies and administrators. There is a value in being able to focus in on emerging issues and have some statement that reflects the views of the members that can be communicated in whatever appropriate way. But, this is a dialogue to be continued, and there are certainly advantages to having discussions among ourselves and benefiting from our thoughts and also in some way capturing them other than just in note-taking when we have various meetings.

Any other comments on that before we move to the next item?

David Vigh: I just wanted to say that we need to write down the process. It needs to be formalized and agreed to.

Benjamin Grumbles: I think that's a good point. The more detail the better as to what might be in that.

David Vigh: That can be provided. That's a good suggestion.

General Public Comments on the Progress and Content of the Reassessment

Benjamin Grumbles: Before we conclude the 14th meeting of the Task Force, we have a very important session. We will now hear general public comments on the progress and content of the reassessment. I'm going to open up the meeting to various folks who signed in to discuss the overall reassessment in particular. If there are comments on the schedule and our next steps to continue to address hypoxia, you should offer them now. I have a sign-up sheet, and seven folks are listed. Why don't we start again with a second timer.

Matt, once again, we appreciate your giving us your views. With the Gulf Restoration Network, Matt Rota.

Matt Rota: Matt Rota from the Gulf Restoration Network. First of all, thank you for the opportunity to be here and give some public comments. The first thing I would like to talk about concerns your mention about the Gulf Hypoxia Web site and outreach to the public. I was looking on the Web site last night, trying to take a look at the agenda. The announcement for the meeting and the agenda were not on your Web site. They were on the Tetra Tech Web site, but not on the actual hypoxia Web site. The first best step toward better outreach you could take is to actually get the meetings and the schedules up on the Web site.

As far as the Task Force reassessment and Task Force progress in general, from our perspective, it would be an understatement to say that we've been disappointed with what's been happening over the past seven years. At the Task Force inception, we were honestly really excited about states and the federal government banding together to aggressively attack some issues in order to reduce its size. While the Task Force has had some accomplishments, like forming the subbasin committees, the bottom line is that the dead zone is still out there, as big as it's ever been and threatening to get bigger. The sad thing is we all know what has to be done in order to reduce this area that causes the Gulf's sea life to flee or die: That is reducing the nutrients that are getting into the Gulf of Mexico. And yet there have been no significant reductions reaching the Gulf. There are tools to do this, including developing nutrient criteria; requiring sewage treatment facilities and other industries to have stringent nitrogen and phosphorus limits; and, of course, adequately incentivizing nutrient-removing BMPs on farmland throughout the basin.

All of these methods of reducing dead zone-causing nutrients are feasible in the relatively short term, but only if they are made a priority. For example, in the recent memo from Mr. Grumbles that's in the packet, in the first paragraph he states, "Now is the time for EPA and its partners to take bold steps." One of these steps is for states and EPA to set a deadline for numeric criteria and then adamantly enforce these criteria both in point and nonpoint sources. I know there has been a lot of talk about voluntary measures being adequate, but without the implicit threat of "If you don't do these voluntary things, we are going to come in, and here's the date that we're going to come in," you don't have any teeth. It was mentioned before that these BMPs were put in the forestry industry. (I think it was Mr. Moore.) They were put there because of the implicit threat that if they were not done, the government was going to go in and make them do it. Even before these nutrient criteria are set, wastewater treatment plants and other industries can cost-effectively reduce the amounts of phosphorus they are spewing into our nation's waters.

In a report put out by EPA Region 10 recently, it was stated that installing tertiary treatment to remove phosphorus is extremely effective and affordable for most municipalities. This would be a great step and a good way to show that we are taking this seriously and taking the steps to reduce the nutrients that are causing the dead zone.

And, of course, we have to address fertilizer runoff from agriculture. This Task Force and the states and agencies represented must demand significant funding to implement BMPs that demonstrate nutrient runoff reduction. That was brought up just recently, but from what I understand, we put in a budget right at the beginning and OMB kicked it back and said, "No, we're not going to do that. Give us something else." Nothing else has happened.

Now is the time, with the Farm Bill and others, with a receptive legislature, to get in there and demand that this is a priority, that this affects not only the Gulf of Mexico but also the entire nation. It's for the sake of our fisheries that we need to get out there and make sure we reduce these nutrients for the best of our nation, and it is a national priority. And look—we have how many states' worth of drainage? Forty-one percent of the United States. That's what it is.

We have all the Gulf of Mexico Alliance and we have this entire Task Force. We could be a force to be reckoned with if we would band together, state our needs, and then show the good stuff that we can do with adequate funding.

Finally, I'd like to address the interest that environmental groups and citizens have in this area about the dead zone. About a year and a half ago I was at one of the science meetings held here in Louisiana about the dead zone, and somebody came up to me and asked me why environmental groups didn't have an interest in the dead zone anymore. The basis of the inquiry was, "You guys aren't showing up at the Task Force meetings anymore." Well, this is Task Force meeting number 14, and as I said at the beginning of my comments, we have not seen significant reductions and movement past forming committees and reassessing the science to reducing the size of the dead zone. Frankly, we the environmental groups are extremely frustrated. We feel like this has not been a significant use of our time. We have a lot of other things to do, and coming to these meetings just hasn't been on the top of our priority list. Not because the dead zone isn't a priority (because we definitely feel it is), but we have felt that we can talk to individual states and take different avenues to get this nutrient reduction done rather than going through the Task Force, which should be the mechanism for getting significant change to the size of the dead zone. I would appreciate that this trend doesn't continue and that we again have a reason to come to these meetings. Even though we're often naysayers, we would love to applaud you and say, "Look at this great work that is being done!" Because we all have the same goal, or I hope that we all have the same goal—reducing the size of the dead zone and making sure that we have a productive fishery out in the Gulf of Mexico. The Gulf fisheries are reaching a tipping point, and we're going to lose that fishery relatively quickly if we don't do something about it soon.

In conclusion, I urge the Task Force and all the agencies and states represented, as well as all of the citizens in the audience, to demand action. This includes implementing as many nutrient strategies as we can as quickly as we can, but also asking the White House and Congress for the funding that the urgent and immediate problem deserves. According to the Science Advisory Board report, it isn't too late to reverse the growth of the size of the dead zone, which is great news. But the most important thing is that we don't wait until it is too late. Thank you for your time, and I will give you a copy of my written comments as well.

Benjamin Grumbles: Thanks, Matt. Next is Ms. Ann Marie Hess of Tulane University.

Ann Marie Hess: Thank you very much for the opportunity to speak today. My name is Ann Marie Hess, and I'm going to be a sophomore at Tulane. I'm from St. Louis, Missouri, and although I am from the Midwest, I spent nearly every summer of my childhood on the Gulf Coast and I always looked forward to going with my parents to Jill Patty's seafood market in Pensacola. We would buy fresh seafood right off the boats that would dock behind the counter of the market. That seafood made for some of the greatest and most memorable meals of my childhood. However, such fond memories may not be possible for people in the future if something concrete is not accomplished to reduce the size of the dead zone.

Although I now consider New Orleans home, I was born and raised in St. Louis. I have seen the pollution of the Mississippi River from both perspectives, but I don't feel that enough people in the Midwest are educated about what is happening in the Gulf as a result of the agriculture industry in the Midwest or that the federal government has done enough to reduce the dead zone. This is a huge environmental problem for Louisiana and Texas, but it should be recognized at a national level. I am disappointed that after seven years the Hypoxia Task Force has not made

much progress in diminishing the dead zone. I'm hopeful that in the coming years the Louisiana Gulf Coast will still be able to benefit from the resources of the Gulf.

I would like to urge the governments of Louisiana and the other Gulf states to demand of the federal government that programs and policies be created to monitor and decrease the nutrients along the Mississippi River Basin. Thanks again.

Benjamin Grumbles: Thank you. Next is Andrew Barron, with the Barataria-Terrebonne National Estuary Program.

Andrew Barron: Good morning. Thank you for this opportunity. I really appreciate being able to give a public comment, and it's nice that you all allow that. My name is Andrew Barron and I'm with the Barataria-Terrebonne National Estuary Program. We're the only National Estuary Program here in Louisiana. We do get federal funds through EPA, section 320 of the Clean Water Act, and have a state match for our program as well.

What I wanted to present here is a resolution that was passed by our management conference this January. It was a reaffirmation of an earlier resolution that was passed back in 2001. Of course, I'm not going to read the whole thing. There is a letter here that is addressed to Senator David Vitter, who is part of our delegation. This letter was sent out with the resolution with all of our delegation, basically stating that we support the *Action Plan* of the Gulf Hypoxia Task Force that was presented a while back.

One of the big concerns, of course, is that this *Action Plan* hasn't really been funded or supported at the national level. They're also very concerned about the increase in support for alcohol fuels, ethanol production up in the Midwest, and what kind of impact that's going to have on our fisheries down here. Now just to give you a bit of a personal perspective on that, I'm a Cajun. Both of my parents are native French-speaking Cajuns. Their first language was French, here in Louisiana, and many of my relatives depended on our local seafood economy here in this part of the world for their livelihood and their culture. We have a huge number of problems here in our system. And just to give you an idea where our system is as far as our National Estuary Program system, it's all of the land between the Mississippi and the Atchafalaya rivers. So it's the historic and prehistoric delta that was built by the Mississippi River. We have a number of problems.

We developed a CCMP between 1990 and 1996 that was based on seven priority problems. Most of those priority problems are water quality-related issues. Our biggest problem, or course, is land loss, which you all are probably familiar with. And just to name a few other ones, sea level rise related to climate change, seafood imports from outside the country, and the hurricane of 2005 had severe impacts. All are having severe impacts on our local economy and on our system. We're really concerned that hypoxia is basically going to be the end of our ability to produce seafood down here.

We have great concern about all of these issues, so we urge that this *Action Plan* be funded and supported at the national level. So once again, I appreciate your allowing me to give these comments.

Benjamin Grumbles: Thank you, Andrew. Next is Jeff Rester, Gulf States Marine Fisheries Commission.

Jeff Rester: Thank you. Hi, I'm Jeff Rester. I work at the Gulf States Marine Fisheries Commission. The Commission is an organization of the five states whose coastal waters are the Gulf of Mexico, and it was established in 1949 by state statutes and authorized under Public Law 81-66.

The Commission feels that the seasonal Hypoxic Zone in the Gulf of Mexico continues to be a serious problem of national proportion that threatens the most productive fisheries area in the lower 48 states. The Commission has long supported action to reduce the Hypoxic Zone and its impact on marine fisheries. But the Commission feels that not enough is being done to address the causes of hypoxia. Consequently, fisheries in the Gulf of Mexico continue to suffer. The Commission urges that the *Action Plan* not be weakened and urges the Task Force to take the opportunity to establish and actively pursue effective strategies to deal with the hypoxia problem.

The Northern Gulf of Mexico supports commercial and recreational fisheries that generate over $2 billion annually. These fisheries are directly impacted by hypoxia. Fishery resources are affected by direct mortality, forced migration, reduction in suitable habitat, increased susceptibility to predation, changes in food resources, and disruption of their life cycle. Commercial and recreation fishermen are also affected. Fishermen must traverse the Hypoxic Zone to reach suitable fishing grounds, and they incur increased operating costs due to increased fuel expenditures and travel times. While estimates of lost fisheries production and financial losses to commercial and recreational fisheries remain elusive, they are very real. During the Task Force reassessment of the *Action Plan*, please remember that the fisheries in the Gulf of Mexico generate billions of dollars annually for the nation. The Commission recommends that increased emphasis be given by federal land and water management agencies, states, and tribes to fund implementation of practices that reduce nutrients in streams within the Mississippi River Basin, including the downstream effects of nutrient pollution on the water quality of coastal receiving waters.

Practices that could lower nutrient loading include reductions in fertilizer and manure applications, timing of fertilizer applications, improving of fertilizer application technology, reduction of artificial drainage and improved drainage and irrigation technology, changes in cropping practices, returning the Mississippi River to a more natural delta, and promotion of wetland conservation and restoration.

Commercial and recreational fishermen in the Gulf of Mexico have been patient. They expect effective actions to address this national problem in an endangered, critical American resource. It is past time to enlarge the scale of funding to proven projects in order to start seeing signs of these successes in the Gulf of Mexico. That should be the outcome of the reassessment of the *Action Plan* and future funding requests, and the Commission appreciates the opportunity to provide these comments.

Benjamin Grumbles: Thank you.

Charles Hartke: I have a question. You stated that hypoxia was a problem for your industry, the climate change that's taking place, the hurricanes, foreign competition. Where would you rate hypoxia in all of the various things that affect your business?

Jeff Rester: That's something I couldn't give a good answer on—which straw broke the camel's back. It's one of those issues that is of concern to fishermen, both commercial and recreational, and it's just one of the many issues that they have to deal with.

Benjamin Grumbles: Thanks, Jeff. Next we have Tracy Kuhns, Louisiana Bayou Keeper.

Tracy Kuhns: I'm Tracy Kuhns with Louisiana Bayou Keeper. Our organization is made up of commercial fishermen, recreational fishermen, charter captains, folks in tourism, and folks working on wetlands protections and coastal restoration issues in the Barataria Basin.

I first heard from a commercial fisherman about the dead zone 13 years ago, when he asked me why so much money, effort, and time is being put into protecting some turtles when there's a giant dead zone in the Gulf of Mexico. This was the first time I'd heard of it. I never spent any time in the Gulf of Mexico. Since that time, we've continued to go on back and forth about the fisheries, who can have what, what we're going to allot to whom, what we need to do to protect the fisheries. Our economy in that basin is totally dependent on the natural resources—whether it is commercial fishing, recreational fishing, charter fishing, or for sustenance, because the people in our community rely on that resource for food. We put a lot of seafood up. We eat what we catch.

As the years have gone by, we see nothing happening; we only hear talk about it. We hear that we're doing studies. It's just going on and on and on and on, and nothing seems to be happening. We need a diversion; we need that freshwater and that sediment from the Mississippi River into our delta to bring it back, to restore it. Without that, we won't have a fishery and we won't have anything to fight over anymore. We need to have that; we do not need those nutrients.

We have seen, first-hand, algae blooms in the pan and in our basin from diversion projects. We don't need pollutants, herbicides and pesticides that are pumped down that everybody sprays. The State of Louisiana sprays pesticides and herbicides on our ditches and it pumps into our estuary. We have got to start controlling both point source and nonpoint source pollution. If we don't do that, our fisheries are going to collapse. While we keep talking about who gets what out there, it's going to collapse and then what are we going to say? "Oh, the collapse was caused from overfishing"? We are polluting our waters. Without clean water, we will not have healthy habitat. Without healthy habitat, we will not have edible seafood. Without edible seafood, we will not have sustainable coastal communities. The developers will have it. We will not have a wetland left.

Now, I'm not a scientist and I can't make all those arguments. I'm just a mother of five and a grandmother of 15, and I want that resource there available for my children and for my grandchildren in whatever form they want to utilize it in a sustainable manner. And I would like to know what the financial cost of not doing anything about this will be to our fishing communities. Thank you.

Benjamin Grumbles: Tracy, thank you for your comments. I've got two folks left who have signed up. One of them is Bill Walker; the other one is Jeff Grimes. Which of you would like to go next? Jeff, why don't you? Jeff Grimes with the Gulf Restoration Network.

Jeff Grimes: I guess I get to follow that. Thanks for the opportunity to provide comments today. My name is Jeff Grimes. I'm Assistant Director of Water Resources for the Gulf Restoration Network. My organization has been tracking the progress, or lack thereof, of addressing the dead zone problem for a number of years. We're excited that the Science Advisory Board report is near completion but are also deeply concerned about what actual progress is occurring on the ground to address the dead zone problem—particularly in the past two years as the reassessment process has occurred. We saw a really good definition of adaptive management that I liked today that said, "Adaptive management isn't just postponing actions until enough is known," and that is what I fear has happened during this Science Advisory Board process. Action has, in fact, been postponed.

At some point, if nothing changes and the dead zone continues to grow, we may cross a threshold where the Gulf ecosystem has forever been altered. We've seen cases in other parts of the world where fisheries have collapsed due to dead zones. It's my hope that we won't have to witness a collapse here with the Gulf of Mexico fishery and the $2.8 billion estimated to be associated with that fishery. But I do fear that we may not avert this crisis if inaction continues. In 2001 the Task Force produced an action plan for reducing the dead zone in the Gulf of Mexico. It's more than 6 years later, and few of the modest recommendations in that report have been implemented. I truly hope that the past record of performance is going to change. But I am also troubled by some of the things I see.

At the state and national levels, nutrient criteria development has continued to lag behind schedule. Numeric nutrient water quality standards are critical to assessing nutrient levels in waterbodies and in watershed protection management. Little nutrient reduction has occurred over the past few years in part because there continue to be no standards for what acceptable levels of nutrients are. EPA has recently sent out a memo to states urging them to take bold steps to develop numeric nutrient criteria. We're very supportive of that position and the development of criteria. However, what concerns us is that there is no deadline associated with when these criteria have to be developed.

Just to give a history, the deadline used to be 2003, then it was 2004, and now in fact there is no deadline. We fear that without a strong push to develop these nutrient standards, they're going to be put off and put off while the dead zone problem grows worse. Another recent action that doesn't give me a lot of hope is the removal of the Mississippi River from the impaired waters list in the state of Mississippi. While we're here today to discuss a problem caused by excessive nutrients in the Mississippi River, EPA just recently approved the removal of the Mississippi River for nutrients in the state of Mississippi. And I might add that in the state of Louisiana it has never been listed as being impaired for nutrients. I'm not sure why.

I think the biggest problem we have here is the lack of funding. There's really never been any significant funding for the dead zone action plan. I don't understand how the current Administration can say that it's important to reduce the dead zone while at the same time not

putting forth any funding in the White House budget. I do think it is time for this Task Force to come together and make a strong request to fund an action plan. It's long overdue.

Finally, I'll conclude by saying the case of the dead zone, to me, represents another incidence of Louisiana and the Gulf of Mexico paying the price for the nation's demands. The nation's need for energy is partially responsible for the demise of coastal wetlands here in Louisiana due to the numerous canals that have been dredged through our wetlands. Now we're paying the price for subsidized corn. With the subsidies for ethanol production and no funding to reduce the dead zone, a tacit decision has been made to write off the Gulf fishery and the many people that rely on it for their livelihoods, and I think that's unacceptable. If we're going to subsidize ethanol, we need to spend money to try to reduce nutrients. Action to reduce the dead zone is long overdue. There are plenty of technical solutions, and I hope the Task Force will take action. Thank you.

Task Force Closing Comments

Benjamin Grumbles: Thank you, Jeff. Dr. Walker? No comments? At this point, I think the appropriate thing to do would be to turn to Task Force members and ask if any of you would like to make some closing comments. I think it would be great if anybody had any observations or thoughts on that. Bill?

Bill Walker: Do we need to briefly talk about some of the action items that have come up today?

Benjamin Grumbles: That would be good. Darrell, if you want to briefly summarize some of the action items and then we'll have other comments from Task Force members.

Darrell Brown (U.S. Environmental Protection Agency): Thanks, Ben. This has been a meeting where there has been more reporting out than action taking place, but I think it's been a worthwhile meeting to hear comments on the SAB process. That was the main purpose of this meeting.

In terms of the draft SAB report, I think that we can conclude that the Task Force values the work that the panel has put into it and recognizes the huge effort that went into producing that report. On the whole, I think that what I heard was that the panel has met most of the charge questions that we proposed to the panel itself. However, there were some points of some clarification, of some amplification, and there were a couple points in particular where there was some opposition or just puzzlement as to some of the statements there. We will be working this afternoon and tonight to prepare the statement for Mr. Grumbles to present tomorrow at that meeting.

In terms of the SPARROW model, that was again more informational, but there is an action item there in that there was some interest expressed on the part of having a more active involvement in some of the data collection and some of the peer review of that work. And there's also a Webcast of that coming up on June 29, I believe it is, so it's an action item for the Task Force members there.

In terms of regulatory coordination, the Corps reported that they had convened a team and were looking at some of the issues specific to the state of Iowa and the Iowa CREP issue. It looks like there has been some resolution to that. There is some concern about the larger impact within the basin for those types of activities, but the Corps is going to be completing a "lesson's learned"-type document there.

In terms of the Gulf Alliance, a nice, comprehensive explanation was given. But there was also an explicit request made to the Task Force to be represented at their July Gulf Alliance meeting in St. Petersburg, so we'll get more information on that.

Finally, in terms of resolutions, we will continue our dialogue on the use of resolutions as a means of stating some of our policies, goals, and positions on that. We do need to develop an explicit listing of process there. That's my summary of some of the action items that I heard coming out of this meeting.

Benjamin Grumbles: Chuck, or anybody else who wants to offer any comments or observations? That's a good summary. I, too, heard that there are areas where the Science Advisory Board is embellishing or adding some additional policy-based recommendations. We'll need to look carefully at that and be talking about that. I think everyone would agree that there has been a significant amount of work put into and effort by a panel of 22 experts on the issue. There is a lot of work that can benefit our efforts and, most important, the goal of reducing the Hypoxic Zone in the Gulf.

I just want to say a few words. I want to thank all of you who are here and who have been here this morning. Particular thanks to the public, whether you're with an organization or not with an organization. Having public insight and comment on this is very helpful. I truly want to say to those that travel great distances and put time and effort into this, whether it's a state budget or an NGO budget, it is helpful and it is important.

The last thing is in terms of next steps. I think every one of us who is engaged in this effort, or has been for years, understands that it's all about environmental results. That process is important and collaboration is important. So far, we haven't been getting the environmental results that we would like. Or at least the pace needs to be accelerated in making more progress and striving for the success that is part of that *Action Plan*. I want to say that whether it's federal budgets or state budgets, there are time and effort and resources going into this important endeavor. The Task Force has had four scientific symposia. We've held various meetings. We have been issuing reports. We've been drawing attention to the issue. That in and of itself is important, but not important enough if it doesn't lead to further action. I, as the Chair of the Task Force, am seeing important actions. Not enough, and not quickly enough, but we are seeing, whether it's leadership in certain states or leadership in USDA or EPA, that there are important steps being taken. We need to collaborate more and have more innovative approaches. I can tell you that one of EPA's highest priorities in being part of this Task Force is to emphasize the importance of targeting. That is why the SPARROW model is such a significant component of that, to really focus in on areas through collaboration or regulation or enforcement—locally led efforts or other types of collaborative efforts—to make a real difference.

The other focus is on the science of criteria, nutrient criteria. That's not going to be a federal mandate. It needs to be science-based, and the way the Clean Water Act is currently written, it needs to be a state-led action. I'm here to say that EPA wants to make it a priority, certainly for purposes of progress in the Gulf, but also in other areas of the country. That's what led to the national memo of the focus on a nutrient strategy to reduce problems from nutrient pollution. We have a lot of work cut out for us. We are looking forward to benefiting from the further scientific thought from the SAB. This discussion, the dialogue that we have been having this morning and that we will continue to have today and down the road, will benefit as we work with the SAB to get the best science and continue to reassess in the spirit of adaptive management—to make concrete progress while we're also monitoring and revising our goals and our objectives.

Unless there are further comments from the Task Force members, I want to say on behalf of the Task Force, thanks to all of you who've been part of this discussion and all of the work and actions and projects that have occurred and those that will occur in the future. Thanks very much.

David Vigh: Do we want to mention the next Task Force meeting, where and when? Do we have a feel for that?

Benjamin Grumbles: The question is about the next Task Force meeting. Darrell, do you have any comments?

Darrell Brown: The schedule that we've set out lists one for September, probably up in the Upper Basin area. We are kind of rotating back and forth. But that's an item that we have to discuss this afternoon in terms of the schedule and the exact dates for those meetings.

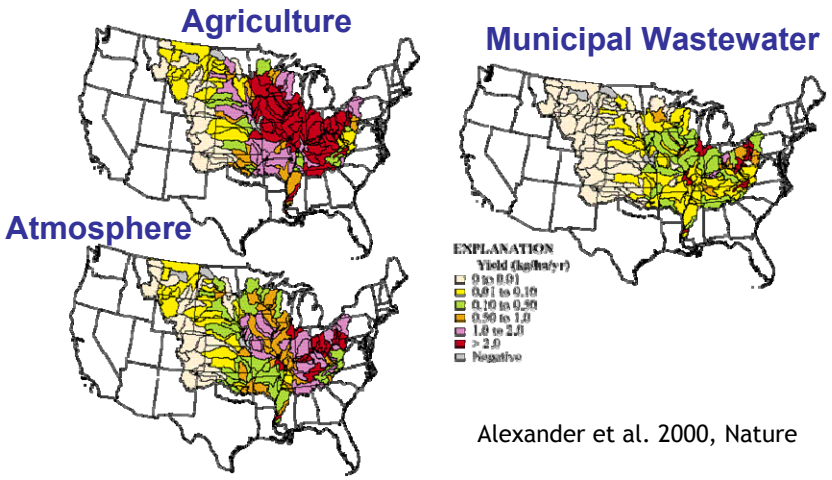
David Vigh: Okay. I also have a thought just rumbling around in my head. I'm kind of hung up on models and modeling. All the members of the Task Force try to contribute to this effort, either through funding, direct funding, or in-kind services and that type of thing. Thinking about the modeling and all the recommendations in the draft report about more modeling, in Vicksburg at our ERDC (Engineering Resource and Design Center), we've got a couple of Cray computers lying around. If it's at all possible, if the people working on modeling might need the power of a Cray or a couple Crays to put a couple of these models together to make it a more powerful tool, we would certainly entertain looking at that possibility. Don't hesitate to contact us. Those things run at a terabyte a second. A terabyte is so big I don't even know what it is. It's a lot of power, and I do offer that as a possible support to the effort.

Benjamin Grumbles: Thanks. Any other comments or questions? I do want to emphasize to those of you who are kind enough to work on written comments, if you can, leave those, if you haven't already done so, at the table outside the front. That would be very much appreciated by all of us. I'm prepared to say that this concludes the Task Force meeting, the 14th Task Force Meeting of the Mississippi River Basin and Gulf of Mexico Watershed Nutrient Task Force.

Attachment A

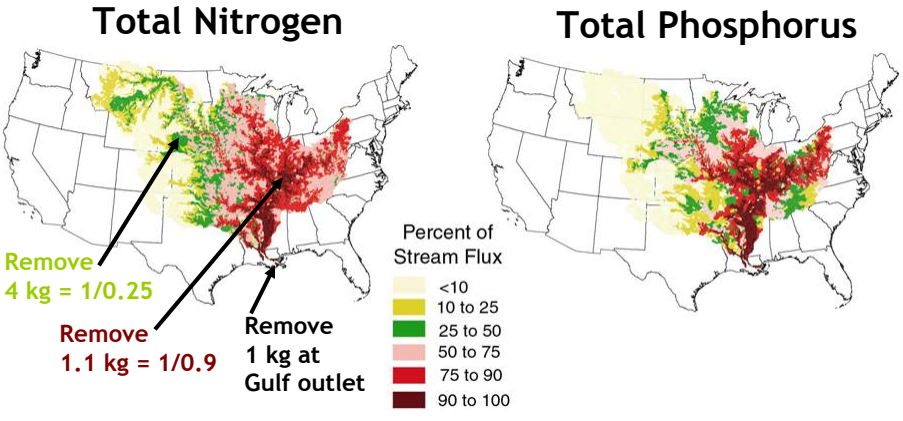
Earlier SPARROW Results

Total Nitrogen Delivery to the Gulf of Mexico

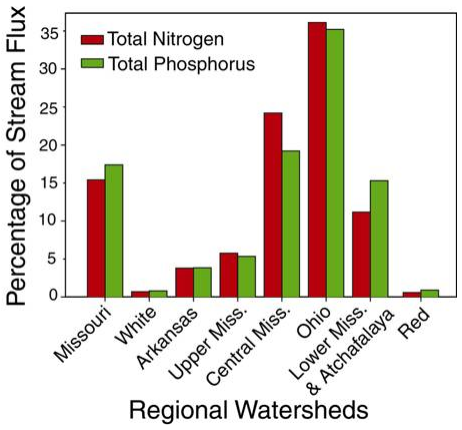


Alexander et al. 2000, Nature

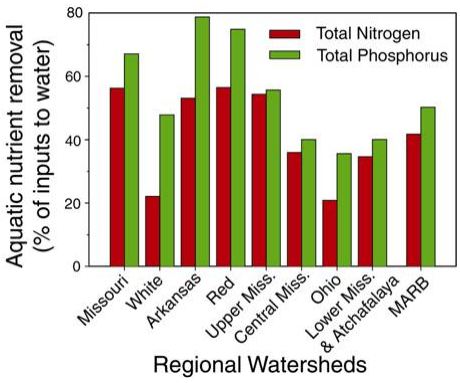
Percentage of Stream Nutrients Delivered to the Gulf of Mexico



Regional Contributions to the Stream Nutrient Flux to the Gulf of Mexico

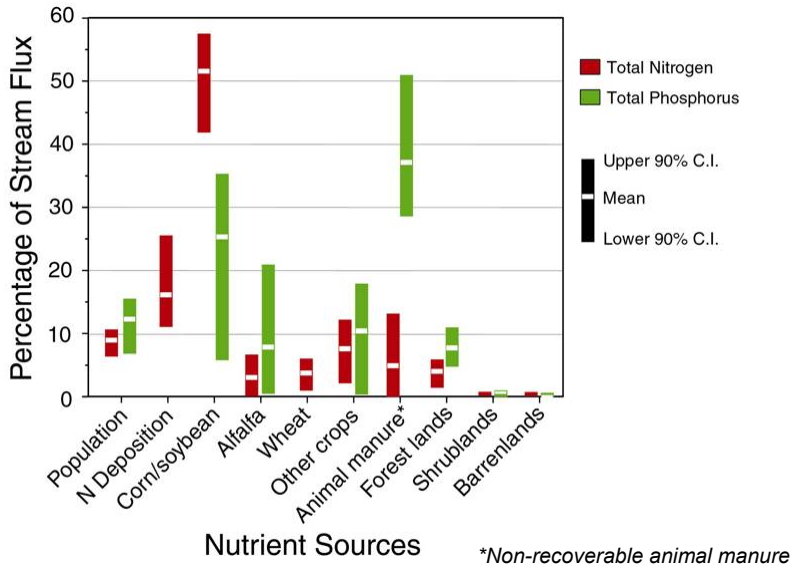


Aquatic Removal of Nutrients in MARB Regional Watersheds

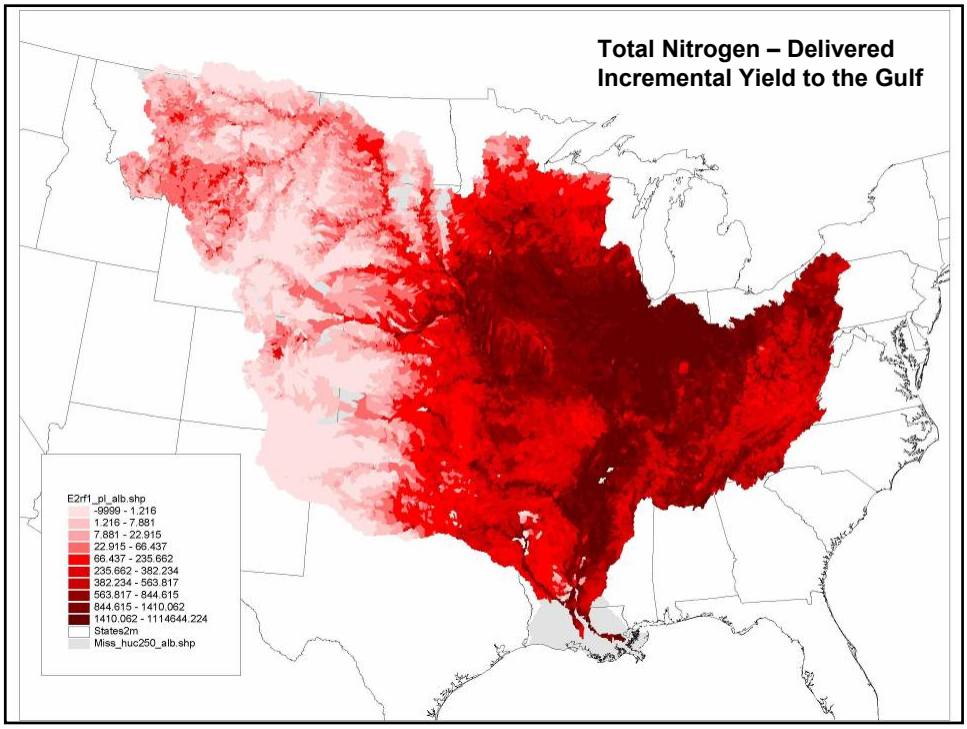


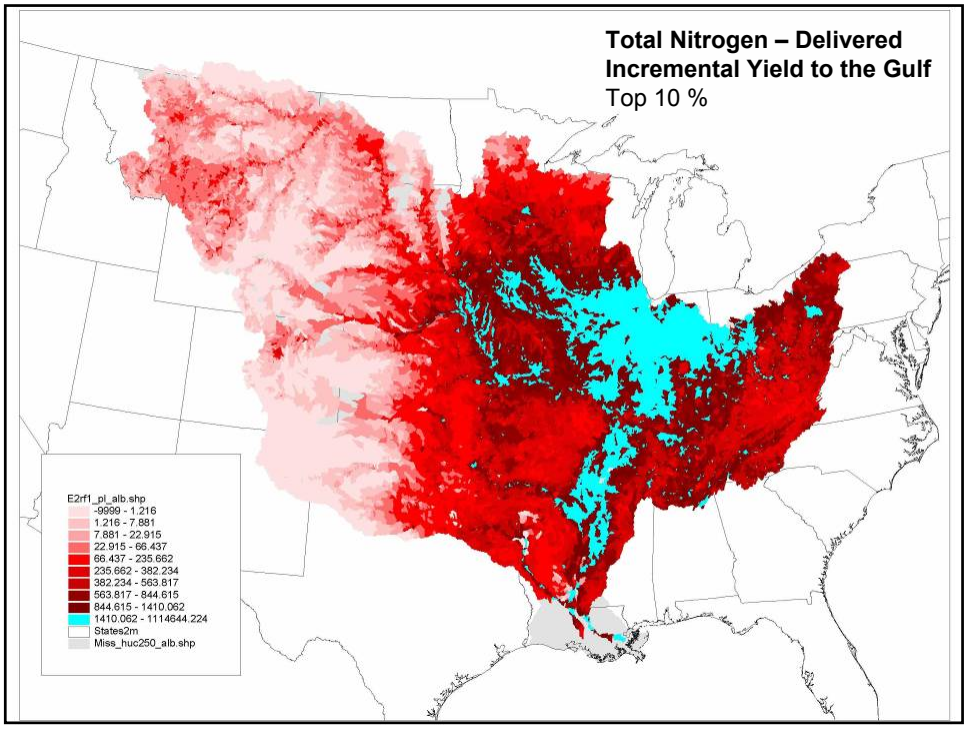
Sources Contributions to Stream Nutrient Flux

Mississippi River at St. Francisville, LA



*Non-recoverable animal manure




Total Nitrogen – Delivered Incremental Yield to the Gulf
Top 10 %
E2rf1_pl_alb.shp
-9999 - 1.216
1.216 - 7.881
7.881 - 22.915
22.915 - 66.437
66.437 - 235.662
235.662 - 382.234
382.234 - 563.817
563.817 - 844.615
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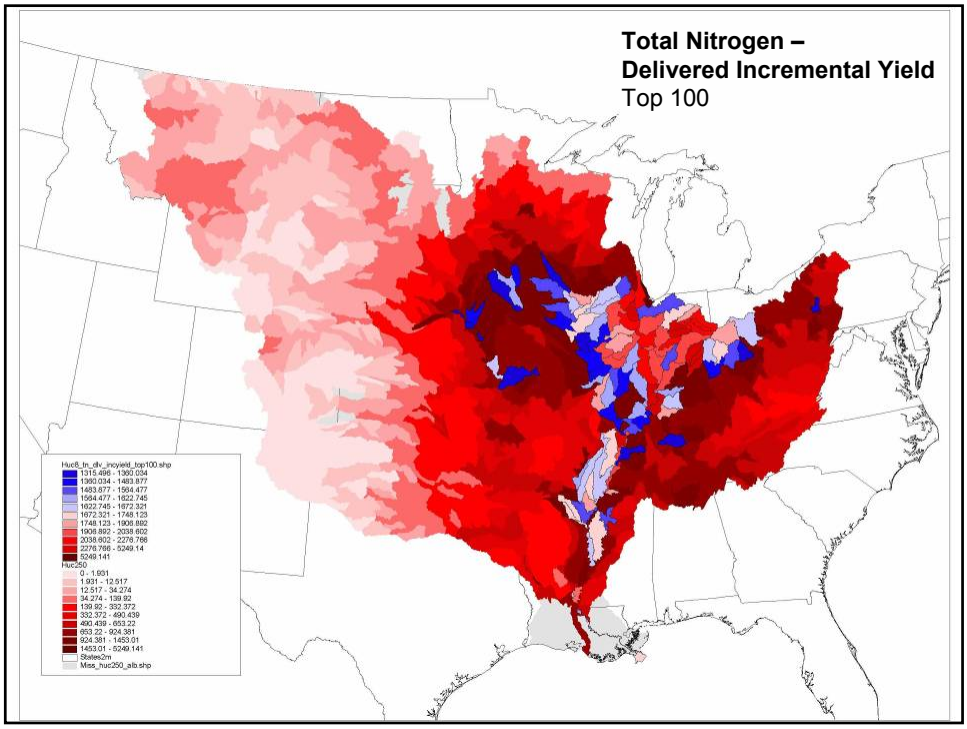
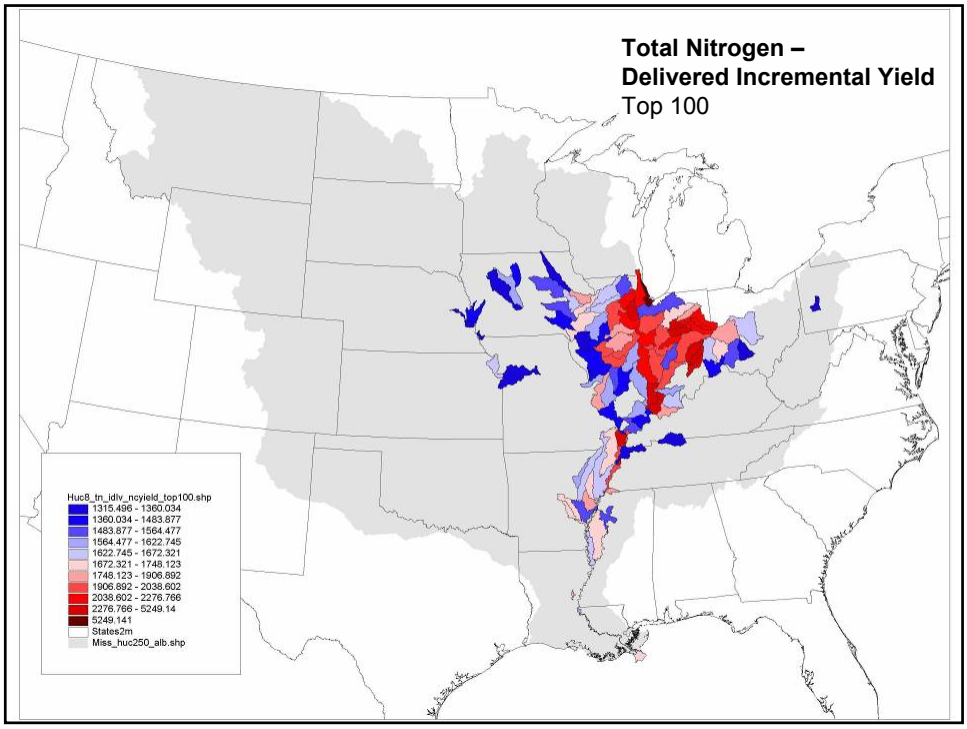
1410.062 - 1114644.224
States2m
Miss_huc250_alb.shp


Total Nitrogen –
Delivered Incremental Yield
Top 100
Huc8_tn_dlv_incyield_top100.shp
1315.496 - 1360.034
1360.034 - 1483.877
1483.877 - 1594.477
1594.477 - 1622.745
1622.745 - 1672.321
1672.321 - 1748.123
1748.123 - 1908.892
1908.892 - 2038.602
2038.602 - 2276.766
2276.766 - 5249.14
5249.141
Huc250
0 - 1.931
1.931 - 12.517
12.517 - 34.274
34.274 - 139.92
139.92 - 332.372
332.372 - 490.439
490.439 - 653.22
653.22 - 924.381
924.381 - 1453.01
1453.01 - 5249.141
States2m
Miss_huc250_alb.shp

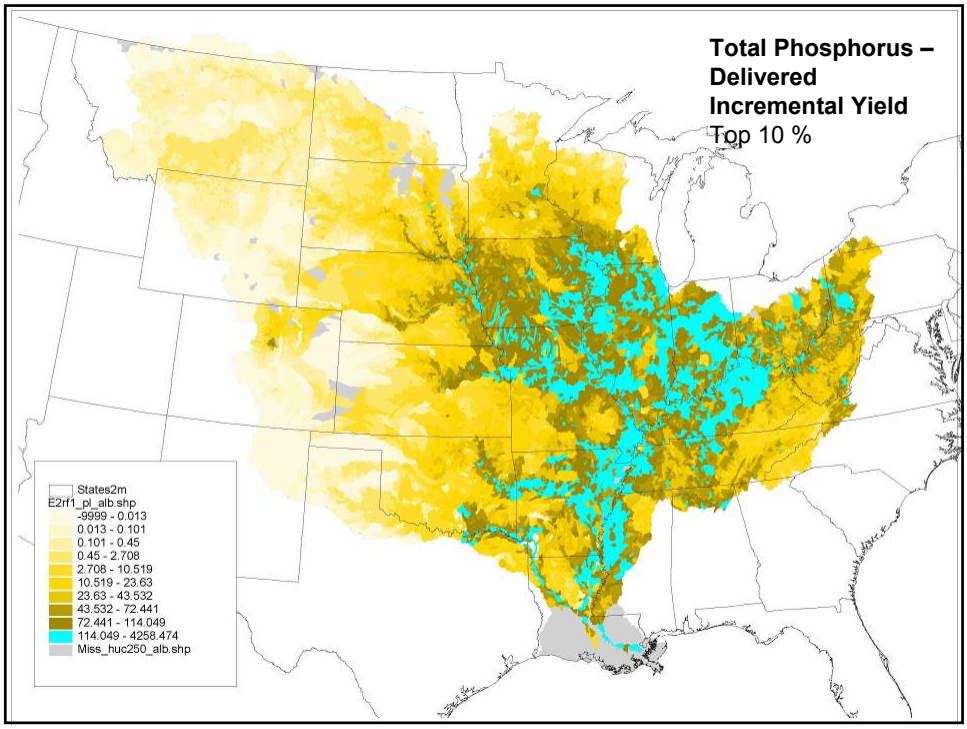


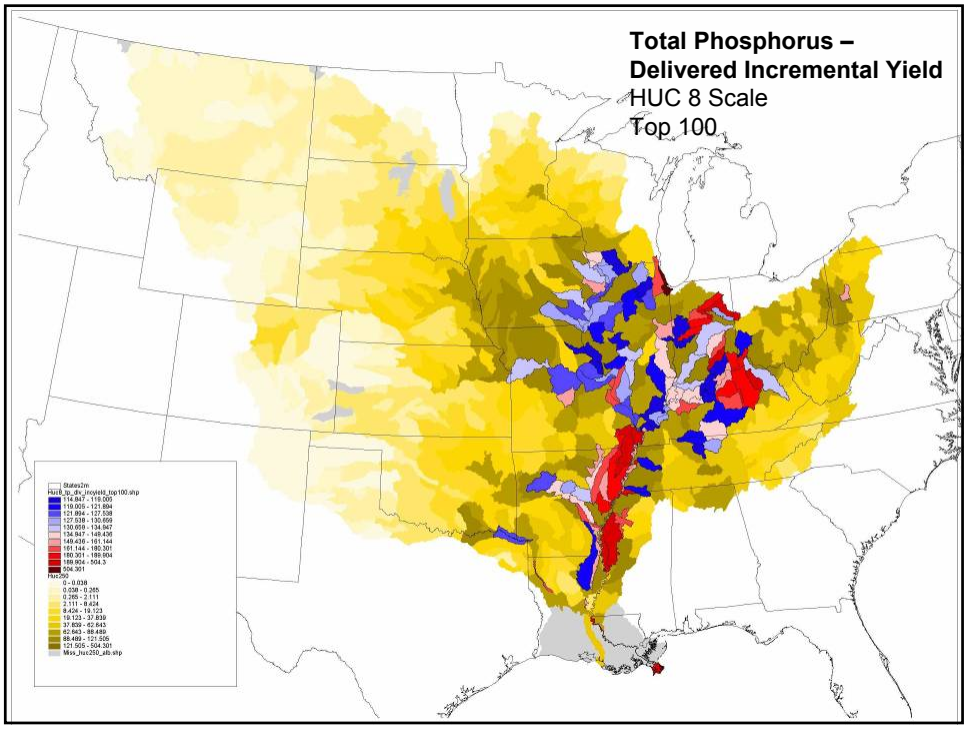
Ranked Top 100
HUC 8's

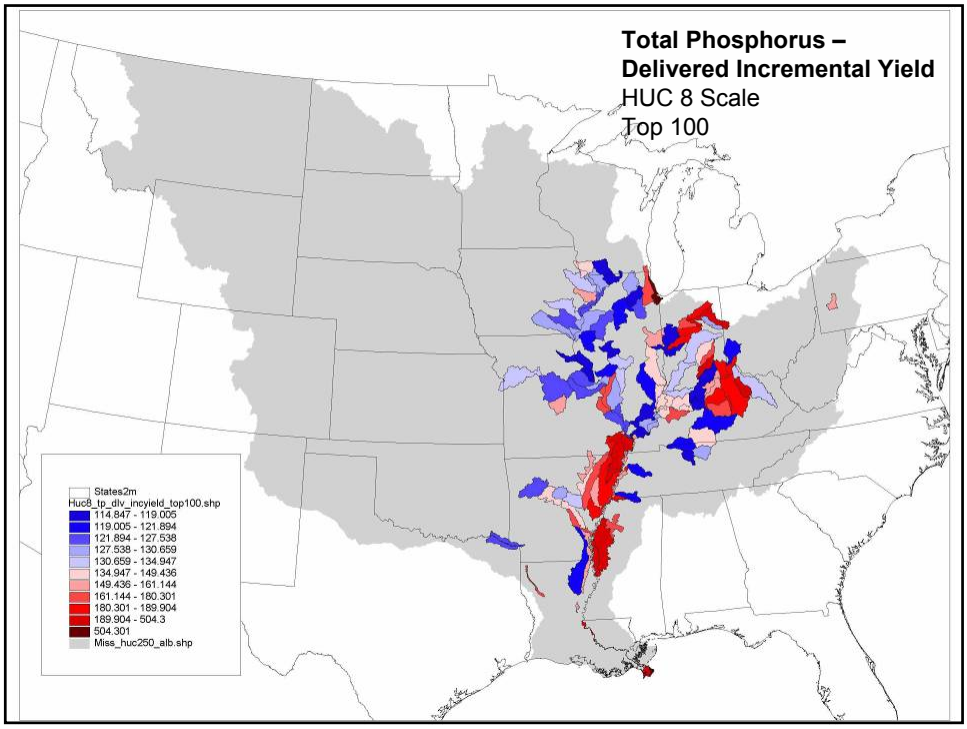
Total Nitrogen – Ranked based on total delivered incremental yield

Ranked
Top 10
HUC 8's

Rank	HUC	HUC NAME	STATES	Incremental Yield (kg/km2)
1	7120003	Chicago	IL IN	5,249
2	5120205	Flatrock-Haw	IN	2,861
3	5120113	Lower Wabash	IL IN KY	2,739
4	8020201	New Madrid-St. Johns	KY MO	2,690
5	5120107	Wildcat	IN	2,677
6	5120206	Upper East Fork White	IN	2,535
7	7120005	Upper Illinois	IL	2,348
8	5140202	Highland-Pigeon	IN KY	2,341
9	5120204	Driftwood	IN	2,335
10	5120105	Middle Wabash-Deer	IN	2,329


Total Phosphorus –
Delivered
Incremental Yield
Top 10 %
States2m
E2rf1_pl_alb.shp
-9999 - 0.013
0.013 - 0.101
0.101 - 0.45
0.45 - 2.708
2.708 - 10.519
10.519 - 23.63
23.63 - 43.532
43.532 - 72.441
72.441 - 114.049
114.049 - 4258.474
Miss_huc250_alb.shp


Total Phosphorus –
Delivered Incremental Yield
HUC 8 Scale
Top 100

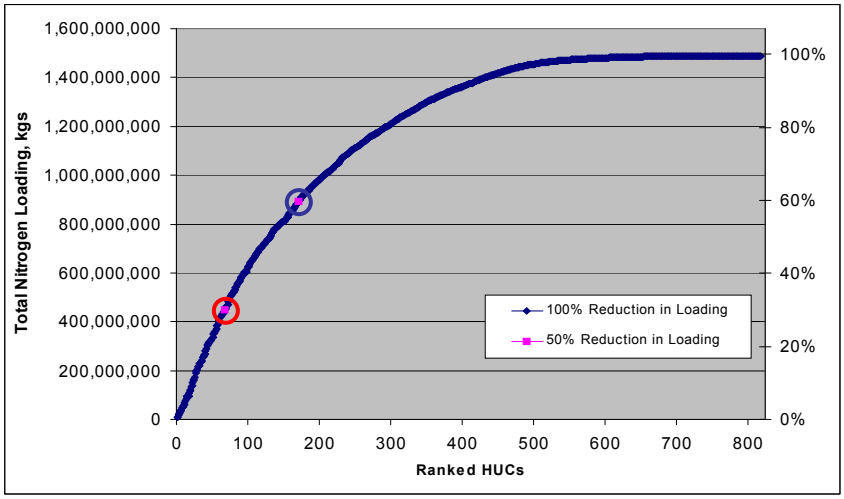


Ranked
Top 100
HUC 8's

Total Phosphorus – Ranked based on total delivered incremental yield

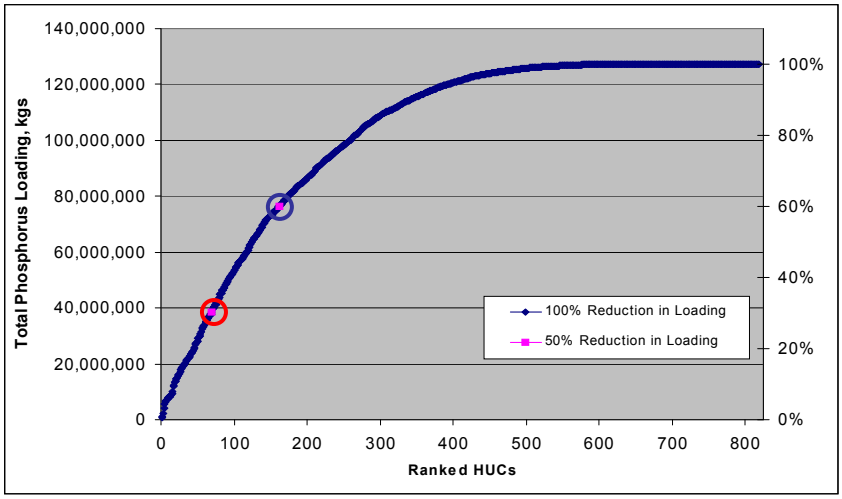
Ranked
Top 10
HUC 8's

Rank	HUC	HUC NAME	STATES	Delivered Incremental Yield (kg/km2)
1	7120003	Chicago	IL IN	504
2	8020201	Middle Kaskaskia	IL	317
3	5120101	Upper Wabash	IN OH	273
4	8020204	Lower Kaskaskia	IL	269
5	8030207	L'anguille	AR	251
6	8030209	Cache	AR MO	245
7	5100102	Lower Great Miami	IN OH	223
8	5120206	Lower White	IN	200
9	8070100	Bayou Meto	AR	198
10	8090100	Tallahatchie	MS	196



To Obtain a 30% Reduction in the Total Nitrogen Load

- With a 100% Removal in TN Load, it would require the top 68 HUCs
- With a 50% Removal in TN Load, it would require the top 171 HUCs



To Obtain a 30% Reduction in the Total Phosphorus Load

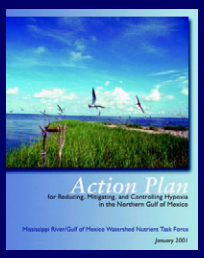
- With a 100% Removal in TP Load, it would require the top 70 HUCs
- With a 50% Removal in TP Load, it would require the top 162 HUCs

Attachment B

EPA SAB Hypoxia Advisory Panel Draft Report Summary

Presented to the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force

by Dr. Rick Greene, EPA
June 12, 2007



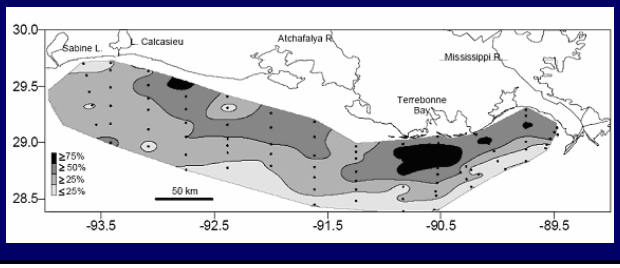
The SAB Charge

- The SAB was asked to address the state of the science of hypoxia as well as the scientific basis for mitigating hypoxia through management options
- SAB was asked to focus on scientific advancements since 2000 relating to 3 general areas:
- SAB Report URL -
  - Characterization of the Causes of Hypoxia
  - Characterization of Nutrient Fate, Transport and Sources
  - Scientific Basis for Goals and Management Options

➢ SAB report URL - http://www.epa.gov/sab/pdf/5-24-07_hap_draft.pdf

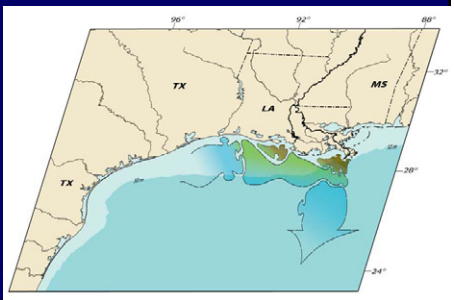
Characterization of Hypoxia

- Paleo record of dated sediment cores – evidence for increased hypoxia in recent decades, concomitant with increased nutrient loading
- Spatial distribution of dated sediment cores is limited & insufficient to determine if areal extent of hypoxia has increased over time



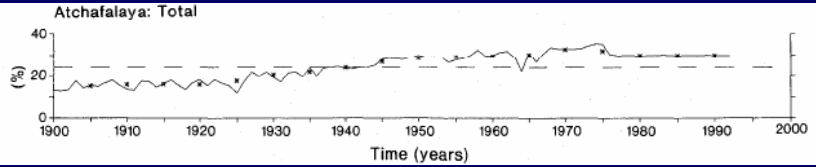
Importance of Processes in the Formation of Hypoxia

- Physical & biogeochemical processes link & control hypoxia in 3 ‘zones’.
- Hydrologic alterations –
  - influences salinity, vertical mixing & stratification
  - likely increased the bottom area hypoxia
- Changes in shelf circulation, stratification & vertical mixing during 20th century cannot be determined



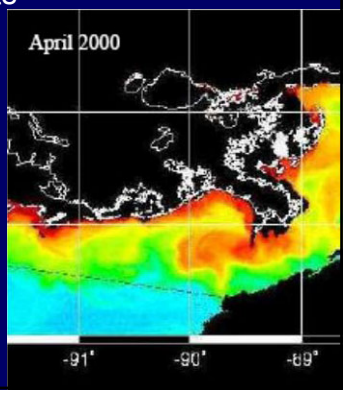
Importance of Processes in the Formation of Hypoxia

- Management of freshwater discharge may influence strength of stratification & thus hypoxia
- The *HAP recommends* that future management plans for Mississippi and Atchafalaya River diversions consider the effects of such diversions on Gulf hypoxia



Importance of Processes in the Formation of Hypoxia

- N limitation of production in offshore waters during summer
- P limitation of production in inshore river plume waters during spring, largely due to excessive N inputs
- Relative contribution of inshore P-limited vs. offshore N-limited production in fueling hypoxia
- Riverine nutrients support levels of production capable of creating observed hypoxic conditions

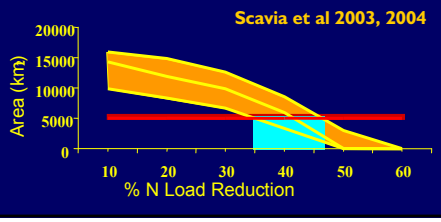


Importance of Processes in the Formation of Hypoxia

- N loading from MARB drives timing and extent of hypoxia
- P loads significant in primary production, and common cause of WQ impairments in rivers and streams
- Restoration plans that focus on N alone
  - may not rapidly improve WQ in the Basin
  - may not provide the desired reduction in the hypoxic zone
- HAP recommends dual N & P reduction strategy be implemented
- Possibility of regime shift shown in patterns of hypoxia, not yet in biological variables

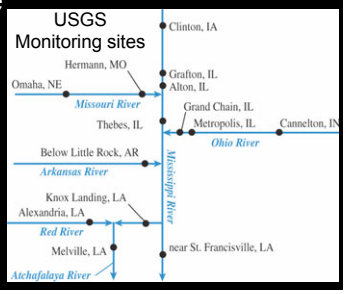
Characterizing the Onset, Volume, Extent and Duration of Hypoxia

- Models can explain 45-55% of the variation in hypoxic zone area & length
- Model development, calibration & verification – hampered by lack of data on key physical & biogeochemical processes
- No single best modeling approach can be identified – managing Gulf hypoxia is best served by having multiple models with multiple outputs



Nutrient Fate, Transport and Sources – Flow and Flux

- Fewer rivers and streams are currently monitored
- USGS improved nutrient flux estimates
- Annual MARB freshwater discharge increased slightly
- Annual nitrate flux increased from 1960s to 1990s, but decreased slightly since the mid-1990s.
- Spring freshwater discharge and nitrate flux show slightly decreasing trends since the 1980s.

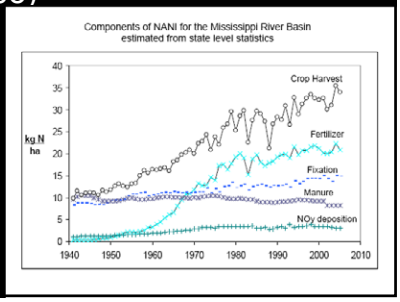


Nutrient Fate, Transport and Sources – Sub basin fluxes

- Upper MSR and Ohio-TN sub-basins account for the 84% nitrate-N and 64% total P flux to Gulf
- Tile-drained, corn-soybean landscapes very N leaky
- *The HAP recommends* targeting the tile-drained Corn Belt region of the MARB for N and P reductions in both surface and sub-surface waters.

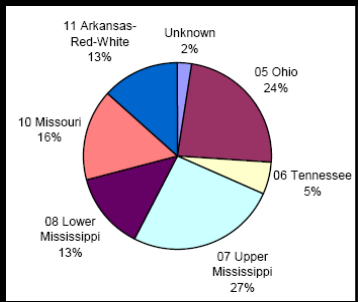
Nutrient Fate, Transport and Sources – Mass balance

- Nutrient mass balances recalculated since 2000
- NANI and net P inputs increased greatly from 1950s, but decreased in last decade
  - steady or reduced fertilizer applications and increased crop yields for N & P
- Non-point sources of N (1999-2005)
  - 54% fertilizer
  - 37% N_2 fixation
  - 9% atmospheric deposition
- Manure more significant source of P than N



Nutrient Fate, Transport and Sources – Mass balance

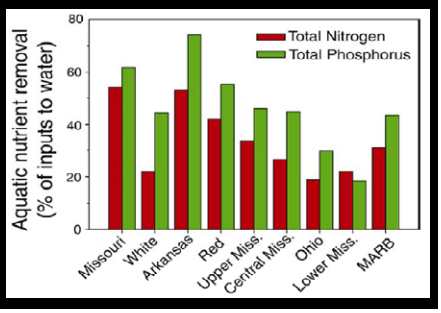
- New estimates of point source N & P
  - 22% of N flux (up from 11% reported in 2000)
  - 34% of P flux
- The *HAP recommends*
  - obtaining direct measures of N and P from point sources
  - using sub basin scale mass balances to target management strategies, focusing on the Upper Mississippi and Ohio River basins



TP point source flux as % of total flux

Nutrient Fate, Transport and Sources

- In-stream removal processes (from SPARROW model)
  - 20-55% of annual N inputs
  - 20-75% of annual P inputs
- Relative importance of denitrification
  - significant in during warn, low flow periods, but not significant during high flows in Jan June (peak nitrate export)
- The *HAP recommends*
  - enhance hydrologic exchange and retention on floodplains
  - targeted wetlands restoration to reduce NPS nutrient loads



Nutrient Fate, Transport and Sources - Models

- Evaluation of models of basin-scale processes (SPARROW, SWAT, IBIS/THMB)
  - all capable of N & P load estimation at Basin scales
  - each has inherent strengths, limitations and value to informing decision-making
- The *HAP indicates* the need for
  - modeling flexibility & diversity of modeling approaches
  - use of new statistical techniques for error estimation
  - seamless linkage between the watershed & Gulf hypoxia models

Scientific Basis for Goals and Management Options

Are the Task Force goals supported by scientific knowledge and understanding of the hypoxic zone?

- The HAP discusses
  - The importance of adaptive management
  - Setting targets for nutrient reduction
  - Protecting water quality and social welfare in the Basin while reducing the areal extent of the Gulf hypoxic zone

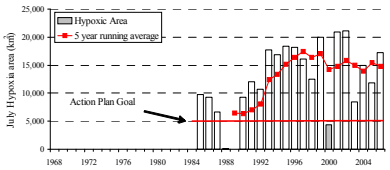
Adaptive Management

- "Adaptive management does not postpone actions until "enough" is known about a managed ecosystem, but rather is designed to support action in the face of the limitations of scientific knowledge and the complexities and stochastic behavior of large ecosystems"
- The *HAP recommends*
  - Conservation Practice management framework
  - Strategic conservation measures & approach to evaluate success of reaching goals
  - Enhanced monitoring at different temporal and spatial scales
  - Modeling and monitoring approaches addressing critical management questions

Setting targets for nutrient load reduction to achieve coastal goal

- The *HAP recommends*
  - 45% N load reduction goal
    - from modeling studies since 2000
    - < 3- to 5-fold increase in N load over the last 50 yr
  - 40% P load reduction goal
    - need for dual nutrient control
    - major PS P removal using best available technologies
    - reducing NPS P loads causing WQ impairments
    - Ongoing development of freshwater P criteria
- The *HAP indicates*
  - Reassess/revise N & P goals within adaptive management framework as new information becomes available
  - More important to move in a "directionally correct" fashion and learn from monitoring results, rather than delay action

Protection of water quality and social welfare in the basin



- The *HAP finds*
  - coastal goal appropriate for now
  - may need to be revised in the future
- Reducing hypoxic zone & enhancing Basin water quality are inextricably & positively linked
- Co-benefits of nutrient reduction
  - greenhouse gas mitigation
  - improved wildlife habitat & recreational opportunities
  - flood control & other ecosystem services
- Social benefits will likely exceed social cost over the long run, if not the short term, & thus enhance social welfare

Scientific Basis for Goals and Management Options

- The HAP discussed options for reducing nutrient flux in terms of cost, feasibility, and other social welfare conditions
  - The most effective agricultural practices
  - The most effective actions for other nonpoint sources
  - The most effective technologies for industrial & municipal point sources

Voluntary agreements to reduce N & P not likely adequate without economic incentives

Most Effective Agricultural Practices

- Optimal choices will likely include:
  - drainage water management,
  - conservation tillage,
  - manure management,
  - changing fertilizer application rates and timing,
  - crop rotation,
  - cover crops,
  - conservation buffers,
  - wetlands enhancement
- Watersheds with greatest potential for N and P reductions should be targeted for action to ensure cost-effectiveness
- Targeting allows optimization of cost and benefits.
- An array of economic incentives are recommended to encourage conservation

Most Effective Actions for Other Nonpoint Sources

Atmospheric deposition and urban/suburban storm water runoff are the two major non-agricultural NPS

- Tighter limits on sources of NOx emissions would assist hypoxia reduction and improve water quality.
- Incorporating water quality benefits into decisions involving:
  - Retirement or retrofitting of old coal-fired power plants,
  - NOx controls - extension of current summertime NOx standards to a year-round requirement,
  - Emissions standards & mileage requirements for SUV's, heavy trucks and buses.

Effective Technologies for Municipal and Industrial Point Sources

- Sewage treatment plants and industrial dischargers are more significant sources of N & P than originally identified
- The *HAP recommends*
  - Upgrade sewage treatment plants in MARB to Biologic Nutrient Removal (BNR) or Enhanced Nutrient Removal (ENR) technologies
  - MARB sewage treatment plants upgrade to achieve total N concentrations of 3 mg/L and total P concentrations of 0.3 mg/L.

Effective Technologies for Municipal and Industrial Point Sources

- For industries with high nutrient discharges
  - Use a targeted permit by permit approach.
  - Evaluate for opportunities to reduce N and P discharges through pollution prevention, process modification or treatment

Timeline SAB HAP Report & Opportunities for Public Input

- June 13-15: SAB HAP Meeting in New Orleans
  - Opportunity for public and Task Force comments
  - HAP begin revision of draft report
- July/August: HAP hosts public teleconference prior to completing the "consensus draft"
- Late August: Consensus Draft Review (SAB Website posting)
- September: Quality review by the Charter Board
  - Public teleconference of SAB Board Meeting
- October/early November: Final report revisions
  - Public meeting to finalize the report
- Early December: Final report transmitted to the EPA Administrator

Task Force Discussion

- Does the HAP preliminary draft report adequately respond to the charge?
- If not, what specific additional scientific advice does the Task Force want to request?

Attachment C

Experience of Coral Reef Task Force

Resolutions:

- Define the issue or problem and then set out a plan of action
- Are a mechanism to address priority concerns and emerging topics
- Provide opportunities to participate in emerging issues in an effective way to express opinion
- Are useful in a variety of contexts
- Are an effective way to express opinion
- Have been successfully implemented in other Task Force groups, including the U.S. Coral Reef Task Force

How Resolutions Could Assist Hypoxia TF

- Raises awareness
- Prevents adverse impact
- Assures that hypoxia is considered in emerging issues
- Prioritizes topics
- Compels action
- Maintains engagement

Proposed Hypoxia TF Resolutions

In February, the CC agreed that developing resolutions would be a viable way to present information on themes and make progress in the reassessment process

Proposed Resolutions:

- Wetland Loss and Water Diversions in Lower Basin
- Rapid Changes in Agriculture Driven by Bio-fuels Demand
- Need for a Federal Integrated Budget for hypoxia

Resolution in draft stage:

- Support of Farm Bill measures aimed at reducing nutrient losses in the MRB watershed

Next Steps

- We are now deep into the Reassessment process, encountering our greatest challenges
- We must consider, is the TF willing to adopt resolutions as the mechanism to move forward?