

**Task Force Coordinating Committee Nutrient Reduction Strategy Development:  
Virtual Workshop Topic 2:  
Setting Watershed Nutrient Load Reduction Goals  
2 February 2012**

**Workshop Summary**

**Introduction and Background**

The 2008 Mississippi River/Gulf of Mexico Nutrient Reduction Task Force's Hypoxia Action Plan calls for the development and implementation of State nutrient reduction strategies. Task Force States are currently actively working on the development and implementation of these nutrient reduction strategies. To assist the states in this effort, a series of workshops are being conducted to facilitate discussion among the States and federal partners on selected topics, ranging from watershed prioritization to annual reporting of progress.

**Virtual Workshop Series**

The purposes of the virtual workshops are to encourage information exchange among States and their federal partners on selected strategic elements in the State nutrient reduction strategies, promote comparability and consistency among State strategies within the Mississippi River Basin, and identify areas where Task Force members can assist and support partners in the development and implementation of these State nutrient reduction strategies.

The first virtual workshop was held on 5 January 2012 to discuss State approaches for prioritizing watersheds within the State. The virtual workshop reported here was held on 2 February 2012 to discuss State approaches to setting watershed nutrient load reduction goals. Additional monthly virtual workshops will be held on the topics listed below.

<b><u>Date</u></b>	<b><u>Topic</u></b>
March 1	Ensuring Effectiveness of Point Source Permits
April	Nutrient Reduction Efforts in Agricultural Areas
May	Storm Water and Septic Systems
June	Accountability/Verification Measures
July	Annual Public Reporting of Activities

Additional topics may be added as issues arise in future workshops.

**State Approaches To Setting Watershed Nutrient Load Reduction Goals**

Two States initiated the discussion by presenting their approaches for setting watershed nutrient load reduction goals. State presenters were Kay Whittington, MS DEQ, and Kevin Kirsch, WI DNR. Their Powerpoint presentations are attached.

Following these two presentations, each of the Task Force States discussed the approaches that their State had initiated or were considering initiating for setting watershed load reduction goals. These discussions were guided by the following set of questions:

1. How have you (States) established watershed nutrient load reduction goals? N & P?
2. What tools were used in establishing these watershed goals (SPARROW yields, TMDL targets)?
3. Were MRBI watersheds included in the watershed nutrient load reduction goals?
4. Which stakeholders were involved in setting watershed nutrient load reduction goals?
5. What barriers or challenges were faced in establishing watershed nutrient load reduction goals?

Approaches used by States for setting watershed nutrient load reduction goals are listed in Table 1. Some of the tools that were used to set these goals are also listed in Table 1. Issues, barriers, or challenges related not just to watershed load reduction goals, but also other nutrient reduction strategic elements, are listed in Table 2.

### Nutrient Load Reduction Goal Setting

There was general consensus that having phosphorus and/or nitrogen water quality criteria was the preferred approach for setting watershed nutrient load reduction goals. Most Task Force states, however, are in the process of establishing nutrient criteria, so the criteria are not currently available. In the absence of these criteria, TMDL nutrient load reduction targets were used as the goal by many states.

**Table 1. Nutrient load reduction goals and approaches used by Task Force States in setting watershed nutrient load reduction goals**

<b>N or P nutrient load reduction goals</b>
<ul style="list-style-type: none"> <li>● Phosphorus or nitrogen water quality criteria – preferred approach</li> <li>● TMDL load reduction targets</li> <li>● Nitrogen toxicity criterion for aquatic life (primarily NO<sub>3</sub>, NH<sub>4</sub> toxicity criteria currently exist)</li> <li>● Dissolved oxygen criteria attainment/Nutrient TMDL</li> </ul>
<b>Approaches used to determine nutrient load reduction goals</b>
<ul style="list-style-type: none"> <li>● SPARROW model yields</li> <li>● SWAT model simulations</li> <li>● BATHTUB simulations (primarily lakes and reservoirs)</li> <li>● Detailed statistical analysis of monitoring data (e.g., 25% quartile P and/or N concentration in extant data)</li> <li>● Load duration curves</li> <li>● Stressor – response relationships for nutrients and aquatic life</li> <li>● Large scale assimilation projects (i.e., wetland restoration/creation through freshwater diversions and nutrient assimilation in wetlands)</li> <li>● Nutrient reductions associated with water management practices</li> </ul>

Other states set goals based on the 25% percentile of extant data (as recommended by EPA<sup>1</sup>), nitrate-nitrogen toxicity criterion for aquatic life, and dissolved oxygen criterion for attainment of aquatic life designated use. Dissolved oxygen (DO) was used as a surrogate for nutrient issues by one state. If the DO criterion was attained, it was assumed that nutrients were not contributing to the production of excess oxygen-demanding organic matter. If the DO criterion were not attained, it was assumed that nutrients were one of the factors contributing to the production of excess oxygen-demanding organic matter and a nutrient TMDL would be conducted. The N and/or P TMDL target would represent the goal for nutrient load reduction.

Other approaches that were used by some States in setting nutrient load reduction goals included the use of models such as SPARROW, SWAT, and BATHTUB to evaluate and assess possible watershed nutrient load reductions and set associated goals. Other approaches also included different types of hydrologic and statistical analyses, such as load duration curves, stressor-response relationships, and detailed analysis of monitoring data.

In LA, large scale nutrient assimilation projects are being used both to reduce nutrients and set nutrient load reduction goals. Freshwater diversions are being used to introduce nutrient-laden water into freshwater marshes to restore degraded marsh and create new marsh. MS is also evaluating and assessing nutrient load reductions associated with water conservation practices in the Delta as part of their nutrient reduction strategies and quantification of nutrient goals.

### **Issues, Challenges, and Barriers**

A number of issues, challenges and barriers were identified during the open forum discussion (Table 2). Limited resources, including reductions in Section 319 program funds, were identified as a major issue. The issue is not just limited funds for implementing management practices. In many cases, 319 funds are not the primary source of funding for actual implementation. 319 funds provide a foundation for other nutrient reduction strategies, such as bringing partners together, organizing stakeholder meetings and outreach activities, leveraging collaborative efforts such as watershed characterization, quantifying nutrient load reduction goals, and monitoring, as well as paying for State staff. There is also insufficient monitoring associated with many nutrient reduction projects. The typical monitoring period for many 319 projects is 3-5 years. Lags in watershed response to management practices are typically on the order of 4 years or longer, so the actual effectiveness of many of these management practices is not being evaluated because the monitoring information is not available.

---

<sup>1</sup> EPA. 2000. Nutrient Criteria Technical Guidance Manual: Rivers and Streams EPA-822-B-00-002; July 2000

**Table 2. Issues, Challenges and Barriers Related to Setting Watershed Nutrient Load Reduction Goals**

<b>Issues, Challenges, and Barriers</b>
<ul style="list-style-type: none"> <li>• Reduction in Section 319 funds</li> <li>• Insufficient monitoring programs</li> <li>• Outreach and education efforts</li> <li>• Documented economic benefits for farmers from nutrient reduction</li> <li>• Incentives for behavioral change</li> <li>• Properly certified and trained personnel</li> <li>• Active watershed associations and volunteers</li> </ul>

Better documentation of the economic benefits of nutrient reduction to the farmer are needed. Nutrient load reduction can occur through input management and precision agriculture and reuse and recycling of nutrients in runoff, which decrease fertilizer cost to the farmer. Economic benefits can accrue through wildlife habitat creation by stimulating marsh or riparian uptake and removal and leasing these areas for hunting. Additional incentives are needed to help motivate behavioral change. One state also needed trained and certified personnel for outreach programs to farmers. Most states indicated that awareness, outreach, and education programs tied to nutrient load reduction practices are needed. Many states recognized the need and the benefits of having active watershed associations and volunteers for implementing nutrient reduction strategies.

**Possible Funding Sources**

A comment was made that the NRCS has requested 5% of EQIP funds be set aside for restoration of 303(d) listed streams in MRBI priority watersheds. This might be an additional source of funds for Task Force states.

**Next Steps**

Virtual workshop participants were asked to forward thoughts and comments to Aaron Kornbluth ([Kornbluth.Aaron@epa.gov](mailto:Kornbluth.Aaron@epa.gov)) on how these virtual workshops could be improved: 1) what you would like to revised, added, or deleted; and 2) what you like to see retained. Send these comments by 17 February.

The next virtual workshop will be on Thursday, 1 March 2012 from 10:00 until noon EST (9:00 – 11:00 am CST). The topic will be *Ensuring Effectiveness of Point Source Permits*. The workshop agenda and registration instructions will be forwarded at a later date.

**Action Items**

1. Send comments on the virtual workshop to A. Kornbluth – All Task Force States, 17 February.
2. Forward agenda and registration to Task Force participants – A. Kornbluth, 24 February
3. NRCS Set-aside funds for MRBI priority watersheds – All interested parties, see text for information.
4. Next Virtual Workshop, *Ensuring Effectiveness of Point Source Permits* – All, 1 March